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CASSELL'S

DOMESTIC DICTIONARY:

AN

Encyclopædia for the Household.

WITH ILLUSTRATIONS.

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H. W. CAVE, PRINTER.

PREFACE.

THE DOMESTIC DICTIONARY is the embodiment of a practical idea. It was projected for the purpose of occupying one of the vacant places in our family library, and to serve as an every-day book of real utility. Hitherto there has not been among the many books provided for the household any one which imparted selected knowledge on a scale sufficiently comprehensive to include all the ordinary, and some of the less ordinary wants of the domestic circle, without being either too cumbersome, too technical, too costly, or all three. The framers of this work have therefore provided a volume which aims at avoiding what may be called extraneous matters, and at including all that might reasonably be looked for in a book of reference for family use. It is called a dictionary, not only because it is arranged alphabetically, but because the articles are not offered as exhaustive treatises on the subjects handled, so much as clear, condensed, and accurate descriptions, definitions, and explanations.

The idea has been developed with a rigid regard to appropriateness in the selection of topics, and to fitness for popular use. The contents are, therefore, very miscellaneous and numerous, touching upon most of the chief departments of human knowledge, and excluding only those which have been deemed inappropriate.

The compilation of articles has been based upon careful calculation, in order that the work might be throughout on a uniform scale, and not less copious at the end than at the beginning. A common defect of popular dictionaries has in this way been avoided, and there is no falling off in completeness in the latter portions of the volume.

A statement of a few facts revealing the scope and plan of the work will interest the reader, and indicate the sort of information which is to be looked for. It was decided that every part of the house as a building should be enumerated and described, with its fittings and fixtures, and the materials used in its construction, or for its decoration and convenience. The furniture of the house was regarded from a similar point of view, and the contents of the various apartments are mentioned and described, with notices of the materials employed. What may be considered as either useful or ornamental additions to the ordinary furniture have been dealt with in the same way.

The various departments of work in a house have received special attention. Servants, both male and female, have been introduced under their proper designations, and care has been taken to exhibit a summary of their respective duties, privileges, rights, and responsibilities.

The permanent members of the family have been remembered, and detailed information has been supplied as to their legal relations in a variety of aspects. Not only so, the accidents and ailments to which individuals are liable have been particularly attended to, and hence much valuable advice is given on such subjects as nursing, household surgery, and medicine, and also concerning drugs and manifold appliances connected therewith. Such matters as rates and taxes, local

and political rights, rank, station, and etiquette, are represented by a large number of articles.

The principal kinds of food and drink for daily or occasional use have been introduced and treated in view of the substances employed, their combinations, adulterations, sources, preparation, and dietetic value. Articles of wearing apparel and personal ornament occupy considerable space, and accounts are given of the materials of which they consist, as well as of their forms and uses. Along with these may be mentioned the information concerning cosmetics and perfumes, bathing, and a host of other topics belonging to the care of the person, from all points of view.

Such lighter matters as pastimes, games, toys, and other amusements have received attention; and so have those recreations which may be accounted intellectual, artistic, exercises of skill, or indications of refined taste. In this department youth and adults have alike been thought of; and ladies especially will find information about fancy work and everything they need to occupy them pleasantly and rationally, and to make home cheerful as well as beautiful.

In this reading age it constantly happens that words and phrases occur which require explanation. We may especially mention titles, legal phrases, technical terms, and the like, from all sorts of sources. A selection of these has been made and explained, and much trouble may be saved by referring to them. The list might have been made greatly more extensive, but enough has been done to meet ordinary requirements.

Matters of business have not been lost sight of, and an effort has been made to supply hints and information on all such topics of the kind as are likely to instruct and interest a private family. As a natural consequence, questions relating to money matters have been touched upon and dealt with in a simple and practical style.

It is, however, impossible here to mention all the departments of useful knowledge which are more or less fully represented in this work. The separate articles amount to several thousands, and wherever it seemed to be desirable cross references have been given. The task of preparing the articles has been allotted to various writers, who have been chosen for their acquaintance with special departments, and who have steadily laboured to accomplish a difficult work in such a way as to give general satisfaction.

The numerous illustrations have been systematically selected, to aid in the better understanding of the subjects represented.

The Domestic Dictionary is submitted to the public with the assurance that it contains a mass of trustworthy and useful information suitable for family purposes, and in a form which pre-eminently fits it for being a "guide, philosopher, and friend" in every English-speaking household.

CASSELL'S

DOMESTIC DICTIONARY.

Abatement (Heraldic). (*See* BÂTON-SINISTER.)

Abatement (in Commerce).—An amount deducted or withdrawn from an account, in consideration either of the prompt payment or of some disagreement or misunderstanding as to the price agreed upon between buyer and seller. The term is specially used of the allowance of some fixed sum or item in dispute, although it is also often held as synonymous with discount, from which it is really distinct. Thus, for example, a customer is settling an account with a tradesman, amounting to, say, £3 2s. 3d.; the tradesman might abate the odd shillings and pence, although he is not understood to allow a regular discount. Or, again, an abatement of so much in the pound on the price of goods might be made to a customer, in consideration of some alleged inferiority in the quality of the articles supplied. In a certain sense the abatement might take the form of discount—*i.e.*, an allowance of so much per cent. on settlement of an account. (*See* DISCOUNT.)

Abatement (in Law).—Literally, a partial cessation. In legal proceedings the word is employed to signify that for some reason they have become abortive, and cannot farther be prosecuted. Provisions against abatement of actions by the marriage, death, or bankruptcy of any of the parties are contained in the rules promulgated under the authority of the Judicature Act, 1875. The term is also used of the entry of a stranger into a freehold after the death of the tenant before the heir or person to whom it is bequeathed. Provision for this is made in 3 & 4 Will. IV. *Plea of abatement* is pleaded to a declaration, writ, &c., on account of some defect in form.

Abattoir.—A public slaughter-house for cattle, to supersede the inconvenience and nuisance of each butcher killing at his own place of business. The system, as the name implies, is borrowed from the French, and is being gradually introduced into this country. Abattoirs now form part of the Metropolitan Cattle Market, which was opened on June 13, 1855, when the site was moved from Smithfield. Paris had five such buildings in 1818, which were erected by command of the Emperor Napoleon; and Edinburgh could also boast one four years before the date on which the first was opened in London.

Abbreviations.—When a word is not written at full length it is an abbreviation. The use of such shortened forms often saves both time and trouble, and is therefore very convenient in a great many cases, especially in denoting the titles and distinctions of persons. The following are among the more important abbreviations which are accepted among ourselves:—

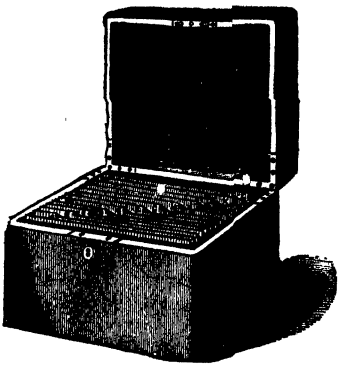
A.B. (*Artium Baccalaureus*).—Bachelor of Arts.
Abp.—Archbishop.
A.C. (*Ante Christum*).—Before Christ.
A.D. (*Anno Domini*).—In the year of our Lord.
A.D.C.—Aide-de-Camp.
Adjt.—Adjutant.
Ad lib. (*Ad libitum*).—At pleasure.
Adm.—Admiral.
Admr.—Administrator.
Ald.—Alderman.
A.M. (*Artium Magister*), Master of Arts; (*Anno Mundi*), In the year of the world; (*Ante meridiem*), Before noon.
App.—Appendix.
A.R.A.—Associate of the Royal Academy.
A.R.S.A.—Associate of the Royal Scottish Academy.
A.R.S.L.—Association of the Royal Society of Literature.
Art.—Article.
A.V.—Authorised Version.
Avoir.—Avoirdupois.
B.A.—Bachelor of Arts.
Bal.—Balance.
Bart.—Baronet.
B.C.—Before Christ.
B.C.L.—Bachelor of Civil Law.
B.D.—Bachelor of Divinity.
B.L. or B.LL.—Bachelor of Laws.
B.M.—Bachelor of Medicine.
Bp.—Bishop.
B.Sc.—Bachelor of Science.
B.S.L.—Botanical Society, London.
B.V.M.—Blessed Virgin Mary.
Cap. (*Caput*).—Chapter.
Capt. or Captn.—Captain.
C.B.—Companion of the Bath.
C.C.P.—Court of Common Pleas.
C.E.—Civil Engineer.
Cent. (*Centum*).—A hundred.
Cf. (*Confer*).—Compare.
C.G.—Captain of the Guard; Commissary General; Consul General; Coast Guard.
C.H.—Custom House.
Ch.—Church.
Chap.—Chapter.
C.J.—Chief Justice.
Clk.—Clerk.
C.M.—Common Metre.
C.M.G.—Companion of the order of St. Michael and St. George.
Co.—Company.
Col.—Colonel.
Com.—Commissioner; Commodore.
Cor. Mem.—Corresponding Member.
Cor. Sec.—Corresponding Secretary.
C.P.—Common Pleas; Clerk of the Peace.
C.P.C.—Clerk of the Privy Council.
C.P.S. (*Custos Privati Sigilli*).—Keeper of the Privy Seal.

Cr.—Credit; Creditor.
C.S.—Clerk to the Signet.
C.S.I.—Companion of the Star of India.
Ct. (*Centum*).—A hundred.
Cwt.—A hundred-weight.
D. or d.—A Penny; Pence.
D.—Duke, Duchess.
D.C. (*Da Capo*).—Repeat.
D.C.L.—Doctor of Civil Law.
D.D.—Doctor of Divinity.
D.G. (*Dei Gratia*).—By the Grace of God.
D.L.—Deputy Lieutenant.
D.L.O.—Dead-letter Office.
Do. (*ditto*).—As before.
Dr.—Doctor.
D.Sc.—Doctor of Science.
D.V. (*Deo volente*).—God willing.
Dwt.—Pennyweight.
E.—Earl; East.
E.I.C.—East India Company.
Esq.—Esquire.
Etc. or &c. (*et cætera*).—And so forth.
Exr.—Executor.
F.A.S.—Fellow of the Society of Arts; Fellow of the Antiquarian Society.
F.D. (*Fidei Defensor*, or *Defensatrix*).—Defender of the Faith.
F.G.S.—Fellow of the Geological Society.
F.H.S.—Fellow of the Horticultural Society.
F.L.S.—Fellow of the Linnæan Society.
F.M.—Field-Marshal.
F.O.—Field Officer.
Fo.—Folio.
F.P.S.—Fellow of the Philological Society.
F.R.A.S.—Fellow of the Royal Astronomical Society.
F.R.C.S.—Fellow of the Royal College of Surgeons.
F.R.G.S.—Fellow of the Royal Geographical Society.
F.R.S.—Fellow of the Royal Society.
F.S.A.—Fellow of the Society of Antiquaries.
F.Z.S.—Fellow of the Zoological Society.
G.C.B.—Grand Cross of the Bath.
G.C.H.—Grand Cross of Hanover.
G.C.M.G.—Grand Cross of the order of St. Michael and St. George.
Gen.—General.
Gent.—Gentleman.
G.O.—General order.
G.P.O.—General Post Office.
H.E.I.C.—Honourable East India Company.
Hhd.—Hogshead.
H.I.H.—His (or Her) Imperial Highness.
H.M.S.—Her Majesty's Ship, or Service.
Hon.—Honourable.
H.R.H.—His (or Her) Royal Highness.
Ib or Ibid. (*Ibidem*).—In the same place.
Id. (*Idem*).—The same.
i.e. (*id est*).—That is.
Imp.—Imperial; Imperative.
I.N.R.I. (*Jesus Nazarenus Rex Judæorum*).—Jesus of Nazareth King of the Jews.
Inst.—Instant; the present month.
J.C.—Jesus Christ.
J.P.—Justice of the Peace.
K.B.—Knight Bachelor.
K.C.B.—Knight Commander of the Bath.
K.C.M.G.—Knight Commander of St. Michael and St. George.
K.C.S.I.—Knight Commander of the Star of India.
K.G.—Knight of the Garter.
K.G.C.S.I.—Knight Grand Cross of the Star of India.
Knt. or Kt.—Knight.
K.P.—Knight of St. Patrick.
K.T.—Knight of the Thistle.
L. or £.—A pound sterling.
Lb. or lb.—A pound weight.
L.C.J.—Lord Chief Justice.
Lieut. or *Lt.*—Lieutenant.
LL.B. (*Legum Baccalaureus*).—Bachelor of Laws.
LL.D. (*Legum Doctor*).—Doctor of Laws.
LL.M. (*Legum Magister*).—Master of Laws.
L.P.S.—Lord Privy Seal.
L.S.D.—Pounds, shillings, and pence.
L.M.—Long Metre.
M.A.—Master of Arts.
Maj.—Major.
M.B.—Bachelor of Medicine.
M.D.—Doctor of Medicine.
Mem.—Memorandum.
Min.—Minor.
M.P.—*Member of Parliament.*
M.R.A.S.—Member of the Royal Asiatic Society.
M.R.C.P.—Member of the Royal College of Preceptors.
M.R.C.S.—Member of the Royal College of Surgeons.
M.R.I.A.—Member of the Royal Irish Academy.
M.R.S.L.—Member of the Royal Society of Literature.
MS.—Manuscript. MSS., Manuscripts.
Mus.B.—Bachelor of Music.
Mus.D.—Doctor of Music.
N.B. (*Nota Bene*).—Take notice. North Britain.
N.S.—New Style.
N.T.—New Testament.
O.S.—Old Style.
Oz.—An ounce.
P.C.—Police Constable.
Ph.D.—Doctor of Philosophy.
P.M. (*Post meridiem*).—Afternoon. Peculiar Metre.
P.M.G.—Postmaster-General.
P.O.—Post-office.
P.O.O.—Post-office Order.
P.P.C. (*Pour'prendre congé*).—To say good bye.
Prof.—Professor.
Pro Tem.—Temporarily.
Prox. (*Proximo*).—Next month.
P.S.—Postscript.
Q.C.—Queen's College; Queen's Counsel.
Q.d. (*Quasi dicat*).—As if he said.
Q.E.D. (*Quod erat demonstrandum*).—Which was to be demonstrated.
Q.M.—Quartermaster.
Qr.—Quarter.
Qu. or Qy.—Query.
Q.v. (*Quod vide*).—Which see.
R.A.—Royal Academy; Royal Artillery.
R.E.—Royal Engineers.
Rev.—Reverend.
R.F.—Rifle Volunteers.
R.H.A.—Royal Horse Artillery.
R.N.—Royal Navy.
R.S.A.—Royal Society of Antiquarics.
R.S.D.—Royal Society of Dublin.
R.S.E.—Royal Society of Edinburgh.
R.S.L.—Royal Society of London.
R.S.O.—Railway Sub-office.
R.S.V.P. (*Répondez s'il vous plait*).—Answer if you please.
Rt.—Right, *e.g.*, "*Rt. Hon.*," Right Honourable.
s.—A shilling.
S.C.L.—Student of Civil Law.
Sept.—Septuagint.
Seqq. (*Sequentia*).—What follows.
Serjt.—Serjeant.
S.J.—Society of Jesus.
S.L.—Sergeant-at-Law.
S.M.—Sergeant-Major; Short Metre.
S.P. (*Sine prole*).—Without children.
St.—Saint; Street.
Supp.—Supplement.
Supt.—Superintendent.
Syn.—Synonym.
T.O.—Turn over.
Tr.—Translator; Treasurer.
Ult. (*Ultimo*).—Last month.
V. or Vid. (*Vide*).—See.
V.C.—Victoria Cross.
V.D.M. (*Verbi Dei Minister*).—Minister of God's Word.
Viz. (*Videlicet*).—Namely.
W.S.—Writer to the Signet.
Wt.—Weight.
Xmas.—Christmas.
Xt.—Christ.
Yd.—Yard.
Y^e.—The.
Y^r.—Your.
Y^t.—That.

Abbwool.—In weaving the word *abb* is used for the yarn employed for the warp. When this yarn is of wool, it is called abbwool.

A B C. Despatch Box, The.—This is a patented invention now extensively used by all who like to keep their packets compact and orderly and arranged for easy and immediate reference. It is a despatch box divided into sliding partitions, which are alphabetically divided. The slides move forward or backward, to increase or decrease the four-and-twenty

alphabetical spaces between at will, and serve very effectively in holding papers which are apt to increase irregularly in number or bulk under one or the other letter.



A B C. DESPATCH BOX.

Abdication.—A repudiation or relinquishment of office or authority before the natural termination thereof. The term is applicable more particularly to the act of a sovereign or emperor.

Abdomen (derived from the word *abdere*, to conceal).—It is that large internal part of the body situated below the chest. It is separated from the cavity of the chest by the diaphragm or midriff. Its importance may be gathered from the number of important organs it contains, such as the stomach, the liver, the spleen, the bowels, the kidneys, the bladder, &c. The lower part of the abdomen is called the pelvis. The abdomen is lined throughout by a smooth, moistened membrane, called the peritoneum, which permits the bowels and other organs to glide freely and painlessly in relation to each other. The abdomen constitutes one of the three great cavities of the body, of which the other two are the head and the chest.

Abdominal Belt.—This is a form of belt or bandage meant to give support to the abdomen. It is made of materials more or less elastic. It should be light and cool, and the support which it gives should be general. Any *narrow* belt or cord round the abdomen is likely to be injurious. Such belts are chiefly used by women who have had children, and in whom the abdominal walls have been weakened and relaxed by over-stretching. By men they are not so much used as formerly, and indeed are not called for or to be commended in their case. (*See* TRUSS.)

Abduction.—Literally, the act of enticing or drawing away. The state of being drawn away has in law the special signification of taking away a wife, child, or ward, either by deception, enticement, or violence. This constitutes in some cases a misdemeanour only, punishable by imprisonment; in others a felony, punishable by imprisonment, or, in certain cases, by penal servitude. The crime of abduction is defined, and the penalties consequent upon it are detailed, in Act 24 & 25 Vict. c. 100.

Abernethy Biscuits.—These popular biscuits are compounded of fine flour, milk, and caraway-seeds. They do not owe their name to Mr. Abernethy, the well-known surgeon, but to a Scottish town of the same name, where, it is said, they were first made.

Abernethy Medicines are medicines such as Mr. Abernethy used. He taught that local diseases arise from disorder of the constitution, and that the principal source of this disorder was some faulty action of the stomach and bowels, which could only be cured by medicines acting on these organs. Of these medicines the most popular are the well-known blue pill at night, followed by a black draught in the morning.

Aberration, Mental. (*See* INSANITY.)

Abeyance denotes that a particular course of action is as yet undetermined, or a particular event is awaiting fulfilment. In legal signification it implies that the possession of an estate or right is in suspense or temporary extinction, until the owner is apparent or the right determined; and it is applicable to an estate, of whatever tenure; to a title of honour; to a dignity; to a parsonage, &c. As regards a title of honour in abeyance, the Queen has, by her prerogative, a special power of granting the same to a female descendant on failure of male issue.

Abjuration.—The act of abjuring, or solemn renunciation of traitorous or evil designs. The legal signification of the term is now comparatively obsolete. The oath of abjuration, imposed by 13 Will. III. c. 6, and other Statutes, was superseded by the oaths of allegiance and supremacy under 21 & 22 Vict. c. 48.

Ablactation.—Ablactation used to be a gardener's word applied to a species of grafting now known as *grafting by approach*. It is a method of ingrafting by which the scion of one tree being for some time united to the stock of another, is afterwards cut off, and as it were weaned from the parent tree. The word is derived from the Latin *ablactatio*, from *ablacto*, I wean.

Ablution (from Latin *ab*, *luo*, to wash away) refers to washing and cleansing processes, especially to all modes of keeping the person clean. This is one respect in which great progress has been made of late years. Personal cleanliness is very much on the increase. The number of those who take a morning bath in one form or another is very large. It is the duty of everybody to do so. The delight of children in their morning bath is a lesson to older people; and a little consideration of the facts about the skin as a great excreting organ that is always throwing off more or less injurious and offensive discharges, will show how reasonable it is to keep it fresh and clean. It is not only that the cleansing of the skin helps to keep its pores open, and so to favour the elimination of various impurities from the body, but the use of baths, more or less cold, gives tone and briskness to the circulation of the blood on the surface of the body, and tends to overcome and prevent any tendency

to congestion in internal parts. The temperature of the water and the form of the bath should vary for different people. But in one form or other every person should, as a matter of health, comfort, and cleanliness, spend the best part of an hour every morning in personal ablution. One of the best modes of thorough ablution is the Turkish bath, though this is only to be used occasionally, and is not suitable for every constitution. (*See* BATH, BATHING, TURKISH BATH, WASHING.)

Abnormal, Abnormous.—Irregular; without or contrary to recognised rule or system. Almost equivalent to our idiomatic phrase, "out of the common." The term is very commonly used in connection with growth, as when we speak of the abnormal growth of a plant or a limb, or metaphorically, as growth of population.

Abrasion (from *ab*, *rado*, to rub off) signifies generally the rubbing off of skin. The true skin is a structure exquisitely sensitive, full of nerves and fine blood-vessels, altogether unfit for exposure. Hence it is covered by a layer of upper or outer skin, called *epidermis*, which is not sensitive. The removal of this layer constitutes abrasion, and leaves the true skin exposed. What is true of the skin is also true of the mucous membrane, which begins at the mouth and nose and lines the interior of the body. It, too, is covered by epithelium, or epidermis, the removal of which leaves a sensitive surface. When abrasion happens nature immediately sets about repairing the injured part, which meantime should be protected from all irritation. It is generally much comforted by being covered with a moist, warm dressing, such as a bread-poultice, or lint dipped in warm water or gold-beater's skin. Common adhesive plaster should never be applied in such cases, as it has a tendency to irritate the affected part rather than to heal it.

Abscess.—This word signifies a collection of matter, or, as it is called by doctors, *pus*, more or less shut in. It may be large or small—a purely local thing, or one dependent on some general or constitutional state. In popular language an abscess means a large collection of matter. If matter is not shut in it does not constitute an abscess. In the great majority of cases it is circumscribed, and its diffusion among the tissues of the body prevented by a hard ring of semi-solid material, which gradually disappears after the matter has been discharged. Large abscesses require to be carefully treated. The mode of treatment is to promote suppuration, which is done by means of poultices or fomentations. Should the effect by these be slow, it may be necessary to hasten the suppuration by the use of the lancet; but this should only be done by a medical man. (*See* BOILS.)

Abscond (literally, to depart or withdraw oneself in a private manner from one's ordinary residence or place of business) is used in a special sense in bankruptcy proceedings to denote the "going abroad or quitting his place of residence with a view of avoiding Service of the Petition, or of avoiding appearing thereto, or of avoiding examination in respect of his affairs, or otherwise delaying or embarrassing the proceedings."

Absinthe is a liqueur made from wormwood and other kindred plants, especially southernwood. It is an exceedingly bitter drink, and its effects upon the constitution are very pernicious when taken habitually or in excess. Its abuse in France has produced such bad results that the authorities have issued regulations against its use in the army and navy. The best kind is made in Switzerland, and that country alone sends more than 2,000,000 gallons yearly into France. The wormwood plant can be made into a very useful decoction (*see* WORMWOOD), and it is greatly to be regretted that it has been perverted to the production of this liqueur, which exercises so baneful an influence over so many persons. Absinthe drinking is very common on the boulevards of Paris, where it is taken not only neat, as a liqueur, but with water, as spirits such as brandy and whisky are commonly drunk.

Absorbents.—The absorbents were a class of internal remedies used by the older physicians, supposed to have the quality of removing offensive secretions. They were nearly all alkaline remedies, such as chalk, magnesia, &c., and acted really as such, that is, chemically. In this way they relieved acidity, diarrhœa, and other such complaints. The word, in this sense, is now very little used. A few external absorbents are used in cases of moist and oozing eruptions like eczema, such as oxide of zinc—a drachm mixed with a pint of water, in form of a lotion; or in other cases, Fuller's earth and water. In anatomy the word *absorbents*, or lymphatics, is applied to a set of vessels in all parts of the bodies of vertebrated animals, including man, distinct from blood-vessels, and which converge to a great trunk in the belly, the thoracic duct, which empties itself into the veins. They convey what is called lymph, which very much resembles blood, without red colour, and goes to make blood.

Absorption (*see* ABSORBENTS).—Beyond its medical signification, as given in the previous paragraph, the word has several specific applications in different branches of science. Many porous bodies have great power of absorbing gases and liquids. Fresh charcoal will absorb an immense bulk of ammonia or carbonic acid gas; water absorbs a limited quantity of atmospheric air, and a much larger quantity of carbonic acid gas. Plants and animals derive a great portion of their support through the liquids they absorb. The human skin will absorb even such bodies as mercury and lead compounds, the constant manipulation of which is thus injurious to health on account of their poisonous nature. In physiology absorption is also applied to the removal through the system of exhausted matter, as well as to the taking up of what is wanted for building up the body. Light loses a portion of its intensity in passing through any medium, however transparent it may appear to be—air

and water, for instance—and hence the light is said to be absorbed by it.

Abstainers, Total. (*See* TEETOTALLERS.)

Abstergents (from the Latin *abstergeo*, to cleanse, or wipe) is applied to remedies or lotions supposed to have a cleansing property. Though cleanliness is more than ever prized in medicine and surgery, the use of abstergents as such is very limited, if we except the various kinds and forms of soap, which is the great abstergent now in use, and more in use than in any previous time.

Abstinence.—This word commonly denotes the voluntary refraining from the use of things lawful or optional. The term is chiefly used in reference to asceticism, fasting, and temperance, or teetotalism, the articles upon which subjects should be consulted. Abstinence forms a very important item of modern medical practice in relation to diet, and the practice of it in one form or another is constantly prescribed. It is found that certain kinds of food and drink, and that sundry occupations are injurious to health, happiness, and life, and in all such cases abstinence is recommended by wise advisers. On the other hand it may appear that abstinence from particular foods and beverages, or appropriate medical comforts, is the cause of sickness, pain, wretchedness, and even death. These facts justify the extreme importance which attaches to the whole subject. (*See* DIET, REGIMEN.)

Abstract of Title.—After a contract for sale and purchase of freehold, copyhold, or leasehold property has been concluded, the first proceeding which takes place is the preparation and delivery by the vendor's solicitor to the purchaser's solicitor of an "Abstract of Title," which is an epitome of the several deeds, documents, and facts evidencing the vendor's title to the property sold. By 22 & 23 Vict. c. 35, sect. 24, the wilful concealment of any document, or the falsification thereof, is made a misdemeanour. It is usual to limit the commencement or root of the title, in order to save expense. Generally speaking, and in the absence of special conditions to the contrary, a forty years' title can be required by the purchaser of a freehold or copyhold property. This length of title has been recently substituted by Statute for that of sixty years, which was previously necessary.

Abuttals.—The boundaries of land, as shown by its description, in regard to adjoining lands. In conveyancing it is most important to distinguish accurately the land dealt with, and its abuttals are a very material element in the description. In indictments, too, under the criminal law an accurate description (often best given by abuttals) is most important, and for want of it the proceedings would be liable to failure.

Abyssinian Gold, or Talmi gold, is a yellow metal which consists of about eleven parts of zinc and eight parts of copper, and which is covered with a thin sheet of gold. The amount of gold used is about one per cent. of the whole. Abyssinian gold has latterly been used in the manufacture of cheap jewellery. It has a bright appearance, and this, together with its cheapness, will in all probability cause it to be much used, although, owing to the small quantity of real gold which it contains, it is by no means durable.

Acacia, Gum.—Many of the acacias are of great importance in an economical point of view, through their yielding gum arabic and other gums known in commerce. The species from which the gum is mostly taken is the *Acacia Arabica*, which is one of the Mimosæ; it is a greenhouse plant in this country, and is not to be confounded with the subject of the next paragraph. (*See* GUM).

Acacia or Locust Tree.—This tree, the correct name of which is *Robinia Pseudo-Acacia*, is a native of North America, where three varieties are common—the red, green, and white, so called from the colour of the heart wood. When the soil and situation are good, the acacia tree attains the height of seventy or eighty feet, and varies from two to four feet in diameter. It seldom grows straight to any considerable height, therefore is not so useful as many other trees; the branches are armed with long hooked spines; the leaves close up at night, and are remarkable for their smoothness. The acacia has been extensively cultivated in England, and has been freely planted in St. James's Park. It forms a handsome feature in a shrubbery, especially in the month of June, when it is covered with its masses of white sweet-scented blossoms. The growth of the acacia tree in a good sandy loam is very rapid; it attains maturity in about forty years. It is



LEAVES AND FLOWERS OF THE ACACIA TREE.

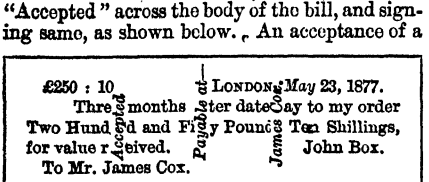
very hard, and therefore useful in ship building; in many instances it is used instead of iron bolts. The moisture dripping from its leaves is less injurious to plants below than from many others, yet the roots not penetrating deep into the ground have a tendency to draw the moisture from the soil above, and thus exhausts its goodness. There are several other varieties grown, one a dwarf kind with rich rose-coloured blossoms.

Academy.—This word is chiefly used to denote—(1) an upper or superior school for young gentlemen; (2) an association of persons whose object is to encourage the fine arts, as music, painting, or sculpture, as, *e.g.*, the Royal Academy. The famous French Academy

includes persons who have a great reputation for their literary productions.

Acarus. (*See* MITE.)

Acceptance.—An assent, or undertaking to perform an act or comply with certain proposals—binding on the party assenting. In legal and mercantile signification the term is usually applied to the ordinary engagement to pay a bill of exchange according to its tenor. This is evidenced by the drawee (or person on whom the bill is drawn) writing the word "Accepted" across the body of the bill, and signing same, as shown below. An acceptance of a


£250 : 10 at LONDON, *May* 23, 1877.
Three months after date Pay to my order
Two Hundred and Fifty Pounds Ten Shillings,
for value received. John Box.
To Mr. James Cox.
Accepted
Payable at
James Cox

bill may be either *absolute*, *qualified*, or *partial*. The above is an instance of absolute acceptance. A qualified acceptance is where the bill is accepted subject to a certain contingency, and the acceptor is not liable till the contingency has happened. A partial acceptance is where the drawee accepts for a less amount than the bill is drawn for—as to pay £100 instead of £150. By 19 & 20 Vict. c. 97, in all cases of acceptance of bills, a writing, signed by the drawee, or some one authorised by him in that behalf on the bill itself, is indispensable. (*See* BILLS OF EXCHANGE.)

Accessories (Toilet). (*See* BRUSHES, COMBS, FLESH GLOVES, HAIR WASH, POMADES, SOAPS, SPONGES, TOOTH POWDERS.)

Accessory.—One who aids or abets another. It is more particularly applicable to crimes, and by our criminal law an accessory may be either before or after the fact. An accessory before the fact is one who, not being present, procures or counsels another to commit a crime. In all cases of felony by 24 & 25 Vict. c. 94, an accessory before the fact is liable to be indicted, tried, committed, and punished in all respects as if he were a principal. An accessory after the fact is where any one with knowledge of the crime committed receives or aids the criminal. It is considered a less heinous offence than the former; but any assistance rendered with the view of avoiding arrest or punishment of the principal or his escape, renders one an accessory after the fact. An accessory after the fact is in general punishable with imprisonment for any term not exceeding two years (with or without hard labour), and may also be required to find security to keep the peace, or, in default, to suffer an additional imprisonment to the extent of one year (24 & 25 Vict. c. 94, sect. 4). A married woman, however, receiving or assisting her husband after the commission of a crime would not be considered an accessory. In high treason, murder, simple larceny, and all crimes under the degree of felony, there are no accessories, but all are principals.

Accident (in Law).—Literally, an unforeseen event—*i.e.*, one not attributable to the misconduct or neglect of any party. This has always been a peculiar subject of relief in the Court of Chancery, as in the defective execution of powers, mistaken payments, &c. Where, however, there is any negligence shown in providing against the event, the court will not interfere.

Accidental Poisoning.—Some account of the action of the poisons that are most commonly taken accidentally will be found under the head of these poisons. (*See* ARSENIC, LAUDANUM, OPIUM, &c.) Much more care has been taken of late years by chemists to prevent accidents of this kind, and, indeed, they have been compelled by law to sell poisons under great restrictions. But all householders should take care to keep poisons separate from other things, in coloured bottles, and in out-of-the-way places. It would be a very narrow and imperfect view, however, to think that accidental poisoning only occurs when a wrong drug is taken. There are many forms of *poisoning* to be guarded against, and which are more common than poisoning by drugs, such as lead poisoning, from drinking water kept in leaden cisterns, or beer so kept; poisoning by copper, from the use of copper vessels; blood poisoning; drain poisoning, &c. (*which see*). Commonest of all are the morbific poisons attaching to cases of scarlet fever, small-pox, measles, &c., the conveyance of which from person to person gives rise to those great epidemics which constitute such a disgraceful feature of our advanced civilisation. Many people who would not allow a bottle of prussic acid in their house take no precautions against drain poisons, or the poison of small-pox.

Accidents.—The principal varieties of accidental injuries which accrue to the body in unexpected ways and from unexpected causes will be treated under their separate heads—BURNS, FRACTURES, WOUNDS, &c. It is impossible to ensure ourselves under any circumstances against accidents, and thus we should always be prepared for such contingencies, with our minds made up as to how we should act in emergency. The qualities most necessary in the case of an accident are presence of mind, firmness of resolution, and promptitude. Accidents are always sudden, and very often much pain and suffering may be avoided, and even life be saved, by a prompt application of a remedy. At the same time it should always be remembered that nine of every ten accidents that happen might be avoided by the exercise of the most ordinary prudence and discretion.

Accommodation Bills.—Where two or more persons being desirous of a loan join in a promissory note or bill of exchange, on which some other person advances money, they are then said to give him an accommodation bill. (*See* BILLS OF EXCHANGE.)

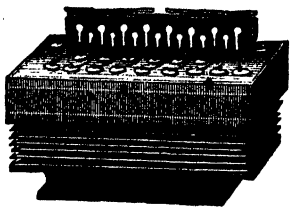
Accomplice. (*See* ACCESSORY.)

Accomplishments. (*See* DANCING, DRAWING, MUSIC, PAINTING, SINGING.)

Accord and Satisfaction.—A special defence in law, denoting that satisfaction has been made by defendant and accepted (or ac-

corded) by plaintiff. An accord and satisfaction obtained by fraud may be set aside in Equity.

Accordion.—This is a musical instrument, invented in Germany, which produces its tones by means of several tongues of metal put in vibration by the action of bellows. Each key on the instrument has a metallic tongue underneath it fixed in a groove. When a key is



ACCORDION.

pressed, the action of the bellows on being drawn out or pressed in produces the required note or sound, caused by the passage of the air over the tongue. The shape of the accordion is not unlike that of a book. The French accordion is played on by the right hand, the left working the bellows. The German accordion employs the hands just in the reverse order. This is in consequence of the lower notes of the two instruments beginning at different ends. The accordion is easily played upon, and its notes are sweet and distinct in articulation. It is well adapted for sacred music from its power of swelling and sustaining its notes. Accordion music, however, it must be confessed, is a little monotonous. The concertina and harmonium are superior instruments constructed on the same principle as the accordion. (*See* ORGAN-ACCORDION, CONCERTINA.)

Accost. (*See* RECOGNITION.)

Accoucheur.—A medical practitioner who applies himself, though not exclusively, to attendance on obstetric cases. In general, this practitioner is the family attendant of those whom he attends as an *accoucheur*.

Accoucheuse.—A midwife, or woman who attends women in the time of their giving birth to children. Any woman, as the law stands at present, may act as midwife, however ignorant, and the consequences are often serious. It is most desirable that there should be some legislative enactment that would require midwives to be registered, and in order to be registered to be educated for their work. This is almost the only country in Europe where this important branch of practice is left to unauthorised persons.

Account Books.—For the ordinary cash accounts of a family, one of the Housekeeper's Account Books, or Housekeeper's Diaries (published annually), will be invaluable. For special purposes, as for washing, banking, &c., other books are desirable, and must be provided. In large establishments it may be almost necessary to have the books employed in book-keeping by single entry—viz., a cash-book, a day-book, and a ledger. In all cases it will be useful to have at hand a diary, in which to jot down all money matters as they occur, to be transferred to their proper places at the close of the day, or at least every week.

Accounts.—As in ordinary business, so in personal and family transactions, accounts should be regularly kept of monetary matters. These accounts should include cash received and expended, as well as records of all debts and liabilities, loans and losses. It is desirable to enter all these things daily as they occur in their proper places, and to cast up the items at regular intervals. One excellent plan in connection with household and personal accounts is to enter in a diary beforehand payments which will have to be made for rent, rates and taxes, insurance, wages, &c. For all practical purposes very little skill in book-keeping will be needed, and books specially prepared can easily be obtained. (*See* ACCOUNT BOOKS.)

Ace.—A single point or figure marked on a die or card. For instance, the card called the ace of spades is that whereon a single spade is impressed.

Acerbity.—The harshness of taste which characterises some kinds of fruits and drinks when they are sour in combination with a certain bitterness and astringency. The same word is applied to severity and harshness of temper, and the bitterness of pain.

Acetate of Ammonia Lotion is made by taking of solution of acetate of ammonia, one ounce; rectified spirit, two ounces; water, eight ounces, and mixing. It is used as a cooling lotion. Rags dipped in it and applied to an inflamed part, cool it by evaporation. It is especially useful as an application to the head in inflammation of the brain, and in bruises.

Acetate of Lead, Potassium, &c.—The acetates are compounds of acetic acid with other elements. Many of them are extensively used in manufacture. The following are of the greatest commercial importance:—

Acetate of Lead, sometimes called sugar of lead, is used largely in the preparation of other compounds required in dye-works and by calico printers—viz., the acetates of iron, manganese, and aluminium.

Acetate of Potassium exists in nature in the juices of many plants. It is made artificially by dissolving carbonate of potassium in acetic acid, and is used in making the anhydrous acid, and in other purposes.

Acetate of Calcium.—Lime is very commonly used in the purification of pyroligneous acid, in the course of which process this acetate is produced. It is used in the manufacture of the acetates of iron, sodium, manganese, and aluminium.

Acetate of Sodium is made by treating a solution of the acetate of calcium with sulphate of sodium, when an interchange of the acids takes place. It is used in the preparation of acetic ether.

Acetate of Tin is made from that of lead, and used by calico printers to impart light spirit colours.

Acetate of Manganese is made from the sulphate of manganese, by being treated with lime and lead salts, and is used in dyeing and calico printing. Cloth that has been steeped in a solution of the acetate takes a brown colour on being subsequently immersed in one of chloride of lime.

Acetates of Iron.—There are two acetates of iron, the proto-salt and the per-salt. The former is used as a mordant by calico printers; the latter more particularly by dyers, as it gives a more even shade than is practically obtainable with the other. The proto-acetate, used with madder, gives a violet colour; with red liquor, gives a brown. These acetates are used for dyeing cottons, silks, furs, hats, &c., black; for staining leather and wood black; and, with the yellow prussiate of potassium, in dyeing woollens blue.

Acetate of Aluminium, commonly called red liquor. It is very extensively used in calico printing as a mordant. That made by precipitating alum with acetate of lead is superior in quality to what is made from the calcium salt.

Acetates of Copper.—There are several of these; the most important in the arts is generally known as verdigris, the green colour of which is familiar to most people. It is chiefly used in the making of painters' colours; but it is also employed in calico printing as a resist paste, the portions of the cloth covered by it remaining unaffected by the dye on being immersed in a bath of indigo. Verdigris is an article easily adulterated, and care should therefore be taken to ensure pureness in the supply.

Acetate of Lead Lotion.—This is generally made by adding one or two drachms of solution of subacetate of lead and two drachms of rectified spirit to nineteen ounces and a half of distilled or rain water. This constitutes what is known as Goulard water. It is used as a lotion to inflamed parts, and is cooling, astringent, and sedative.

Acetate of Zinc Lotion.—Made by adding one grain or more of acetate of zinc to an ounce of water, and used as an astringent lotion or injection. It is not used so much for these purposes as sulphate of zinc. (*See* SULPHATE OF ZINC.)

Acetic Acid.—The valuable properties of vinegar are due to the presence of this acid. (*See* VINEGAR.) It is the result of a process of fermentation to which all vegetable juices are liable. Spirituous liquors, such as wines, weak spirits, beer, &c., that contain more or less mucilaginous matter, have a tendency to turn sour when open to the air, which is an indication that the acetous fermentation has begun—a process which is always accelerated by a moderate rise in temperature; when the thermometer rises to above 90° Fahrenheit the action begins again to diminish. The pure acid, free from water, is obtainable by distilling the acetate of sodium or potassium with sulphuric acid; this is generally distinguished as glacial acetic acid, because it solidifies on the temperature falling below 60° Fahrenheit. The hydrated acid can be made in a variety of ways, by the action of oxidising agents on alcohol and other organic bodies; but for commercial purposes that obtained from the destructive distillation of wood, commonly known as wood spirit or pyroligneous acid (*which see*), is now very extensively used.

Acetic Lotion is made by adding common vinegar to water in the proportion of one part to four or five, or by adding half an ounce of dilute acetic acid and half an ounce of rectified spirit to a pint of water. It is used as a cooling lotion, chiefly to the head, in cases in which there is inflammation or congestion of the brain, and also after sprains and bruises.

Achromatic Glasses, Microscopes, &c.—Those lenses only are achromatic which do not fringe the objects seen through them with the prismatic colours. If made of a single piece of homogeneous glass they will inevitably do so through the dispersion of the ray in passing through the lens, and consequent decomposition of the light. The presence of colour was for a long time thought inevitable, and in astronomical observations it presented a serious inconvenience; but it is now overcome, and is scarcely perceptible in the best instruments. The plan adopted is to use compound lenses, made of two different kinds of glass, the one being more highly dispersive than the other, and so mutually proportioned that the one shall just neutralise the other. Flint glass, which contains a good deal of lead, is about half as dispersive again as crown glass, and hence a combination of these two different descriptions can be made to give the desired result. Many of the field and opera glasses offered for sale are far from being achromatic, and this defect should always be looked for in making choice of an instrument; it will be best discovered by looking at some very bright object.

Acidity of the Stomach is one of the most common forms of dyspepsia, and is worthy of a little consideration. The peculiar secretion of the stomach, gastric juice, during dyspepsia is of an acid nature. During the intervals of digestion the secretion of the stomach is neutral, or faintly alkaline. But allowing for the intermittency of the secretion, it is estimated that in an adult man in twenty-four hours fourteen pounds of gastric juice is secreted. This fluid is acid in its nature. The nature of the acid has been a very disputed question, and is one not yet settled, though it would seem to depend on the presence of hydrochloric acid. It is probable that the state of *acidity* is not occasioned by any excess of gastric juice, but is produced by the generation of acids other than that of the gastric juice in the decomposition of food, such as the lactic, acetic, butyric, &c., when wrong foods are taken, such as too much sugar, or butter, or acid fruits. The tendency of acidity is constitutional in some persons, who require to be on their guard more than others.

Acidity, To Correct.—The common remedies for correcting acidity are the alkalies, such as bicarbonate of soda or bicarbonate of potash. Ten grains of either of these articles in water may be taken occasionally. Their action will be greatly assisted by light diet, avoiding

much beer, the stronger wines, too much sugar, pastry, &c.

Acidity of the stomach is an expression used to denote the feeling of something tasting sour to the patient, and rising from the stomach into the mouth. The same fault is sometimes indicated by a feeling of heartburn.

Acids.—There are an immense number of acids known to chemists, many of them being of merely theoretical interest. The list appended hereto contains those of chief practical importance, and they will be found described under their respective names. Though usually of a sour taste, that is not a necessary quality of an acid. The chief characteristic is the power it possesses of destroying the special properties of the alkalies, and combining with them to form salts. Acids may generally be known by testing them with a vegetable infusion of a blue or violet colour, which will be turned more or less red; or by their power of decomposing most carbonates, such decomposition being accompanied by effervescence.

Acetic	Nitric
Arsenious	Oxalic
Boracic	Phosphoric
Carbolic	Prussic
Carbonic	Pyroligneous
Citric	Salicylic
Gallic	Sulphuric
Hydrochloric	Sulphurous
Hydrofluoric	Tartaric
Malic	

Acidulated Drinks, such as lemonade, ginger beer, raspberry vinegar water, &c., are drinks which are flavoured with acid, and so made slightly sour. They allay thirst, and form cooling anti-scorbutic beverages. They are agreeable and very refreshing, especially in hot weather, but they need to be taken judiciously, or they may bring on sudden illness. Their habitual use is thought by many to have a lowering tendency, although some of them are highly beneficial in their effects. Lemon-juice, for instance, when diluted with water and drank daily for a length of time, has been found in the majority of cases to lessen the susceptibility of those who partake of it to attacks of rheumatism or rheumatic gout, arising from a damp situation or from being exposed to the weather. Acidulated drinks may be made of the expressed juice of almost all fruits.

Acidulated Drops are sweetmeats made of sugar clarified and boiled to candy, and flavoured with fruit essences, which are intended to imitate the delicate acid flavour of various fruits. Like other preparations of the kind, they are not injurious if they are made of pure ingredients. The makers of cheap confectionery mostly use artificial products, chiefly the so-called compound ethers, which resemble fresh fruit very closely in taste and smell. The essence of jargonelle pears, for instance, is a spirituous solution of the acetate of amyl. Apple oil is principally valerate of amyl; pine-apple oil is butyrate of ethyl and butyrate of propyl; and grape oil is a mixture of several compound ethers. It is too often the case that not only are these products too freely used, but also that they are not sufficiently pure for the purpose to which they are applied.

Acknowledgment.—Literally, recognition; admission; owning the knowledge of. In legal signification the act of attestation; the act by which a married woman may legally convey her estate, or extinguish her rights or powers in land or money directed to be laid out in land. The Statute regulating this is the 3 & 4 Wm. IV. c. 74. An acknowledgment of a debt made in writing after six years renews a debt barred by the Statute of Limitations, and upon such a promise in writing to pay, a debt may be recovered which might otherwise have been successfully disputed. (*See* Receipt.)

Acne is an eruption of pimples on the face or forehead, or between the shoulders, which is caused by a congestion and obstruction of the follicles of the skin. It is more often found in some persons than in others, and is most common among young people. It is favoured by want of perfect cleanliness, by heated rooms, by heating drinks—especially beer and the stronger wines. On the contrary, all measures which promote the healthy action of the skin, such as baths, soap and water, tend to prevent it and remove it, especially when associated with fresh air, simple diet, exercise, &c.

Aconite (*Aconitum Napellus*, Common Wolfsbane, or Monkshood).—In medical or pharmaceutical language, aconite implies more particularly the root of the above plant, which by maceration and percolation constitutes the



ACONITE ROOT, LEAF, AND FLOWER.

tincture of aconite, a remedy of too much power to be used except under medical advice. But in a medicinal way it is much used by physicians, especially in inflammatory diseases, and in some forms of puerperal fever. The active principle of aconite is aconitina. This, an intensely powerful poison, applied locally in a very diluted way, numbs the part, and often powerfully relieves local pain.

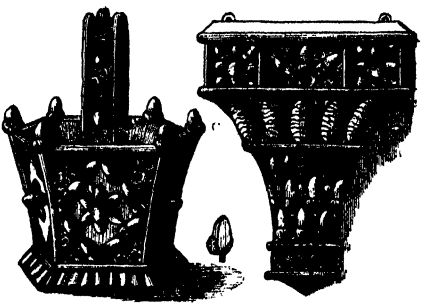
Aconite, Poisoning by.—This has occurred either from taking aconite by mistake

in its natural state, or its medicinal preparation. The root has been mistaken for horseradish, and the leaves for those of scurvy-grass. The symptoms are burning in the mouth and throat, accompanied with a very characteristic numbness in the lips, mouth, and throat, extending to the stomach, and generally followed by vomiting. The most dangerous symptom is great weakness of the heart; its pulsations are diminished, and so is the frequency of respiration. In fatal cases there is great muscular weakness, loss of sight, hearing, and feeling, with or without convulsions. Death seems to be caused by faintness. Consciousness is not much affected. The local application of aconite produces a peculiar numbness and tingling sensation. The remedies to be employed are, first, emetics, then stimulants and animal charcoal. As an emetic, ten, twenty, or thirty grains of sulphate of zinc, according to age, in water, will be most effective.

Acorn Bread.—Acorns are not much used as an article of food. Pigs, sheep, and cattle are allowed to feed on them in many places, but many persons have thought they have proved injurious, and have removed the animals from the pastures where they were found. For all that, it is probable that in the early ages of man acorns formed one of his principal foods. In their raw state they are known to be powerfully astringent, but they lose this quality when cooked. Besides starch, they contain a peculiar species of sugar which is unfermentable, and also tannic and gallic acids. In modern times during periods of scarcity they have been made into bread—that is, they have been mixed with meal and used to eke out the limited supply of more nutritious matters. Even in these circumstances very little advantage has been gained. The mere increase in the weight or bulk of any food does not carry with it a corresponding increase in its nourishing power, unless whatever is added is as rich in flesh-forming matter as the substance with which it is mixed; and in this respect acorns are not to be compared with wheat.

Acorn Coffee is made from acorns deprived of their shells, husked, dried, and roasted. In some respects it is preferable to ordinary coffee, having none of the drying properties which belong to the latter. In Germany it is used and much liked, and is considered very strengthening for consumptive and delicate people. The acorns should be gathered when they are ripe, and after they have been shelled they should be cut in pieces the size of a coffee-berry and dried thoroughly, either in a cool oven or before the fire. They should then be roasted just like coffee is, and when they are brightly browned, without being at all burnt, they should be either ground or pounded in a mortar. A little butter or lard should be put with them during the process of pounding, and the coffee should be kept in air-tight bottles. Sometimes ordinary coffee and acorn coffee are mixed, equal parts of each, and the beverage made from the mixture is very palatable.

Acorns, Fancy Work in.—Many ornamental articles may be made with acorns, such as picture-frames, brackets, boxes, and baskets of all shapes and sizes for the reception of flowers and ferns. The foundation is made of cardboard or wood, according to the strength necessary for the style of article. When the framework is completed the ornamentation is begun. Fir-cones are very generally



ACORN-WORK.

used with acorns: the frame is covered with cones, which are sewed or stuck on with liquid glue, after which the acorn cups or the full acorns are put on. Some design should be made and followed out in the placement of the acorns, otherwise the work will lose much of the effect it would else have gained. The best plan is to arrange the acorns on a table, and when the pattern is formed to leave it undisturbed, while other acorns are taken and fixed according to the copy. It will be found that full designs look most effective—that is to say, those which require the acorns to be clustered and grouped together. When the work is complete, the whole should be varnished.

Acquaintances.—Acquaintances are persons of whom we have a certain knowledge, and to whom we have been introduced, but they are not regarded as being sufficiently intimate with us to be on the list of our personal friends. If it is not our wish to raise them to the higher rank, our behaviour towards them will be characterised by a judicious, but not distant, reserve.

Acre, Statute.—A measure of land consisting of 4,840 square yards. The acre contains 4 roods, each rood 40 perches or poles, and each perch consists of $30\frac{1}{4}$ square yards. The Scotch and the Irish acre are both larger than the English, the former being equal to about $1\frac{1}{4}$ and the latter to about $1\frac{5}{8}$ statute acres; or, giving the exact figures, 121 Irish acres = 196 English, and 48 Scotch acres = 61 English. In France the measure for land commonly in use, and corresponding to our statute acre, is not the *are*, as is very generally supposed, but the *hectare* (or 100 ares), equivalent to 2·47 English statute acres. (*See* LAND MEASURES.)

Acrid.—Certain substances, solutions, and the juices of various plants are called acrid, because when in contact with the skin, the tongue, or the stomach they produce a sharp, burning sensation. (*See* ACRIDITY.)

Acridity.—This is a quality possessed by

various liquids and other substances which are called acrid, *i.e.*, sharp or pungent, and which excite a sensation of heat and pungency when tasted or when applied to the skin. Cantharides, mustard, and turpentine possess acridity; and so do many things which in the stomach cause inflammation, pain, and a burning sensation.

Acrostic.—An acrostic is a varying number of verses or lines of poetry or rhyme, so written that the first letter of each verse or line form the name of a person, place, or thing when read in the order in which they stand. The word is derived from the Greek *akron*, a beginning; *stichos*, a verse. Acrostics were in vogue as early as the fourth century; they were fashionable amongst the early French poets; and in England in the sixteenth century it was customary for a lover to express his admiration of his fair mistress by composing an acrostic on her name. The subjoined specimen was written fifty years ago:—

"**E** ndeared, fair lady, is thy name to me,
L ong with delight shall it remembered be;
I n friendship joined, though distant far we roam,
Z one of fond hearts, this makes our spirits one,
A nd proves in converse sweet our heaven begun."

Act of Parliament.—The written law of the kingdom, made by the Crown, with the concurrence of the Lords, spiritual (the bishops) and temporal, and Commons, in Parliament assembled. Acts of Parliament are either general or special, public or private. The steps necessary to be taken to procure the passing of a public Act of Parliament are as follows:—Leave must in the first instance be applied for and given to "bring in the Bill," as it is called. This may be applied for in either the House of Lords or Commons, except the Bill relate to taxes (*i.e.*, the Revenue), when it must be introduced first in the House of Commons. Leave having been given, the Bill is read a first time—this is generally a nominal reading—then a second time, at which the debate on its merits usually takes place. If it successfully pass this ordeal it is referred to a Committee for arrangement and settlement of details, on whose report the third reading takes place. Similar stages take place in its passage through the other House. The Royal Assent is the last act required to perfect the Bill as an "Act of Parliament."

Private Acts differ in this respect, that the Bill is introduced "by Petition," then referred to a Committee, consisting in the Lords of two judges, in the Commons of certain members who are appointed for the purpose. The Committee then make their report to the House, on which further proceedings take place.

Acting Charades.—A word is chosen of two or more syllables, each of which syllables forms a complete word in itself. Each syllable is represented by a scene, and then the whole word is acted.

Some charade actors introduce the word verbally into their conversations, while others think it only necessary to act the word. For an example the word "Infantry" shall be taken. The first scene might be an inn—travellers arriving and ordering dinners, teas, suppers, and beds. The obsequious landlady, the officious waiter, the active chambermaid, the pert barmaid, the busy boots, are characters which might be introduced. The second syllable, "fan," might be represented by an evening party of ladies and gentlemen: this, though seemingly commonplace, may be made very entertaining if wigs and whiskers, curls and moustaches are assumed, and a few distinguished foreigners make their appearance. The last syllable, "try," could be exemplified by a dame's school. To represent the whole word, an old soldier might beg for alms from the spectators, and tell his tale of the war and his wounds; or if it happened that no actor was able to sustain that part, the scene might be a tent-hospital, the soldiers being attended by lady doctors as well as lady nurses.

In order to make charades successful, a few hints should be remembered, and followed, which are these:—Let one person be chosen to organise and direct the band of actors. The choice should fall on one who is quick to decide on the suitability of words and scenes. The scenes should be of short duration, the conversations kept up with spirit, the risible muscles well under control. If the number of actors will allow of two parties, let them act alternately, for long pauses between the scenes weary the spectators. The more complete the transformations the greater the fun.

Acting Proverbs.—Instead of choosing a word, and acting each syllable, as is the case when charades are acted, a proverb is now selected from the repertory, and the moral of the adage is set forth by the actors. Take, for instance, the proverb, "A rolling stone gathers no moss." A short story illustrative of this might be sketched out. It is not at all necessary that the conversations should be written down; but the outline of the proverb should be marked out for the guidance of the actors, otherwise it would be impossible for them clearly to delineate it. The number of the scenes can be arranged at will, but they must be consecutive, and bear a relation one to the other. A little plot must run throughout, and the whole must carry along with it one idea, or the audience cannot be expected to guess the proverb. The foregoing remarks will show that acted proverbs require some previous preparation, while the plan of a charade can be very speedily arranged.

Action (in Law) is the process by which one man seeks his remedy for violation of contract against another. Formerly an action was distinguished from a suit, the former (an action) being for recovery of some debt or damage to which the plaintiff was entitled at law; the latter (a suit in Equity) being applicable to matters in respect of which the Court of Chancery could alone grant relief. But now by the Judicature Acts all proceedings, whether for legal or equitable relief, are commenced and prosecuted "by action."

Actuary.—An accountant; a calculator; a registrar of a public body; a person skilled in the finances of fire, life assurance, and other companies, the success of which in great measure depends upon correct calculations, based upon past experience.

Ad Inquirendum.—Literally, to make inquiry. This is the name given to a special judicial writ directing inquiry to be made into the circumstances attending a cause depending in the courts, and this for the better enforcement of justice therein.

Ad Libitum.—Often written in a contracted form, *ad lib.* This Latin phrase means "at pleasure," and denotes that no limit is imposed upon the quantity of the thing specified. It is also a frequent musical term, used to signify that the time of the passage so marked may be varied according to the fancy of the performer.

Ad Valorem.—A term signifying literally, "to the value." As an instance of its use, the stamp duties are chiefly regulated on what is termed an *ad valorem* scale—that is, the duty depends upon the amount involved, as in conveyances, bills of exchange, probate and administration duties, &c., and varies accordingly.

Adamant. (*See* DIAMOND.)

Adamantine Spar.—A variety of corundum, of various colours, very hard, and when reduced to powder is used in the East for cutting and polishing gems.

Adders, Bite of.—Adders are found on the heaths and in the dry woods of all parts of Great Britain. The bite is rarely fatal, but the part bitten becomes the seat of severe pain, great swelling, redness, and lividity. There is also faintness and weakness of the pulse, perhaps vomiting, and even delirium, or convulsions. The wound should be sucked freely and perseveringly, for the poison may be swallowed without any harm, provided that the membrane of the mouth is unbroken. A temporary ligature should be put round the limb above the bitten part. The bitten part should be cut out. Failing this, caustic (nitrate of silver), or strong liquor ammoniæ, or a little red-hot wire, may be applied to the bitten part. Sal volatile should be administered—a tea-spoonful or two in water; or if this is not at hand, brandy and water. In India a favourite remedy for snake bites is to drink a bottle of Madeira wine in two draughts, with an interval of about three minutes between them.

Adder's Tongue (Fern).—The adder's tongue is a common plant on the Continent of Europe, and it is said to be found in almost every part of the world. It is generally distributed over England, and in many places is very abundant, covering acres of meadow-land, and is considered highly injurious to the crop of grass, not only by its being disliked by cattle generally, but from the depauperating effect on the grass, upon which it acts as a root parasite. In Wales and Scotland it is less common, perhaps attributable to the low loamy pastures more general in England. In transplanting the adder's tongue a large piece of the sod must be removed amongst which it is found, care being taken not to disturb its connection with the herbage on the sod. It will be best to grow it in, or place about it, the same loamy earth in which it is found.

Addled.—An egg is said to be addled when, after it has been sat upon, it is morbid or barren, and so produces nothing. It is impossible to tell beforehand whether or not an egg will prove fertile, but the question can be decided at the end of about eight days. Then the unfertile eggs can be removed, and so those that are left will get more heat, and the chickens be all the stronger. In order to test the eggs, when the proper time has arrived, remove the hen by candle-light, and take each egg separately and hold it between the eye and the light. If the egg be barren it will still be translucent, the light passing through it almost as if it were new laid. If it be fertile it will appear dark all over, except perhaps a small portion towards the top. Persons who are greatly experienced in this work can decide which eggs will be barren at the end of only four days, and then the sterile eggs can be used for cooking purposes, and will be quite as good as many of the eggs that are sold in the shops.

Addresses of Letters, &c.—In addressing letters and other documents for transmission by post, &c., it is necessary to write the names of persons and places distinctly and correctly. We must have due regard to the social position of those to whom we write, and describe them accordingly. In ordinary cases the simpler the designation of the person addressed, the better. Thus "Mr. John Thomson," or "John Thomson, Esq.," is enough; but if Mr. Thomson has some university degree, or is a member of some learned society, the fact may be indicated, though this is not usual, except in the case of those who have a Doctor's degree either in Divinity, Law, Medicine, or Music, and then the form of address would be—"John Thomson, Esq., M.D.," or "D.D." (for some laymen have the degree of D.D.). Clergymen are of course always addressed as "Rev." or "Reverend," with their degrees—though not necessarily, except in the cases already noticed—after the name. That unmarried ladies are always styled "Miss," and married ladies "Mrs.," it is needless to say.

In addressing the nobility and other persons of rank, we must follow the advice given in "Debrett," and ascertain whether the personage to be addressed has any hereditary or official distinction, inasmuch as the form of address is regulated thereby. The following are the ordinary forms now in use:—

QUEEN OR KING.—"To the Queen's (King's) Most Excellent Majesty," or "To Her (His) Most Gracious Majesty." *Commencement:* "Madam" ("Sir"), or "May it please your Majesty," or "Most Gracious Sovereign." *Personal address:* "Your Majesty," or "Madam" ("Sir"). *Conclusion:* "I remain, with the profoundest veneration, your Majesty's most faithful subject and dutiful servant."

PRINCE OF WALES.—"To His Royal Highness the Prince of Wales." *Commencement:* "Sir," or "May it please your Royal Highness." *Personal address:* "Your Royal Highness." *Conclusion:* "I remain, with the greatest respect, Sir, your Royal Highness's most dutiful and most obedient humble servant."

PRINCESS OF WALES.—Similar to the Prince of Wales, but using "Princess" for "Prince," and "Madam" for "Sir."

PRINCES OR ROYAL DUKES.—"To His Royal Highness the Prince (or Duke) of ——." *Commencement:* "Sir." *Personal address:* "Your Royal Highness." *Conclusion:* "I remain, with the greatest respect, Sir,

your Royal Highness's most dutiful and most obedient humble servant."

PRINCESSES OR ROYAL DUCHESSES.—"To Her Royal Highness the Princess ——." *Commencement:* "Madam." *Personal address:* "Your Royal Highness." *Conclusion:* "I remain, with the greatest respect, your Royal Highness's most obedient and devoted humble servant."

LORD LIEUTENANT OF IRELAND.—"His Excellency the Lord Lieutenant," or, if a Duke, "His Grace the Lord Lieutenant." In a letter he is addressed according to his hereditary rank.

ARCHBISHOP.—Letters are addressed "To His Grace the Lord Archbishop of ——;" they commence, "My Lord Archbishop." In formal documents the Archbishop of Canterbury is addressed: "To the Most Reverend Father in God, by Divine Providence, Lord Archbishop of Canterbury." When the other Archbishops are addressed in such cases, the words "by Divine Providence" are not used. An Archbishop is styled "Your Grace."

DUKES.—"To His Grace the Duke of ——." *Commencement:* "My Lord Duke." *Personal address:* "Your Grace." *Conclusion:* "I have the honour to be, my Lord Duke, your Grace's most devoted and obedient servant."

DUCHESSES.—"To Her Grace the Duchess of ——." *Commencement:* "Madam." *Personal address:* "Your Grace." *Conclusion:* "I have the honour to be, Madam, your Grace's most obedient and most humble servant."

A DUKE'S ELDEST SON is addressed, by courtesy, by his father's second title, in all other respects as a Peer.

A DUKE'S YOUNGER SON is addressed by his Christian name: "The Lord Charles ——," or, more formally, "The Right Honourable Lord Charles ——." *Commencement:* "My Lord." *Personal address:* "Your Lordship."

A DUKE'S DAUGHTER is addressed: "The Right Honourable Lady Eleanor," or, less formally, "The Lady Eleanor." *Commencement:* "Madam." *Personal address:* "Your Ladyship." *Conclusion:* "I have the honour to be, Madam, your Ladyship's most obedient humble servant."

THE WIFE OF A DUKE'S YOUNGER SON is addressed by her husband's Christian name: "The Lady Charles ——," elsewhere as the preceding.

MARQUESS.—"To the Most Honourable the Marquess of ——." *Commencement:* "My Lord Marquess." *Personal address:* "Your Lordship." *Conclusion:* "I have the honour to be, my Lord Marquess," &c.

MARCHIONESS.—"To the Most Honourable the Marchioness of ——." *Commencement:* "Madam," or, from a tradesman, "My Lady." *Personal address:* "Your Ladyship." *Conclusion:* "I have the honour to be, Madam, your Ladyship's," &c.

Persons of inferior station should commence letters to ladies below the rank of Duchess with the words, "May it please your Ladyship."

The sons and daughters of a Marquess are addressed in the same forms as those of a Duke.

EARL.—"To the Right Honourable the Earl of ——." VISCOUNT.—"To the Right Honourable Lord Viscount ——." BARON.—"To the Right Honourable Lord ——." In each case commence with "My Lord;" address, "Your Lordship;" and conclude, "I have the honour to be, My Lord, your Lordship's most obedient and very humble servant."

COUNTESS, VISCOUNTESS, and BARONESS.—Changing the masculine into the feminine, the forms are the same as for their husbands.

The eldest son of an Earl is addressed by his father's second title, his younger sons as Barons, and his daughters like those of a Duke. The sons of Viscounts and Barons are addressed as "The Honourable," and styled "Sir." The daughter of a Viscount or of a Baron is addressed as "The Honourable Miss ——," or "The Honourable Mrs. ——," and styled "Madam."

BISHOP.—A letter is addressed "To the Right Rev. the Lord Bishop of ——;" it commences, "My Lord;" and "Your Lordship" is the form of direct address.

The wives of Archbishops and Bishops derive no title from their husband's office. The same is true of their children.

A DEAN is addressed as "Very Reverend." A letter may commence and conclude with "Very Reverend Sir."

BARONET.—"To Sir A. B. ——, Bart." *Commencement:* "Sir." *Conclusion:* "I have the honour to be, Sir, your most humble and obedient servant." The address of a KNIGHT is the same, except that "Bart." is omitted. Friendly letters may commence with "My Dear Sir William," or "Dear Sir William," &c.

THE WIVES OF BARONETS AND KNIGHTS are styled "Lady," "To Lady ——;" but in a letter they are addressed "Madam." A Baron's wife is styled "The Lady ——." A Baronet's wife, "Lady ——."

A MAID OF HONOUR is addressed as "The Honourable Miss ——," on the envelope, and as "Madam" in the letter.

When a gentleman is a Knight of the Garter, Thistle, St. Patrick, Grand Cross of the Bath, Commander of the Bath, or Companion of the Bath, his title or name is to be followed by the proper abbreviations, K.G., K.T., K.P., G.C.B., K.C.B., C.B., &c. When a gentleman is a member of Parliament, the initials M.P. must be placed after his customary address. Members of the Privy Council are addressed as "The Right Honourable," and the same applies to the Lord Mayors of London, Dublin, and York, and to the Lord Provost of Edinburgh, while in office. Thus we should address "The Right Honourable the Lord Mayor of London," &c., and should style him "My Lord," and "Your Lordship."

(*See* LETTERS, PETITIONS.)

Adhesive Plasters.—Of these the most common and convenient is the common diachylon plaster. Common adhesive plaster consists of resin, four ounces; lead plaster, two pounds; hard soap, two ounces. It is used chiefly for dressing wounds, not for any healing virtue it possesses so much as for its use in mechanically supporting parts and keeping the edges of a wound together. Besides this, there are other forms of adhesive plaster, such as court plaster and gold-beater's skin. Court plaster consists chiefly of isinglass, one part, dissolved in water, ten parts; this is strained, and two parts of tincture of benzoin are added to it. Thereafter, by means of a camel-hair brush, it is spread on silk or sarcenet. Gold-beater's skin is a fine kind of court plaster, composed of isinglass, water, and tincture of benzoin, as above, and spread on the prepared membrane of the cæcum of the ox. These elegant forms of plaster are very useful for small purposes, where appearances are to be considered. They are quite unirritating. Other forms of plaster, having medicinal or strengthening properties, will be noticed under other words, as BELLADONNA PLASTER, OPIUM PLASTER, &c.

Adipose Tissues (from the Latin word *adeps*, fat).—Fat in the form of oil, contained in cells or vesicles, is extensively distributed over the body. It has been estimated that the fat of the human body amounts to one-twentieth of the weight of the body. It enters more or less into the composition of many other tissues, such as brain, muscle, bone, &c. But there are certain parts in which it constitutes a visible and continuous layer, as under the skin, giving rotundity and contour to the form of the body and face. In certain internal parts it is found, as in the omentum, a portion of the peritoneum, also round the joints. In the interior of bones it constitutes marrow. It is a very essential element in the composition of the nervous and brain substance. Its uses are to facilitate the motions of the body, and for padding or filling up interstices. As a non-conductor of heat it tends to preserve the heat of the body; for this reason it exists as a very thick stratum in whales. In the process of nutrition it is very important, supplying material for the generation of force and of heat, for building up tissues,

and for making secretions, some of which, as the bile, are rich in fat. The body gets badly on without a fair amount of fat, as may be seen in diseases characterised by emaciation, such as consumption, cancer, &c. On the other hand, there may be too much fat. The amount of fat is largely influenced by food, exercise, air, &c. Confinement, indolence, beer, wine and spirits, bread, potatoes, and sugar make fat, which may be either outside of the other tissues or incorporated with them.

Adjournment.—Literally, a putting off until a future time. Thus the sitting of a court may be adjourned. Parliament may be adjourned (though prorogued is in this instance the strictly correct term). The further hearing or consideration of a case may be adjourned; and all parties concerned are permitted to withhold their attendance till the further appointed time and place.

Adjudication.—The act of adjudging or deciding. The act or process of trying and determining judicially. In bankruptcy, the act of declaring a man a bankrupt.

Administration.—The act of administering. The administration of the personal estate of an intestate formerly belonged to the ordinary, *i.e.*, the bishop or archdeacon of the diocese in which the deceased had effects—*bona notabilia*, as they were termed. If he had effects in two or more dioceses, a prerogative administration, *i.e.*, a grant by the archbishop of the province, was necessary. Now by the Court of Probate Act, 20 & 21 Vict. c. 77 (1857), this branch of ecclesiastical jurisdiction is entirely swept away, and the granting of probates and administration is vested in the Probate Court thereby constituted. It is now styled the "High Court of Justice, Probate, Divorce, and Admiralty Division." The grant of administration is made to one or more relatives of the deceased intestate (who is then termed the administrator or administrators). The husband has an absolute right to administer to his wife, and the wife to her husband. Where there is no husband or widow, the right belongs to the next of kin, according to proximity in relationship. A creditor may also administer, and the court, if a fit case be shown, has power to appoint as administrator a person entirely without interest in the estate. The following are the six principal species of administration:—

1. A general administration when deceased is wholly intestate.

2. Administration debonis non.—Where the grant is made upon the death of a sole executor after probate intestate, or upon the death of a sole administrator.

3. Administration durante minoritate.—Where the executor appointed by the will being sole executor is a minor.

4. Administration pendente lite.—Where the grant is made pending a suit touching the validity of the will, and generally wherever the Chancery Division of the court would appoint a receiver.

5. Administration durante absentia.—Where a sole executor is out of the jurisdiction of the court.

6. Administration cum testamento annexo.—Where no executor has been appointed by the will, or a sole executor dies without having proved, or a sole or surviving executor dies intestate.

Formerly a special body of practitioners, called "Proctors," could alone act in the grant of probates and administrations, and in any litigation arising therein; but by the Act referred to this practice was thrown open to the profession, and all solicitors of the Supreme Court are entitled to, and do usually, practise in the Probate Court.

The principal registry of the Probate Division of the Court of Justice is now at Somerset House. There are besides about forty district registries, having their chief offices at some of the principal towns of the kingdom.

Personal application can also be made for grants of probate or administration, *i.e.*, without the intervention of professional assistance, either at the principal or district registries. Where the whole estate of an intestate does not exceed £100 in value, the County Court of the district possesses jurisdiction to grant administration, and the registrar of such court is required to fill up the necessary papers. The duty on administration is regulated by the Statute 55 Geo. III. c. 184, 23 Vict. c. 15, and 27 & 28 Vict. c. 56, and the stamp duty payable on administration bond is regulated by the Stamp Act, 1870.

The Chancery Division of the High Court of Justice will, at the instance of any one interested, *i.e.*, a creditor or legatee, superintend the application of the assets, *i.e.*, *administer the estate* of deceased persons (to whose estate grant of administration or probate has been made, as before explained), in payment of debts and legacies in due and proper order. Property of all kinds is now available for payment of debts, but in a certain prescribed order. (*See* PROBATE.)

Adoption.—The act of adopting or taking to oneself what is not normal or natural; the state of being adopted. In French law it is permitted to persons of either sex aged fifty years, and being at least fifteen years older than the persons whom they adopt, which latter persons being of full age must be either (1) persons to whom the adoptive parent has rendered assistance during minority, and for six years at least without interruption; or (2) persons to whom the adoptive parent is indebted for his rescue from fire, shipwreck, or battle. This adoption leaves intact the rights of the child in respect of his natural parents—being in fact the adoption of Roman law in Justinian's time.

Adult.—In ordinary language and medical prescriptions is applied to any person grown to full size or strength; strictly speaking, a person may become an adult any time between fourteen and twenty-five years of age.

Adulterations of Drink. — *Beer, including Ale and Porter.*—A good deal of unnecessary alarm has been felt, owing to the rumours which have been circulated regarding the adulteration of this the most commonly used of all fermented liquors. Unfortunately, it is a well-known fact that beer

is very largely adulterated, and that dishonest brewers and publicans introduce into it ingredients which have no business to be there, for the purpose of improving its appearance, and giving it a false strength. The uneasiness referred to arose from the belief that strychnine had been employed to impart bitterness to the beer; for this there is no foundation. The adulterants most commonly used are as follows: —To remove acidity—pearlash, soda, chalk, &c.; to give piquancy to the liquor—capsicum and ginger; to increase its intoxicating power—opium, tobacco, and cocculus indicus (the use of the last of these has been very limited); as substitutes for malt—treacle, colouring, honey, &c.; to give the beer an appearance of age—alum, green vitriol, sulphuric acid, mustard, &c.; to make it have a frothy head—a mixture of copperas, salt, and alum. Salt is a very usual adulterant, and is put in, not to develop the flavour of the beer or to make it keep better, but to create a craving for more drink in those who partake of it. The cheap beer sold in the beer-shops is often diluted with water, and then "doctored" with what is called Porter Extract, that is, a mixture of caramel, capsicum, Spanish liquorice, powdered cocculus, treacle, and water. The description of beer called Porter is more frequently adulterated than any other.

Wine.—Wines are usually adulterated either by being mixed with others of inferior quality, or by the addition of ingredients intended either to improve their colour, or to impart to them any peculiar flavour. Thus beetroot, Brazil-wood, the juices of elderberries and bilberries, and extract of logwood are added to port to deepen its colour; while oak sawdust, alum, and extract of ratany are introduced in order to impart to it an astringent taste. A very common adulterant of port is "geropiga," which is made by mixing elder juice, grape juice, brandy, and brown sugar. Imitations of port are made by doctoring the grape juice, that is, by introducing extraneous sugar into it; and this adulteration cannot subsequently be detected by chemistry, although, from the absence of aroma in the wine, it may be suspected. Sherry is frequently coloured by burnt sugar or spirit-colouring, and sherries deficient in flavour are mixed with amontillado, a very nutty wine. This nutty flavour is also communicated to sherry by the addition of bitter almonds, peach-kernels, oil of almonds, cherry-laurel leaves, cherry-laurel water, &c. An artificial bouquet is given to wine by the addition of orange-flower, sweet-briar, orris-root, elder-flower, &c. The lead which is frequently found in bottled wines, and which sometimes produces serious illness, is not often put in for the purpose of adulteration, but is simply caused by shot, used for cleaning purposes, being left in the bottle.

Spirituous Liquors: Brandy, Whisky, Gin.—*Brandy:* a very small quantity only of the brandy which is sold escapes adulteration. The pure liquor is almost as a matter of course "lowered" by the dealer with spirits of wine and British brandy, and after this the retailer comes in and adopts a similar course, but uses water, when it is necessary to do something to escape detection; then burnt sugar, cayenne pepper, horseradish, grains of paradise, and similar ingredients are put into the brandy, to impart strength and pungency to it. A liquor often sold as brandy is distilled from potatoes, &c., and flavoured with what is called brandy essence, which is an artificial mixture of thin syrup, acetic ether, essence of cayenne, and burnt sugar. *Gin* is often lowered by the addition of water, after which its fiery character is restored to it by means of various heating preparations. This is, as a rule, the fault of the retailers rather than of the distillers. It is much the safer to procure unsweetened gin, as the addition of sugar, to a great extent, disguises the adulterating and watering processes. *Whisky:* when whisky is genuine it is distilled from fermented malt or grain. The smoky taste which is so much valued arises from the presence of traces of creosote, &c., from wood or peat smoke. Inferior whisky is obtained from oats, barley, or rye, and the smoky flavour is caused by the preparation being purposely allowed to burn. Salts of several kinds and other impurities are often introduced into this spirit.

Milk.—The removal of the cream and the addition of water are the commonest frauds practised by the milk-dealer; potato starch is occasionally added to both milk and cream, to give them a richer appearance, and to increase their quantity. Sometimes milk is unwholesome, because the cow from which it was taken was unhealthy. Sometimes it is very injurious, because the vessels into which it was milked were rinsed with impure water. Not very long ago, in the north of London, typhoid fever was communicated to several persons in this way. The milk itself was quite pure, but the pails were washed in water taken from a well in which the water was poisonous. The statements which are frequently made that chalk, plaster of Paris, sugar, flour, gum, gelatine, and the brains of animals are used to thicken milk, are almost entirely without foundation.

Adulterations of Drugs.—The adulteration of drugs is quite as much practised as the adulteration of food. It is provided against equally with the adulteration of food in the Sale of Food and Drugs Act, passed by Mr. Gladstone's Ministry. This gives to any purchaser of a drug the right to have it analysed by the public analyst of his district, on payment of a sum not exceeding 10s. 6d. Prior to this, in 1848, an Act was passed, under which inspectors were appointed to test the quality of imported drugs, such as aloes, assafœtida, cinchona bark, rhubarb, &c. These inspectors were supplied with an order, giving the standard of purity required in imported articles, as tested by the percentage proportion of the active principle of each drug.

Adulterations of Fabrics.—Fabrics are said to be adulterated when they are not purely and entirely made of the particular material which they are represented to be. The Latin word *adultero*, I falsify or corrupt, will show the meaning of the term. One texture is often woven with another, and thus we have fabrics made of silk and wool combined; but this is not considered an adulteration, be-

cause the presence of both is acknowledged. In how many instances cheaper materials are mixed with the natural products in order to lessen the cost, will be seen in the accounts given of each individual fabric. (*See* CALICO, CARPETS, CLOTH, LINEN, SILK, WOOLLEN GOODS.)

Adulterations of Food, &c.—The adulteration of food—that is, the practice of making food impure by mixing baser materials with it—is unfortunately too common. Adulterations of an organic nature are best detected by the microscope; mineral adulterations require chemical analysis for their discovery. The most usual adulterations of food are as follows:—

Arrowroot is adulterated with potato flour, sago, and starch. Out of fifty samples examined by Dr. Hassall, twenty-two were adulterated, and in ten of these there was scarcely a particle of the genuine article. In arrowroot mixed with potato starch the particles are of a larger size and have a more glistening appearance.

Bread.—Several substances are found in bread, or rather in the bread of some bakeries, which are really adulterations. Amongst these may be named flour of beans, Indian corn, rice, potato starch, alum, sulphate of copper (blue vitriol), chalk, bone dust, plaster of Paris, sand, clay, &c. The organic matters, that is, the inferior flours, do no serious harm; indeed, some of them may be advantageously used when making bread at home, but when they are introduced in order that the flour may absorb a larger quantity of water, and so a hundred loaves be got where the flour by itself would only yield ninety-five loaves, they can only be considered adulterations. The alum and sulphate of copper are positively harmful, and become dangerous when they are put into food like bread, which is in daily use. They are introduced nominally for the purpose of making bread made with inferior flour as white, light, and porous as it would be if the best flour were used. The utmost beauty, sweetness, and sponginess may be given to bread without a particle of alum being added, if the best materials alone enter into its composition, or if a little clear lime-water (which is perfectly harmless) be employed to make the dough instead of simple water. The fact is the alum is intended not only to make the bread light, but to enable the dough to carry more water.

The other adulterations spoken of are not all the work of the baker. Millers are known to employ various substances to whiten their flour. Some of these are useless as food, some positively injurious. They can easily be detected by chemical tests; but unfortunately these cannot be practised by the ordinary housekeeper.

Butter.—The cheaper kinds of butter are frequently adulterated with common flour, oatmeal, pea flour, lard, &c., as well as with a large quantity of salt and water. The presence of lard may be discovered by the flavour and the paleness of the colour. As to the other substances named, if a little of the butter is melted the ingredients will separate and be quite distinct when cold. It needs only that a little of the butter put into a glass tube should be melted by being plunged into hot water. In a little time the water, the curd, and the true butter or milk fat will separate into layers. The water will be at the bottom, and as there ought not to be more than from eight to thirteen per cent. of water in good butter, the watery layer should not exceed one-eighth of the whole. The adulterations likely to be present in higher-priced butters are an undue proportion of salt and water, and these occasionally run up to one-third of the total weight.

Cayenne Pepper is adulterated with red lead, vermillion, red ochre, brick dust, common salt, turmeric, &c. It is often made by grinding a mixture of red woods or sawdust with enough red pods or chillies to make the preparation acrid and pungent. Pure cayenne pepper when burnt leaves a very small quantity of white ash. A red-coloured ash shows the presence of red ochre, brick dust, or some other earthy colouring matter. If a dark-coloured powder or a small metalic globule is left behind, red lead has been introduced.

Cocoa and Chocolate are adulterated with potato starch, flour, and clarified mutton suet. Various mineral substances, such as chalk and plaster of Paris, are occasionally mixed with them to increase their weight, and red earth, red ochre, and Venetian red are used for colouring purposes.

Coffee.—Ground coffee is frequently adulterated with roasted grains, roots, acorns, sawdust, burnt sugar, and, worse than all, baked horses' and bullocks' livers. Even whole roasted coffee is not safe, for a patent has actually been taken out to mould chicory into the form of coffee-berries. Perhaps the admixture of chicory is not considered an adulteration; nevertheless, coffee is so much superior to chicory that when a mixture of the two is sold as pure coffee it is nothing else than adulteration. The presence of caramel or chicory in ground coffee may easily be detected as follows:—Place a spoonful of coffee gently on the surface of a glass of cold water. If the coffee is pure it will float for some time and scarcely colour the liquid. If the contrary is the case it will rapidly absorb the water and sink to the bottom of the glass, communicating a deep reddish-brown tint as it falls. Another method of discovering the adulteration:—Shake a spoonful of coffee with a wine-glassful of cold water, and then place the glass on the table. If it is pure it will rise to the surface and scarcely colour the liquid, but if not it will sink to the bottom and the water will be tinged red as before.

Curry Powder is frequently adulterated with red lead. Out of twenty-six samples which were examined by Dr. Hassall only seven were genuine. The curry powder sold in the shops must be regarded as merely a substitute for Indian curry powder, the latter containing many ingredients not to be obtained in England.

Flour. (*See* BREAD.)

Ginger.—Powdered ginger is with difficulty obtained pure. The most frequent adulterants are ground rice, cayenne pepper, various kinds of flour, mustard husks, and turmeric. Out of twenty-one samples Dr. Hassall found that fifteen were adulterated.

Mustard is adulterated with wheat flour, pea flour, linseed meal, and turmeric; a little chromate of lead is sometimes added to improve the colour. Dr. Hassall examined forty-two samples, and all of them contained wheat flour and turmeric.

Oatmeal is frequently adulterated with barley meal, which is half the price. That supplied to the army, navy, and workhouses is often mixed with whiting, plaster of Paris, and ground bones. Out of thirty samples examined more than one-half were impure.

Pepper is adulterated with linseed, mustard seed, wheat flour, &c.

Mixed Spices often contain ground sago, ground rice, flour, &c. Out of twenty-six samples sixteen were adulterated.

Sugar of the inferior kinds is sometimes adulterated with flour, gum, &c. It is, however, more frequently impure than intentionally adulterated.

Tea.—The only adulteration of tea which is practised to any great extent is that of mixing it with exhausted leaves which have been redried, gummed, curled, and faced with colouring matters. The collection and preparation of these employ several hundred persons, chiefly women and children. The leaves of the sloe-tree, ash-tree, elder bush, and white thorn, are often sold as tea. A most extensive system of adulterating tea is practised in China. A number of green teas that were examined were nearly all spurious, being made out of cheap black teas, faced up or painted with various colouring ingredients. It is a practice among some grocers to give what they call "a bloom" to green teas, by shaking them up with a little calcined magnesia or finely-powdered French chalk. Black teas are faced in a similar manner with finely-powdered blacklead. Many of these substances may be detected by simply stirring the tea in a little cold water, when they will become detached, and either make the water turbid or sink to the bottom.

Adulterations of Vinegar.—Vinegar is adulterated with water, burnt sugar, and sulphuric acid, and occasionally with pyroligneous acid, chillies, and grains of paradise. From the evidence taken before the Parliamentary Committee on Adulterations, it appeared that arsenic and corrosive sublimate were also sometimes found in vinegar. In order to preserve the liquor, the law of England allows one part of sulphuric acid to one thousand of vinegar, but often three or four times this amount enters into its composition. Vinegar which is used for pickles is frequently contaminated with copper. This is caused by the imprudent use of copper vessels. In order to detect the presence of copper in the vinegar, put a few drops of nitric acid into the suspected fluid, and then place in it a piece of polished iron or steel. If copper be present it will at the end of twenty-four hours be deposited on the iron.

Advertising (Rules and Cautions).—By advertising must be understood every method which may serve to bring a fact before the notice of the public. The earliest form of advertisement was by public proclamation by the herald, and this custom is in certain cases still kept up, an instance having been lately afforded on the occasion of the proclamation of her Majesty the Queen as Empress of India. At the present day the most formal kind of advertisement other than by proclamation is by publication in the *London Gazette*. Here are to be found royal proclamations and declarations, notices of bankruptcy, dissolutions of partnerships, &c. (*See* GAZETTE.) Another kind of advertisement, dating from a remote period, is by public crier (*see* CRIER), and this still holds good in many parts of the country in the case of articles lost or found, friends missing, &c. The custom of placing advertisements on church doors is also a very old one, and obtains at the present day in the case of notices of vestry and other public meetings. This form of advertisement, *i.e.*, by bills and placards, has been greatly extended of late years, and now almost all places of public resort are placarded with the announcements of enterprising advertisers.

The vast competition of the present age in the labour markets, and in the production of goods of every kind, has practically rendered advertising a necessity, as presenting the most available method of intercommunication between buyer and seller, employer and employed. Of all advertising, that which takes the form of announcements in the public press is by far the most important. Originally there was a Government duty on each advertisement in the newspapers of this country, of 3s. 6d. in Great Britain, and 2s. 6d. in Ireland; in 1833 this duty was reduced to 1s. 6d. in the former, and 1s. in the latter country, and in 1853 it was wholly repealed, since which time newspaper advertisements have increased to an enormous extent, so much so that most newspapers, at their present price of issue, could only be carried on at a loss to their proprietors if it were not for the large sums paid by advertisers for the insertion of their announcements. This particular branch of advertising is not confined, it is perhaps needless to add, to newspapers, but is largely resorted to on the wrappers of magazines (*see* MAGAZINE), and on special pages known as "insets," at the end of books, &c.

The great value to advertisers of announcements in newspapers and magazines is undoubted; at the same time, care must be taken in the selection of papers in which the announcement is to appear, &c., and in the form of the advertisement, or large sums of money may easily be spent to no purpose. Sensational headings to advertisements are to be deprecated, and—one or two notable instances to the contrary notwithstanding—generally go beyond their destined mark, and attract only to disgust the reader. Undoubtedly the most telling form of advertisement, and that which is most likely to catch the eye of the public, is the short, concise announcement, going *directly* to the point.

Advertising on any large scale—especially in the case of new inventions, &c., and articles for the sale of which strong competition exists—involves the outlay of vast sums of money, before any sort of productive return can be expected. A considerable capital must be in-

vested before any kind of market can be made, and for this reason advertisers should most carefully consider the form of their announcement before presenting it to the public, as after-variations must involve, to a greater or less extent, the loss of any hold upon the attention of readers that may have been previously obtained.

Newspaper advertisements will be found very effective in the event of the many wants and necessities which more directly affect the household. In the case of persons seeking employment, servants and others wanting places, persons wanting servants and governesses, scholastic announcements, property lost or found, &c., an expenditure of a few shillings will very often secure for the advertiser what he requires in the shortest possible time.

Like everything else, the system of advertising has its abuses, and many cases of fraudulent advertisements have arisen of late years, as to which it will be well to add a few words. For instance, readers may often have noticed in the newspapers most plausible advertisements in which opportunities are offered for earning large sums of money without any risk, and with the least possible amount of trouble. These advertisements are often but tempting baits, by means of which an over-credulous public may be trapped into remitting the advertiser a greater or less number of postage stamps, in return for which he eventually forwards some sort of information of an almost worthless character, such as a domestic recipe, instructions in some branch of the fine arts, hints for selling articles on commission, &c. All such specious but vague forms of advertisement, offering large returns for an infinitesimal outlay, should be carefully avoided by the public, who may in such cases reasonably doubt the *bona fides* of the advertiser.

Advocate.—One who pleads in the courts of justice; a barrister; a counsellor. The term advocate in its professional sense is more generally applied to practitioners at the Scotch bar, English barristers being generally styled Counsel learned in the Law. (*See* Barrister, Queen's Counsel, Serjeant.)

Advowson.—This word signifies the perpetual right of presentation to a rectory or vicarage; the holder of this right is called the patron. Most ecclesiastical corporations (as the archbishop, bishop, dean, and chapter) have officially several livings in their gift; some archdeacons also have. The Crown and the Lord Chancellor have a goodly list each. The several colleges of the Universities of Oxford and Cambridge, and the colleges of Eton and Winchester, divide between them the remainder of the official patronage. The rest of the livings throughout the country, forming by far the great majority of the whole, are in lay hands, and frequently the subject of sale and purchase. An advowson is considered and treated as real estate. The right of presentation cannot, however, be sold while the living is vacant or the incumbent is *in extremis*. (*See* Next Presentation, Patron.)

Adze.—This tool has been called the twin-brother of the axe, and is one of extreme usefulness, although the recent introduction of machinery in connection with wood-work enables workmen so frequently to dispense with it, that many are altogether ignorant of the proper way in which it should be handled. Amongst ships' carpenters, wheelwrights, and coopers it is still, however, a tool of primary importance. When it is necessary to produce a comparatively flat surface with an axe, as it is, for instance, when squaring logs of timber, the adze usually succeeds in giving the work greater accuracy

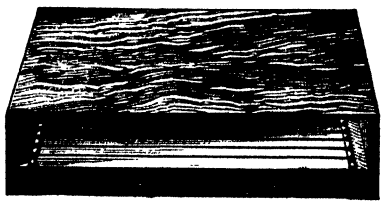


ADZE.

and completeness. With such skill can this tool be used, that good workmen will undertake to split the soles of the boots in which they stand without injuring their feet. In using the adze the shaft should be firmly grasped in the middle by the right hand with the fingers turned upwards, the right forearm resting on the right thigh, forming a centre on which the tool swings, the right wrist only being allowed to play. It is, of course, a very dangerous tool when unskilfully used. For small work a tool called the hand-adze is used. Combining a power of cleaving with the hammer-like force of driving, the adze is of great service in all heavy wood-work.

Ægrotat.—A term often found in the reports of school and college examinations. It is a Latin word, meaning that the person so designated "is sick," and consequently fails to take the regular examination, though otherwise qualified.

Æolian Harp, or harp of Æolus—the wind—so called in consequence of its music being produced by the action of the wind. Thomson, in a note to his ode on this instrument, attributes its invention to Mr. Oswald, but it appears to have been well known at a



ÆOLIAN HARP.

much earlier date. The instrument usually consists of a box slightly made of fibrous deal, with, at either end, a low bridge, over which, by the aid of pegs, a series of fine catgut strings, generally seven, ten, or fifteen, are stretched. These strings being of equal size and length are therefore unisons. Under the strings a circular opening like that in the belly of a guitar must be made. The length of the harp is regulated by that of the window in which it is to be placed; its width may be from four to six inches, and its depth from three to four inches. It should be placed between the

sill and the lower sash of the window, and when the wind blows on the window, sounds not unlike that of a choir in the far distance are produced, varying of course in intensity with the strength of the wind. Our illustration shows the form in which the instrument is usually made. The sounding-board is sometimes dispensed with.

Aërated Bread is bread made without yeast, or leaven, or any saline matter. The process is known as Dr. Dauglish's system. According to the ordinary method, the flour is moistened with water and made into a dough, to which common salt and yeast are added. The yeast causes the flour to ferment, when carbonic acid is given off at every part. When the fermented dough is placed in the oven, the bubbles of carbonic gas expand, and thus the bread becomes light and spongy. When aërated bread is made, the carbonic acid gas is prepared beforehand in a separate vessel. It is then forced into water, which becomes charged with it like soda water. The flour is put into an iron box and mixed with this aërated water by machinery. At the end of about ten minutes it is dropped into moulds, which shape it into loaves. The dough rises in the oven, and a light, palatable, and perfectly pure bread is produced. The taste of aërated bread is very different to that of ordinary bread, and opinions differ as to whether or not it is more or less palatable. A considerable economy is effected by the system. Flour is saved; for more bread can be made in this way out of a sack of flour than by the old process; and if all the bread in the kingdom were thus made, a very decided saving would be effected in the consumption of flour. Time is saved; for bread can be made in half an hour instead of eight or ten hours. Expense is saved; for the gas and machinery together cost less than the yeast of the old process. Cleanliness is more likely to be attained, for the dough requires no handling. Besides this, the bread is pure, and preserves the odour and taste of the flour from which it is made.

Aërated Waters are waters charged with five or six times their volume of carbonic acid gas, by means of the apparatus employed by the soda-water manufacturers. The water thus charged constitutes a brisk, sparkling liquid with a pleasant pungent acidulous taste, and is employed largely as a refreshing cooling beverage, to assuage thirst during hot weather and in fevers. It may be conveniently prepared on a small scale by means of the apparatus known as the gazogene. This consists of two oval glasses, one placed above the other, with a passage between them. The lower globe is filled with water by means of a long funnel. The powder consisting of carbonate of soda and tartaric acid is placed in the upper globe, and particular care is taken that none of it should pass into the lower one. A long tube is then inserted into the globe and screwed in, and the apparatus is inclined until the water from the lower glass rises and fills the upper glass about one-third. It is then placed in its original position and allowed to remain for about two hours. At the end of this time, if the cock at the upper part be opened, the aërated liquor can be drawn off readily enough. Occasionally, bisulphate of potash is used instead of tartaric acid, and is more economical. To prevent the glass bursting, the gazogene is usually encased in lattice-work. Distilled water or filtered rain-water is the best for making these waters.

Among the common aërated waters are aërated Seltzer waters, Soda waters, Potash waters, Carrara waters, Lime waters, Magnesian waters, and Chalybeate waters. These liquids possess various medicinal powers, and are prepared on a large scale.

There are also natural aërated waters which possess peculiar properties. Among these one of the newest is the Apollinaris water, which is declared by those who use it to be more wholesome and refreshing than any other sparkling water.

Aëration.—Primarily the supplying any body or article with air. When the process is applied to houses, workshops, mines, sewers, &c., the term ventilation is, however, more properly used. Water in aquaria has to be artificially aërated in order to support animal life, as the small quantity of atmospheric air that water will absorb at the surface would soon be exhausted. The soil has also to be broken up in order to give access of air to the roots of plants. Conversely, trees are often killed by the heaping up of an impervious load of earth around them. The term likewise includes the action of air in the re-oxidation of the blood of animals. Aëration is also applied to the charging of water with carbonic acid gas under pressure, in order to make a sparkling drink by the escape of the gas as soon as the pressure is removed.

Aerostatics.—A term applied to the laws which govern the equilibrium of the air, and of aeriform fluids or gases generally. The distinctive property of gases is their elasticity, arising from the molecules of which they are composed being exceedingly mobile, and having a constant tendency to spread out away from one another, and thus to occupy increased space.

Æsthetics.—A word of Greek origin. In medicine it signifies such agents as produce sensation. As used in literature and ordinary conversation, the word denotes "the theory or philosophy of taste; the science of the beautiful in nature and art, or that which treats of the principles of the belles lettres and fine arts." In such a phrase as "The æsthetics of dress," the word indicates not simply refined taste and beauty, but artistic skill.

Æther. (*See* ETHER.)

Affiance (in Law) implies a pledge entered into between a man and woman, binding them to agree to marry. (*See* BREACH OF PROMISE.)

Affidavit.—An affidavit is a document setting out facts and statements verified by the oath of him who makes it, and who is the deponent. This oath consists, for Christians, in kissing the Gospels, but for persons of other religious persuasions the oath can and should be made according to their practice,

being such as will solemnly bind the conscience of the deponent to its truth.

An affidavit is generally made for use in the courts of justice, and is now required to be in the first person; it consists of—(1) the title; (2) the several averments or allegations, which should be in sections and numbered; (3) the jurat—*i.e.*, the attestation clause signed by the commissioner or other authority administering the oath.

Where no litigation is pending, a "statutory declaration" has been in many cases substituted for an oath; here the declarant, as he is termed, solemnly declares to the truth of his statement, and no oath is administered.

Affinity.—The relationship brought about by marriage between the husband and the blood-relations of the wife. There is, however, no affinity between the wife's sister and the husband's brother, or *vice versâ*.

Affirmation (in Law).—This is a provision now made for persons, such as Quakers and other sects, who object on conscientious grounds to take an oath at all; they may make a solemn affirmation instead, which is regarded as equally binding on the conscience. A false affirmation is looked upon as perjury as much as a false oath, and is liable to the same penalties.

Affusion is a medical term signifying any way of pouring water, hot or cold, upon a person. The shower-bath is one of the commonest forms of affusion. Hydropathic establishments outvie each other in the variety of contrivances adapted for directing jets of water on particular parts of the body. In disease, this way of using cold water is coming more and more into vogue, especially in cases of very high fever, where the mere heat of the body imperils life. It is used also occasionally in hysteria, or in fainting; and in sprains, affusions of hot and cold water are useful.

After-hours.—People who are engaged in study or in business, whether young or old, usually have at the close of the day what may be called "after-hours," which too often are either squandered in frivolity, or wasted in sheer inactivity. As it is so frequently a question what to do with the time not given to their study or work, it is worth while to make a suggestion or two. In the first place, the time should not be thrown away. In the next place, it may be made conducive to the health, happiness, and general improvement of the individual. Rest being necessary, and quite consistent with easy and pleasant occupation, the after-hours should be devoted to such recreations and engagements as require no great physical or intellectual exertion. Acting on this general principle as a golden rule, our hours of leisure may, with a little ingenuity, be made both profitable and useful; but as so much depends on circumstances, we cannot give more particular directions.

Afternoon Parties.—These are known by various names, for they are called "kettle-drums," and "five o'clock teas," and garden-parties, and lawn-parties. Four o'clock is the usual hour for their commencement, and, unless dancing has been specially mentioned, the company begin to disperse about six o'clock. If the party is arranged for the garden, when practicable some amusements are generally provided, in the shape of archery, lawn tennis, bowls, &c. In-door parties are more difficult to arrange. If possible, some objects of interest should be placed about the room, and flowers, as many as may be; the chairs and tables should be so arranged that little coteries may easily be formed here and there, and this forethought will prevent a formality that invariably produces stiffness if not silence. Afternoon tea should be served at once. The hostess need not remain by her tea-table, but should move to and fro among her guests, taking care not to remain long with any one of them in particular.

Afternoon Receptions.—It sometimes happens that people call and have their calls returned, and yet never meet, owing to the one and the other not being at home when the call was paid. To obviate this, and to prevent disappointments of this kind, some ladies make it their practice to set apart one particular afternoon in each week for the reception of callers. This day is made known to their friends and acquaintances by being written on their visiting card. The lady should always be ready to receive her callers. She should exchange a little conversation with each as they arrive. Sometimes afternoon tea is given, but it is a matter of choice whether to offer it or not. At these receptions it is not usual for people to stay longer than a quarter of an hour, for it must be remembered that it is merely a call which is paid.

Afternoon Toilette.—This varies according to the occupation of the afternoon. The toilette for paying calls varies, for if the caller is on foot, her dress should be of a simpler character than if she drove in her carriage. Again, a dress for a fête, flower-show, or garden-party should be in accordance with the festivity, and might be very much gayer than that worn on an ordinary afternoon. But whatever the occasion, afternoon toilette should never overstep its bounds by assuming any of the peculiarities which mark an evening toilette. It is far better to err on the side of simplicity and plainness than to don any part of evening attire. For instance, linen collar and cuffs always look more in place than tulle ruffles; a dress closed at the neck looks more suitable than one which exposes it; a plain tie looks better than a string of pearls. Evening dresses, when soiled, should be discarded, and not brought into use for afternoon wear. Gentlemen should be habited in surtouts or frock coats.

Agaric. (*See* MUSHROOM.)

Agate.—A kind of chalcedony, the colours of which are various, and which is employed for articles of utility and of ornament. When the lines upon it are of a zig-zag form it is called "fortification agate;" when nearly straight, "ribbon agate;" and when looking like vegetation, "moss agate." It is found in many countries, and under the name of "pebbles" is met with in Scotland, Ireland, Wales, in Sussex, and in the Isle of Wight.

Being not only common, but easily wrought, and at the same time cheap and attractive, it is very popular for brooches, bracelets, and other personal ornaments, as well as for seals, and umbrella or parasol handles, &c.

Agave, The.—To this highly interesting genus belongs the *Agave Americana*, or American aloe. This plant has been said to flower only once in a hundred years, but it is now known to flower sooner or later, according to the treatment it receives. The readiest way to throw it



AGAVE.

into flower is to apply bottom heat, and treat it as the pine-apple. All the species thrive well in rich loamy soil, mixed with a very little rotten dung, decayed vegetable mould, and brick rubbish. They require but little water, and are propagated by suckers from the root.

Age, Coming of.—The arriving at 21 years old by persons of either sex, when they are competent to do acts which before this period they were prohibited from doing. Previously to attaining age they are considered by our law as infants; but infants are notwithstanding capable of entering into some contracts and fulfilling some legal duties. Full age is attained on the commencement of the day preceding the 21st anniversary of birth. (*See* ADULT, INFANTS.)

Aged, Precautions for the.—Aged persons find themselves obliged to take many precautions which in earlier years were quite unnecessary. They do well to live according to simple rules, any irregularity or excess being more likely to tell against them than against younger persons. Food should be not only simple, but prepared in forms easy of reception and digestion—"food convenient." There are one or two precautions especially important. One is against excessive exertion, either physical or mental. The heart and lungs and great vessels are equal to quiet duties long after they have become unfit for strains, hence no strain or pressure should be put on them. Perhaps the chief precaution to be taken in favour of old people is that against cold. They are very sensitive to cold, and their liability to be injured by it is perhaps greater than their sensitiveness to it. Winter is the trying time for the aged. And there are probably two situations in which they are most vulnerable in winter—one is out of doors, exposed to the winds and weather; the other is in beds and bedrooms. We are persuaded that many get their deaths in their beds from cold bed-clothes and the want of a fire in the bedrooms. Warm clothing and warm bed-clothing will keep many old people alive that would otherwise contract a fatal bronchitis or inflammation of the lungs. In the case of the aged, everything likely to occasion accident should be guarded against, *e.g.*, fires, things that would cause falls, &c. &c.

Agent.—One who acts in the stead or place of another, who is called the principal. An agent acting without authority from his assumed principal, and even under a mistaken view that he had such authority, generally renders himself personally liable to the party with whom he contracts or negotiates.

Aglet, or Aiglet.—In the sixteenth and seventeenth centuries it was customary to tie together different portions of the dress with ribbons, and the tags which were placed on the ends of these ribbons were known by the name of aiglets. The word is probably a corruption or abbreviation of *aiguillette*, which in French means a tagged point.

Agnail. (*See* WHITLOW.)

Agreement.—A promise or undertaking between two or more persons to do or not to do a particular thing. Instances:—An agreement for the sale and purchase of any interest in land is by the Statute of Frauds (29 Chas. II. c. 3) required to be in writing and signed. An agreement relating to property of any kind above the value of £5 is subject to a stamp duty of 6d. (formerly it was 2s. 6d); there are some few exemptions. It is required by the Stamp Act, 1870, "that an agreement for lease for a term not exceeding thirty-five years should have the *ad valorem* stamp duty chargeable on the lease itself impressed upon the agreement." (*See* AD VALOREM.)

Ague, or intermittent fever, is a disease still common in Lincolnshire, Norfolk, Cambridgeshire, and other counties of England, though taking the country as a whole, it is much rarer than it used to be. It is met with in many foreign countries, and is said to be most virulent as we approach the equator and the sea-coast. It affects low and moist localities. It is scarcely ever developed at a lower temperature than 60° Fahrenheit, and the evolution of the malaria on which it depends, is checked by a temperature of 32°. For producing malaria it appears to be requisite that there should be a surface capable of absorbing moisture, and that this surface should be flooded and soaked with water, and then dried. Some have thought the presence of decomposing vegetable matter essential for ague. This is commonly but apparently not invariably the case. Low, flat, marshy, and undrained countries, especially in hot seasons, or in tropical latitudes, are sure to be affected by it. The tertian form of ague is the

most common in this country. The cold stage may last from half an hour to three hours, the second from three to twelve, the third a few hours. The patient is comparatively well during the intervals, especially if the attack is the first, and has not been of long duration. If otherwise, there is apt to take place congestions of the spleen, or liver, or other internal organs, and give rise to more continuous impairment of the health. In the way of treatment, two points are paramount: first, removal from the malarious district; and, secondly, the administration of quinine, in doses of from two to six grains, according to the severity of the case, in the intervals of the paroxysms. During the cold stage warm drinks must be given and warm clothing supplied, and during the hot stage drinks must be plentifully supplied. The action of quinine in this disease is one of the most beneficent actions of medicine, the earlier discovery of which might have much altered the history of England. It used to be a most deadly disease in this country. King James I. and Oliver Cromwell died of it. The extensive drainage of the country has practically abolished the disease, excepting in open marshy counties and parts of counties. Sir Thomas Watson gives in a practical form a few of the qualities of the malaria on which ague depends. First, malarious districts are more dangerous by night than day. Secondly, malaria *loves the ground*. Thirdly, malaria is movable *by the wind*. Fourthly, the miasmata lose their noxious property by passing over even a small surface of water, probably being absorbed by it. Fifthly, the marsh poison is attracted towards trees or foliage. Sixthly, culture and drainage interfere with the generation of malaria. Ague is characterised by attacks of shivering, followed by heat, and this again followed by copious perspiration. This group of phenomena is called a fit of the ague, and may recur at intervals of one day.

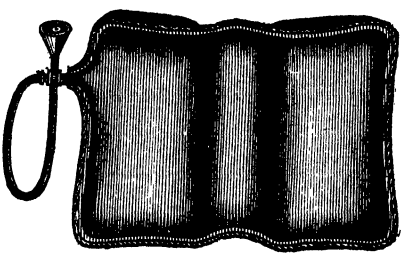
Aigrettes.—A tuft of slender filaments used as an ornament for the head, generally made of feathers, but also of filagree and diamonds. The feathery tuft attached to the seed-case of the dandelion, scabious, and other flowers of that class, by means of which the seed is disseminated, was formerly called aigrette, from whence arose its present application.

Ailment. (*See* DISEASES.)

Air.—This word should be restricted to common atmospheric air, which consists practically of four volumes of nitrogen and one of oxygen, not chemically combined but mechanically mixed. There are other ingredients in very slight quantities, such as watery vapour, ammonia, and nitric acid. It is only of late years that the enormous importance of air to health has been realised. The air we breathe and re-breathe quickly becomes contaminated, and unfit for its purpose—in fact, deadly. Hence the unhealthiness of those who live in rooms in which provision is not made for a constant supply of air from without.

Air-bath.—By this is meant the exposure of the naked body to air, cold or hot. The latter constitutes the Turkish bath, of which we shall have to speak in its proper place. The former is little appreciated by us in these latitudes, but is a great luxury in certain heated states of the body, experienced in hot seasons or in hot countries. It has a soothing, refreshing effect. In some cases of disease a form of air-bath is given by subjecting patients to the effect of condensed air. Some forms of asthma and lung disease are said to be benefited in this way. (*See* TURKISH BATH.)

Air-beds and Cushions.—Invaluable resources in cases of fever, or great emaciation, or certain cases of paralysis, in which, by the constant pressure produced by always lying in one position, the skin over certain prominent



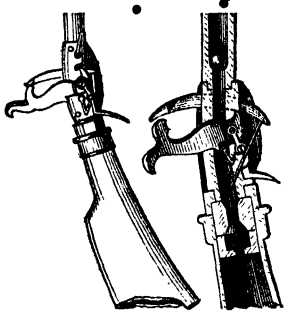
AIR-CUSHION.

parts of the body becomes first red, and then broken. The patient on an air-cushion, or, better still, an air-bed, is relieved from this pressure. The bed gives to the prominent parts, and in this way the weak parts are saved. Air-cushions are also found very useful for persons who have long journeys to take.

Air, Change of.—This is a large subject, which our space here will not allow us to treat at length. Briefly, however, we may notice that everybody is better, once a year, for a change of air and of all the other conditions of their life, though it is not essential either to life or health. There are some diseases in which a change of air is by far the most powerful means of restoration to health. This is especially true of those diseases caused by breathing unchanged air, of which consumption is one of the chief. But there are many lesser failures of health, such as languor, dyspepsia, &c., which require change of air. This is particularly beneficial in many chronic colds and coughs. The change, of course, must be made with reference to the nature of the case. Thus the delicate and consumptive must not be sent to a bleak and cold place, though even these will often be much the better for a bracing atmosphere. Whooping-cough is pre-eminently benefited, and often cured, by a change of air, especially to the sea-air, which is remarkably beneficial and invigorating, partly on account of its constant agitation by the winds and tides, and partly because many of the deteriorating causes which affect land air are absent from it.

Air-gun.—The air-gun is an invention for expelling bullets by the expansive force of air. Although some similar invention is attributed to Ctesebus, a celebrated mechanician of Alex-

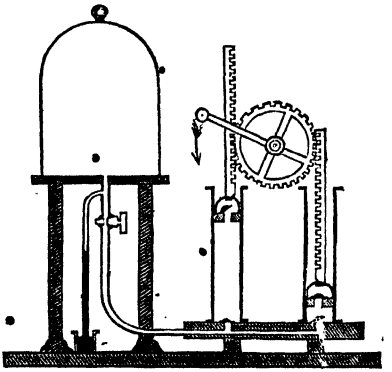
andria, who lived 120 years before Christ, which was used for propelling darts, the earliest reliable mention of such a gun is to be found in the "Elemens d'Artillerie," a work by David Rivant, who was preceptor to Louis XIII. He stated that this gun was invented by Marin, a burgher of Lesieux, who presented one of them to King Henry IV. of France in the year 1592. Its construction is very simple. The chief difference between the air-gun and that used with gunpowder is the presence of a chamber, or reservoir, in the former to receive the charge of air, which is condensed by means of a



AIR-GUN.

syringe sometimes placed in the butt of the weapon, so that the loading may be more properly said to be effected from that part of the gun. The piston is used much in the fashion of a syringe, and the air is forced into the receptacle behind the bullet, which should fit the bore very accurately, and be prevented from escape by a valve by which it is securely confined. The pressing of the trigger opens the valve behind the bullet, which is of course violently propelled by the ensuing rush of air. The moment the trigger is released from pressure the valve closes, and there is usually sufficient air remaining in the receptacle to discharge a second bullet, although with less force. Air-guns are sometimes made in the form of walking-sticks.

Air-pump.—A machine for withdrawing the air from the interior of a bell-jar or other vessel. The ordinary form consists of a cylinder with a valve opening inwards at the bottom, and a piston in which is a valve opening outwards; below the valve at the bottom of the cylinder is a pipe connecting it with the chamber or receiver which is to be exhausted of its air. This is usually a bell-jar, accurately ground at its lower edge, resting on a flat plate into the centre of which the connecting-pipe is fitted. By working the piston up and down the cylinder, a certain, though constantly diminishing, quantity of air passes through the valves at every double stroke. As the piston is drawn out the upper valve closes, and the pressure of the air being then less in the cylinder than in the receiver, the lower valve opens, and air from the receiver rushes into the cylinder; on reversing the operation by forcing the piston in, the lower valve immediately closes, and the upper one opens, as soon as the descending piston has so far compressed the air in the cylinder as to exceed the pressure of the atmosphere, and allows the air to escape. Though at every double stroke of the piston the quantity of air in the receiver becomes less and less, it is clear that by this process a perfect vacuum can never be obtained; but it is easy to reduce the quantity of residual air to such an extent as to serve many useful purposes. All the joints of the air-pump must, of course, be air-tight, and



AIR-PUMP.

the ground edge of the bell-jar rubbed over with a little grease. If the receiver is a large one, it is desirable that there should be two exhausting cylinders, worked alternately by a winch, as the labour of working the pistons becomes increasingly hard as the receiver gets more and more exhausted. A gauge is usually attached in order to measure the amount of rarefaction obtained. This consists of a glass U tube, closed at one end and open at the other, and furnished with a graduated scale. The closed arm of the tube is filled with mercury, and this, of course, will remain full as long as there is the atmospheric pressure to sustain the mercury. The gauge thus charged is suspended in a glass cylinder which has free communication with the receiver. As the process of exhausting the air goes on, the mercury gradually rises in the open arm of the U tube and sinks in the closed one; and the relative change in the level read off on the graduated scale shows the extent of rarefaction obtained in the receiver.

Air, Pure and Impure.—We have already described what we mean by air proper or pure. Impure air covers a large ground; the most common impurities of air are such as result from the congregation of individuals, especially in domestic conditions. The mere exhalations of the body are enough to make air impure, and to charge it with various gases that injure the body, such as carbonic acid gas, ammonia, &c. These, however, are probably not the most injurious things in impure air, inasmuch as by the law of diffusion of gases they are apt to be dispersed. In addition to these the body gives off, especially in the breath, organic particles which are more apt to remain suspended in still air, and to be decomposed, and so to do harm. (*See* AIR; AIR, CHANGE OF.)

Airing Linen, Beds, and Rooms.—Most careful housewives recognise the necessity of airing linen thoroughly after it has been washed. The consequence of wearing damp clothing or lying in damp sheets is almost sure to be rheumatism or illness of some kind. The matter is certainly a most important one. All linen or under-clothing after it has been washed and ironed should be aired before the fire, and turned round and round until there can be no doubt that it is perfectly aired. Clothes that are sent out to wash should be aired in the same way after they are brought home. It is not wise to trust to any laundress; and the mother or housekeeper who wishes to be safe should either see to the matter herself, or put it in the hands of a thoroughly reliable person, that there may be no doubt that it is completely and carefully done.

It is to be feared that the importance of airing beds and bedding is not so well understood. Most housekeepers have a horror of a damp bed, and they think that a bed is damp only when it has not been slept in regularly. The fact is that it becomes damp when it is slept in but not *aired* regularly. Miss Nightingale, an authority on this subject, says, "My heart always sinks within me when I hear the good housewife, of every class, say, 'I assure you the bed has been well slept in,' and I can only hope it is not true. What! is the bed already saturated with somebody else's damp before my patient comes to exhale into it his own damp? Has it not had a single chance to be aired? No, not one. 'It has been slept in every night.'" Every person exhales constantly a certain amount of moisture from the lungs and skin. During the night this goes into the bedding, because it has nowhere else to go. Every one who realises this fact will see how important it is that beds and bedding should be exposed in the open air, or put before the fire at frequent and regular intervals. Besides this, every morning, as soon as the bedroom is vacated, the window should be thrown wide open both at the top and bottom, the clothes and blankets should be stripped off the bed separately, and the bed should be left open as long as possible.

It is also essential to health that rooms should be thoroughly aired. Fresh pure air is one of the necessaries of life, and bad air can strike a man dead as surely as can a knife plunged into his heart. The air which we take into our lungs is fresh air, the air which we send out is foul air; thus fresh air is rendered foul by the act of breathing. Each grown-up person spoils not less than a gallon of air a minute, or in eight hours as much fresh air as seventeen three-bushel sacks could hold. When the surrounding air is not kept pure, disease is induced, a process of slow suffocation goes on, and people die before their prime. It is a well-known fact that those who live in close rooms die on the average seventeen years earlier than those who live out of doors. All this shows the importance of ventilation. A very effectual plan for securing this consists in carrying a pipe of perforated zinc across the house, just beneath the ceiling, from outer wall to outer wall. Then, whichever end of the pipe happens to be in the windy quarter should be closed with a plug. A number of holes will also need to be made near the bottom of the door, to afford as much room to passing air as the inside bore of the zinc pipe. When this somewhat elaborate arrangement cannot be adopted, zinc plates pierced with holes and put in the place of one or two panes in the upper part of the window will answer the purpose; or an air-brick may be put in the wall at the ceiling; or an Arnott's ventilater may be put in the chimney close to the ceiling. One of the most inexpensive, simple, and at the same effectual methods of ventilating a room is the following:—Take a large gimlet, and bore a row of holes in the upper part of the window-frame, just above the glass. These holes should slant downwards a little to keep out the rain, and pegs to fit them should be provided, so that if a very strong wind blows outside they may be closed. A hole a little more than half an inch across will allow as much air to pass through it as will supply the breathing of one person. As a matter of ordinary usage the chimneys of bedrooms should never be fastened up, and during almost every night of the year the window should be pulled down an inch at the top.

Aitchbone. (*See* BEEF.)

Akee.—A West Indian fruit-tree belonging to the order of the *Sapindaceæ*. It is a native of Guinea, and was introduced into the West Indies at the end of the last century. The flowers are small and white; the negro women make a cosmetic from them. The fruit is about the size of a turkey's egg, and is almost as delicious as a nectarine. It has an agreeable acid flavour. When boiled down with sugar and cinnamon, it is administered medicinally to persons suffering from diarrhœa. This tree grows to the height of twenty-five feet. It must not be confounded with the aki of New Zealand, which is a shrub of the myrtle order, and an entirely different plant.

Alabaster.—This, the softest of all stones, is in one form known as gypsum, or plaster of Paris, and in another bearing the name we here give it, exists as a calcareous substance resembling a soft marble, composed of lime and sulphuric acid in frequent combination with carbonate of lime. It is used for various decorative purposes, including vases, statuary, timepieces, &c. The sulphate only is selected for use, the preference being usually given to the hardest, whitest, most transparent, and most granular. It is generally more or less white, but sometimes is red or grey. In another form it is called the stalactite, a carbonate of lime identical in composition with statuary marble. When formed of carbonate of lime it effervesces if touched with strong sulphuric or muriatic acid, but if it is the sulphate of lime the acid will not produce this effect. The most beautiful alabaster is that called Gesso Volterrano, which is found in Italy, and is there much used for the grounds of pictures. The stalactite alabaster exists in many varied kinds and colours. Alabaster when prepared for use is first cut into blocks of the requisite sizes by a

saw, aided with sand, and its softness rendering the mallet and chisel unnecessary, it is worked into the numerous ornamental objects to which it is applied with files, chisels, and gouges of different shapes and sizes. For bronze effects metallic powders are used on an adhesive ground.

Alabaster, To Clean and Repair.—Calcareous alabaster, which is the kind most esteemed by sculptors, and which is used for making alabaster ornaments, is usually cleaned with a little warm soap and water and a brush, or with lukewarm water to which a few grains of carbonate of soda or of ammonia have been added. In either case, the alabaster must be well rinsed in clean water. Gypseous, or common alabaster, of which ornaments such as vases, clock-stands, statuettes, &c., are made, can only be safely cleaned with benzol or pure oil of turpentine. After cleaning, it is possible that the surface will need to be re-polished. Grease spots may be removed from alabaster of any kind with benzol. Alabaster may be joined and repaired with white of egg and quicklime, in the proportion of the white of one egg to a tea-spoonful of lime, or with a little plaster of Paris made into a thick paste with the least possible quantity of water. The plaster is a very cheap material, and a good quantity of it may be bought at an oil-shop for a penny. It is worth remembering that all delicate objects made in alabaster should be protected by a glass shade.

Alabaster, To Etch.—The surface is well polished, and then covered with a mixture of white wax dissolved in turpentine—about two ounces of the latter to one of the former. This mixture is made hot, and is then stirred up with a little dry white lead, or similar powder, until it is thick enough to be used as a paint. An even coating of this mixture having been applied to the polished face of the alabaster, and the intended design, having been previously drawn with red chalk on a piece of paper, is placed face downward upon it, and then gently rubbed until the design has been transferred to it in red chalk. With etching tools the lines of the drawing are next cut through the wax down to the alabaster. This done, the whole is soaked in pure water for between twenty-four and forty-eight hours, according to the depth required in the lines which are bitten into the material where laid bare by removal of the wax by the corroding action of the water. The etching, when dry, is subjected to the action of spirits of turpentine, which removes the wax, and the whole is cleansed with soap and water. When again dry, a thin coating of fine plaster of Paris is applied with a soft brush. Carefully polish with the bare hand, and the process is complete.

Alabaster, To Polish.—Rub first with pumice-stone and water very carefully, and afterwards with a thick mixture of chalk, soap, and milk. Dry, and finish with a piece of soft flannel.

Alabaster, To Stain.—Brush over it, or soak it in, any coloured oil or spirituous tincture. Cochineal gives a good crimson, and gamboge a good yellow. Saffron, tobacco, verdigris, and other colouring matters are amongst the most frequently used. The nitro-muriate of gold gives a very beautiful purple, verdigris a clear green.

À-la-mode Beef.—*À la mode* means, strictly, according to the prevailing fashion. In cookery it is applied to several dishes, more particularly to one of beef. It is generally understood to be a kind of rich stew, and is sold daily in the cook-shops under the name. The true beef *à la mode*, however, consists of a piece of the rump, sirloin, or thick flank of beef, which has been larded through and through, fried gently for a short time, then stewed or braised with herbs, calf's feet, vegetables, stock, and wine, till it is tender. This beef *à la mode* is generally served with the calf's feet cut up with carrots, and with small onions browned and cooked apart. For fuller directions for making this dish, see "Cassell's Dictionary of Cookery."

Alarums are mechanical inventions made to give warning of danger, or to call attention, and are as numerous as they are ingenious. The most useful for the household are *burglar alarums*, which are attached to doors or windows, to give notice of the entrance of thieves; *fire alarums*, which, by being made highly sensitive to heat, give notice of the outbreak of fire; *gas alarums*, to indicate an escape of gas; *clock alarums*, which are made to strike at a given hour; *lock and door alarums*, which call attention to the opening of the objects to which they are attached; and even *pocket alarums*, to notify the abstraction of a book or other article from the person. There are no fewer than 200 patents in the United States alone for different kinds of alarums, the most common of which is the alarum in use for awakening the household, and which is attached to clocks. This is by no means a new invention, though it has been reduced to great simplicity and perfection in modern times. A work published in 1661 tells of a Frenchman who had a clock in his chamber "that should awaken him at any hour of the night that he determined, and when it struck the determined hour it struck fire likewise out of a flint, which fell among tinder to light him a candle. It was the invention of one Caravagin, of Sienna, in Italy.

Albata.—The name given to a white metallic alloy resembling silver, and consisting of copper, tin, and nickel. (*See* GERMAN SILVER.)

Albino.—This name is given generally to a singular description of human beings, possessed of a skin of a peculiar reddish or an unnatural white tint, with corresponding yellowish white or milk-white hair, and red or very light blue or grey eyes. The red eyes of albinos are exactly like those of white rabbits and ferrets. The peculiar features of albinos arise from a deficiency of the colouring principle common to the skin, hair, and eyes. The state of the eyes is the principal source of inconvenience. The absence of the black pigment which has the important duty to perform of absorbing superfluous portions of light, renders the eye pain-

fully sensitive. This evil is counterbalanced in some degree by superior power of vision in twilight, dusk, or imperfect darkness. At one time albinos were looked upon as a distinct race, but closer observation has shown that the same phenomenon occurs in individuals of all races. Albinoism is always born with the individual. More albinos are found in Africa, among the negroes, than in all other countries; for this reason they sometimes get the name of white negroes. It is not improbable that albinoism is to some extent hereditary. The notion that albinos are distinguished from other men by weakness of body and mind, has been completely disproved by facts.

We find albinoism amongst animals as well as amongst men. It has been observed (not to mention the well-known examples of the rabbit, ferret, mouse, horse) in the monkey, squirrel, rat, guinea-pig, opossum, martin, weasel, roe, fox, elephant, badger, beaver, bear, camel, buffalo, ass, &c. The crow, canary-bird, partridge, common fowl, and peacock are sometimes subject to it, and white blackbirds, though rare, and involving an apparent paradox, are nevertheless occasionally met with.

Albumen is an organic compound which enters largely into the composition of animal and vegetable substances. It is the chief ingredient contained in the white of egg. It abounds in the blood, muscles, bones, coagulable lymph, and more or less in all the serous fluids of the body. It exists, too, in the saps of vegetables, as well as in their seeds and edible parts.

Albumen constitutes the starting-point of animal life. In an egg during incubation the chicken is formed from it entirely. It is taken into the system to form the delicate organisms called nerves, and therefore, to use the words of Dr. Lankester, it is by it that we are put into relation with the external world. By it we are enabled to see, to hear, to taste, to smell, to feel, to think, and to be conscious of our existence.

Albumen is soluble in water, and is found in a state of solution in the egg, the serum of blood, and the juices of flesh and vegetables. When heated from 140° to 160° it coagulates, and is no longer soluble. The same effect is produced by a variety of substances. Bichloride of mercury, sulphate of copper, acetate of lead, and nitrate of silver make it insoluble, and on this account it is used as an antidote to these poisons. Alcohol too, ether, creasote, and tannic acid cause the coagulation of albumen, and in this way alcohol is mischievous. It prevents the proper digestion of food by coagulating the albumen which ought to go into the blood, and thus it deprives the nervous tissue of nourishment.

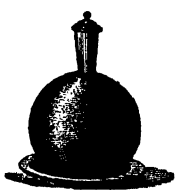
The exact proportions of albumen have not been definitely ascertained. Its chief elements are carbon, nitrogen, hydrogen, and oxygen, with small proportions of phosphorus and sulphur. It is especially important as being the material out of which all the organs of the body are formed.

Albuminous Foods.—Both man and animals require that their food should be of such a nature as will compensate for the waste that is continually going on in the system. Just as a fire would go out if coal were not put upon it, so life would cease if material were not supplied to renew the body and maintain its functions. The elements which take part in the formation of man must therefore of necessity enter into the composition of his food. Amongst these essential elements are carbon, nitrogen, hydrogen, and oxygen, and they are supplied by albuminous or flesh-forming foods. The three most important forms which they assume are albumen, fibrine, and cascine, and they occur both in the animal and the vegetable kingdom. Animal flesh, milk, corn, and many vegetable products contain one or more of these alimentary principles, and they are the food which supply the material for the formation of the muscles and nerves of the body.

Albuminous Varnish. (*See* WHITE OF EGG.)

Albums.—This word, from the Latin *albus*, white, comes to us from the Romans, by whom it was used to denote a white tablet, on which was written edicts, interdicts, and other things of a public nature, the tablet being always put up in a public place. The name now denotes books which are specially devoted to some particular collection. (*See* AUTOGRAPH ALBUMS, CREST ALBUMS, PHOTOGRAPH ALBUMS, PICTURE ALBUMS, SCRAP ALBUMS, STAMP ALBUMS.) Much may be done in the arrangement of these books to add to their individual interests. Some decided plan should be devised and adopted. When making choice of a book of this class, take one which will afford variety in its pages for the placement of its contents. The larger sized albums give greater scope for variety, but unless good ones are bought, these books are soon destroyed, for their own weight pulls them to pieces, unless they are well and strongly made.

Alcarraza (Water-cooler).—This is the name given to a porous vessel shaped like a bottle, used for cooling water. It is commonly used in hot countries, and especially in Spain, where it is to be found in almost every house. The alcarrazas are so porous, that when they are filled with water the liquid oozes slowly through, and stands on the outside in minute drops, like dew. This evaporates, and so cold is produced, particularly when the air is warm, or when there is some wind. The loss of heat from the outside is supplied from the water contained in the vessels, and as the evaporation goes on, the degree of cold is gradually increased. Alcarrazas were introduced into Spain by the Saracens, but vessels of a similar sort have been known from time immemorial in China, Hindostan, Persia, Arabia, Egypt, and Syria. They are now manufactured in England with success, chiefly in Staffordshire and Derbyshire. They are made in France under the name of *hydrocérames*.



ALCARRAZA.

Alcohol.—The spirit which results from the distillation of any fermented saccharine fluid, and the active principle of wines, beer, spirits, and other intoxicating drinks. It has various degrees of strength, according to its purity or dilution. These are named respectively, absolute alcohol, rectified spirit, and proof spirit.

Alcoholic Drinks.—These are various. In one form or another they are largely consumed in most countries, and especially in this. Those in chief demand are wines, beer, and spirits. The following is a list of the principal alcoholic drinks in ordinary use, taken from Dobell's book on "Diet and Regimen," and giving the proportions of alcohol and carbon contained in each. For effects of excess in the use of these drinks, *see* ALCOHOLISM.

ALCOHOL TABLE.

The *weight* of Absolute Alcohol (sp. gr. 796 at 68° F.) and of Carbon, dissolved, in *measured* quantities of Spirituous Liquors.

Spirituous Liquors.	1 oz. Avoir. Abs. Alcohol is contained in fluid ozs.	1 oz. Avoir. Carbon contained in fluid oz.
ARDENT SPIRITS—		
Proof Spirit	2·26	4·3
Whisky	2·6	5·0
Brandy	2·7	5·0
Rum	2·8	5·3
Arrack...	3·0	5·8
Gin	3·2	5·5
WINES—		
Roussillon	6·4	8·6
Sherry	6·6	10·2
Cape Madeira	6·8	11·0
South African Port ...	6·8	10·0
Port	6·9	10·2
Bucellas	7·3	11·2
Marsala	7·5	11·7
East India Madeira ...	7·6	11·3
Frontignac...	9·0	7·8
Champagne	12·6	11·3
Hock	13·4	20·4
Hungarian *Red* Vöslau ...	14·1	21·2
Burgundy	15·2	23·8
Moselle	15·2	23·3
Claret	16·3	23·4
Sauterne	19·0	27·2
Hungarian *White* Neszmely	19·0	28·8
CIDER	64·0	40·0
MALT LIQUORS—		
Ale, Burton, Bass (1 84/)	12·5	9·0
,, ,, ,, (3 60/)	14·2	13·0
,, Pale ,, (● 0/)	19·0	17·5
,, India (Gardner, X 54/)	23·0	28·0
,, Bottled { Scotch (Edinb.) }	19·0	13·1
,, Bottled { Pale... ...	25·0	20·5
,, "Eightpenny" ...	22·7	22·2
,, Family, 1/ gall. ...	24·9	22·0
,, "Fourpenny"	25·4	23·0
Stout, Dublin (bottled)...	20·8	16·7
,, London	21·5	18·9
Porter, London	35·6	26·6

Alcoholism.—Alcoholism may be defined as the effect produced on the body by any excess of alcohol taken. There are many who say that any alcohol taken is excess; in other words, that it is not anything but a poison in any quantity, at least to persons in health. This is an extreme position. But all sensible medical men now recommend it with extreme care; and it is evident to everybody that those persons who take least of it will compare favourably in health and longevity with those who take it in larger quantities. Alcoholism may be defined to be the result of alcohol on the structures and functions of the body. There are certain parts of the body which are particularly injured by alcohol: these are gland structures, such as the liver and the kidney; nerve structures, such as the brain and spinal cord; and the blood-vessels, especially the arteries. Diseases resulting from these constitute alcoholism, and in some degree they are often to be seen in men who would not be considered intemperate. Different people have very different degrees of power of resisting alcohol. Different forms of alcoholic drinks give rise to different forms of alcoholism. What is harmless to one man may be the cause of disease in another. Generally it may be stated that port wine and porter in excess give rise to gouty and rheumatic forms of disease; spirits to liver congestions and contractions, and to delirium tremens; beer to corpulence, distension, heaviness, sluggishness, and often rheumatism. A very painful form of alcoholism is the loss of moral control over the quantity taken, often accompanied with a lowered *morale*, and occurring more or less periodically. The nervous system suffers throughout, as is shown by shakiness, slyness, sleeplessness, often followed by some form of paralysis, and not unfrequently by insanity. This condition is far from uncommon, and is likely soon to be the subject of legislation. For all these forms of alcoholism there is only one efficient remedy, and that is, the abandonment of alcohol. This is, no doubt, a hard remedy, but it is easier than half-and-half measures, and far more effective, and it can be made easier still by good soups and aromatic tonics, such as the following:—Dilute nitric acid, ten minims; tincture of capsicum, ten minims; compound tincture of gentian, one drachm; peppermint water, one ounce: taken three times a day.

Alcoholometer.—This is an instrument for estimating the proportion of alcohol contained in any liquid. Of course the commercial value of spirits mainly depends upon their richness in this respect, and it is most important that it should be possible to test them quickly and accurately. Various methods of doing this have been proposed and adopted at different times, and these have been founded upon the heat evolved by alcohol when mixed with water, the variations in temperature of its vapours at different strengths, the tension of its vapour, its dilatation by heat, its volatility, &c. None of the processes are, however, absolutely accurate, and therefore, when this is required, it is necessary to analyse the liquid chemically. Syke's Hydrometer, which is the one adopted by the Board of Inland Revenue, and which is very largely used, is generally regarded as furnishing approximative results both with facility and expedition.

Alcove.—A wide and deep recess in a room, frequently marked off by pillars or pilasters. In some foreign countries—Spain, for example—it is customary to place the bed in it. Alcoves were introduced in their dwellings by the ancients; and at one time they were very common in France, where the large size of the

apartments rendered them absolutely necessary as a protection against the cold during sleep. Sleeping in alcoves or any such confined spaces is, however, now rightly prohibited by physicians as prejudicial to health. In England the term alcove is often used for recesses, and small buildings with seats in them, in gardens and pleasure grounds.

Alderman.—This word was of common use with the Anglo-Saxons, and strictly signified the "earl" or alderman of the shire to whom the government of it was entrusted; but all rulers and princes, earls and barons were indiscriminately designated "aldermen."

Now the title is restricted to an important set of officers in municipal corporations, ranking generally after the mayor or head, and usually chosen from the body of town councillors. In a few boroughs an alderman is the head of the corporation, and answers to the mayor in other towns. The Charter of Incorporation of each borough describes the title of the corporation as the "mayor, alderman, and councillors," or the "alderman and burgesses," &c. &c.

The Municipal Corporation Act, 1835, effected great changes in these bodies, and to a large extent assimilated, and now regulates, their practice.

Ale was a favourite drink of the Anglo-Saxons. We find that the city of Chester had a law that all those who brewed bad ale were either to be placed in a ducking-chair, and plunged in a pool of muddy water, or were to be fined four shillings. Ale, too, is mentioned by Chaucer, and its praises were sung in numberless songs and ballads.

This ale, however, was very different to the ale of to-day. It was made of malt, to be sure, and was an intoxicating drink, but hops were not put into it; the bitter flavour was drawn from ivy berries. Hops were originally derived from Germany. The first attempt that was made to introduce them into England was in the beginning of the fourteenth century. It was defeated, however. Parliament was petitioned on the subject, and the hop was described as a wicked weed. As late as the beginning of Henry VIII.'s reign, brewers were forbidden to use hops and sulphur. But popular feeling changed in a very few years. In 1524 hops were brought in, and then it was that the German name for malt liquor, *bier* (beer), was used to distinguish the hopped liquid from "ale," the unhopped. According to the old rhyme—

> ——"The Reformation and Beer
> Came into England in the same year."

Now-a-days, ale is understood to be pale-coloured beer, prepared by the ordinary process of brewing from lightly-dried malt, and distinguished chiefly by its strength, and the quantity of sugar which remains in it undecomposed. There are many varieties of modern ale, and the best pale malt is used in their preparation. Burton ale is the strongest ale made. It contains as much as eight per cent. of alcohol, while common beer has only one per cent. Some of the finer kinds of ale are highly "hopped" or bittered, to make them keep better when they are sent abroad, and so have to undergo certain changes of temperature. India pale ale is one of these. Scotch ales, on the contrary, are distinguished for the small quantity of hops they contain, and for their "vinous" flavour. As a rule, mild, sweet ales are less intoxicating, though more nutritious than strong, bitter ones.

In brewing the finer kinds of ale, it is necessary that the boiling should be conducted with great care. The fermentation is allowed to proceed slowly, being carried on at a lower temperature than that allowed for other varieties of beer. Ordinary ale which is to be used at once may be made entirely of pale malt. If, however, it is to be kept, and a slight colouring is not objected to, a proportion of amber malt may be employed. These proportions, however, must of course in all cases be determined by the quality and description of the ale to be brewed.

Ale, Acidity of, To Correct.—When ale has gone sour in the cask, the best way to recover it is to open the bung-hole of the cask for three days, then to put into it two or three pounds of oyster-shells which have been washed, dried well in the oven, and beaten to a fine powder. After the powder has been added, the liquor must be well stirred, and it will soon settle fine, and lose its sharp taste. Sometimes egg-shells are used by brewers for this purpose. Publicans are in the habit of adding powdered chalk, carbonate of soda, and pearlash to beer; then when the acidity is nearly removed, coarse sugar, called "foots," is put into the cask in the proportion of as much as four or five pounds dissolved in water to each hogshead. Beer recovered in this way needs to be drawn off quickly, as it soon gets flat. To remove acidity on a small scale, a few grains of carbonate of soda per glass are often stirred briskly into the ale just before it is drunk.

Ale-brewing. (*See* BREWING.)

Ale-casks, To Clean. (*See* CASKS.)

Ale, Fining of.—Ale which has become thick, either from being badly brewed or badly stored, needs to be clarified. For this purpose brewers' finings—that is, isinglass or gelatine dissolved in sour beer—are employed, and the proportion used is on the average from a pint to a pint and a half of finings, or an ounce of isinglass to the barrel. To clarify ale adopt the following method:—Dissolve the isinglass in as much beer as will make it of the thickness of treacle, strain it through canvas, and add more beer to make it of the consistency of cream. Draw out a pail of beer, add the finings, and agitate the mixture violently with a whisk till a frothy head is formed. Pour the whole through a funnel into the bung-hole, and to make room for it, draw out another pailful of beer. Stir the ale well, pour back the last pailful, replace the bung, and let the liquor repose for a week or ten days. At the end of that time test it. If it is not clear, add a tea-spoonful of sulphuric acid, or two or three ounces of tincture of catechu mixed with a little water, or a table-spoonful of powdered catechu dissolved in half a pint of boiling water, and stir the beer for a quarter of an hour. The introduction of any one of these ingredients will in all probability

cause the finings to act. A handful of hops, too, boiled for five minutes in a little of the beer, and put into the cask a few days before the liquid is clarified, will have the same effect. Some people who use high-dried barley-malt for brewing put a bag containing three pints of wheat, or three pints of wheat-malt, into a hogshead of liquor, and this fines the beer. When ale is very new it may have an old taste imparted to it by putting a sliced Seville orange into the cask.

Ale, Storage of.—The beer-cellar should be kept at a permanently uniform temperature, ranging between 44° and 50° Fahrenheit. In order to ensure this, a thermometer should be kept hanging in it. An underground apartment, or one in the centre of the basement portion of a large building, is the best for the purpose. It should be kept as clean and airy as possible. If cellars are damp and chilly, March is the best month to brew in; if they are so situated as to be exposed to great heat, October is the best. In order to keep strong beer in good condition when once a cask is broached, a little thought should be given to the time when it is likely to be finished. If it is likely to be quickly drank, it will keep good to the end; if it is to be drawn off slowly, it will be better to bottle the liquid as soon as a little less than half of it has been taken out, otherwise it will spoil. As soon as the beer is laid in, and when fermentation ceases, knock in all the vent-pegs lightly, and keep the casks very still.

Ale, To Bottle.—First see that the bottles to be used are perfectly sound, sweet, clean, and very dry. If the bottles are at all moist, the ale will turn mouldy or "mothery." Next ascertain that the corks are sound and quite new. The practice of using inferior corks for the purpose of stopping the mouths of bottles is a very wasteful one, for with them the air is only partially excluded, and the contents suffer in consequence, the ale never becoming in the least brisk. Those corks are the best which are soft and clear from specks. The liquor to be bottled should be perfectly clear; and if it be not so, it should be "fined." (*See* ALE, FINING OF.) When it is fine, and in good condition, take out the bung of the cask, and leave it out all night. Put the liquor into the bottles, and leave it for twelve or twenty-four hours, covering the mouths of the bottles with paper to keep out flies and dust. Then cork the bottles securely and as tightly as possible. An inch and a half of empty space should be left between the liquor and the lower surface of the cork. Keep the bottles in a cool situation; but if any of the ale is to be used quickly, lay the bottles on their sides in a warm place. Beer which has grown flat, or which has been drawn and not used, may be bottled with advantage. In this case, two or three lumps of sugar or a few grains of rice should be put into the bottles. Ale should never be bottled so long as it is inclined to spirt from the vent-peg. When this has ceased it may be bottled at once. October beer should not be bottled before Midsummer, nor March beer till Christmas. When bottling ale it is well to remember that the liquor which is at the top and in the middle of the cask will be stronger, and will rise sooner in the bottle, than that which is at the bottom.

Alegar.—A sort of vinegar, so called from being made of sour ale. (*See* VINEGAR.)

Alembic.—A particular kind of vessel, generally made of glass, and used in the distilling of liquids. Both the form of vessel and the term are now somewhat out of date. The word is derived from the Arabic.

Alençon Lace.—This is the only kind of costly French lace which is not made on a pillow, but entirely by the hand. A design is engraved on a copper plate, and then printed off in portions nine or ten inches long. The pattern is then printed on green parchment, white being considered injurious to the eye-sight of those engaged on this fine and intricate work. The parchment is stitched on pieces of coarse linen folded double. The outline is then marked out by two flat threads, and then the ground is fabricated with a fine needle and thread. This lace is made in small pieces by different workwomen, and these divisions are afterwards joined together by invisible seams: in this particular lace horse-hair is inserted along the edge to give it firmness. This lace was first made in the seventeenth century at Alençon, in Normandy, by order of the then reigning king, Louis XIV. At that period lace was worn on many articles of male and female apparel, and the French ladies and gentlemen spent immense sums of money on Venetian point and other foreign laces, the lace then made in their own country being too coarse to suit their fastidious taste. Louis established a certain Madame Gilbert, with thirty workwomen, in a château near Alençon, with orders to imitate Venetian point. Their fabrications were, however, more elaborate than their copy. Thus originated Alençon lace, which at that time and for some years later was called "Point de France."

Aleurometer (Flour Test).—This valuable instrument was invented by M. Boland for the purpose of testing the quality and discovering the quantity of gluten in wheat-flour. It consists of a tube which is divided into two parts, one of which, formed like a cup, screws into the other. When using it, a little gluten is put into the cup part, and then the apparatus is placed either in the oven or in an oil bath, and exposed to a temperature of 350° to 380° Fahrenheit. The quality of the gluten is determined by the extent to which it swells with the heat. If good, it will swell to four or five times its original quantity, and will throw off an aroma suggestive only of hot newly-baked bread. If bad, it will not swell, but will become slightly glutinous, and will smell very disagreeably.

Alexandrite.—A variety of chrysoberyl found in Russia, and remarkable for being emerald-green by reflected light, and red by transmitted light. (*See* CHRYSOBERYL.)

Algæ.—Algæ forms about the lowest type of vegetable life. They are that class of plants which may be seen growing upon old palings

and trunks of trees. The commencement of the formation of algæ is a fine dust, which matures itself into minute cells, and to see the wonderful character of them requires a glass of a high magnifying power. The green-looking moss which grows on the paths of gardens as the result of damp, with a dark jelly-like appearance, is another form of the same kind of vegetation. Algæ freely grows in ponds and rivers, and at the bottom of rivers bright green patches may be seen. This affords a home for thousands of insects, and gives food for an equal number of fishes; the trout especially resort to it, and ducks find an ample feast amongst it from the insects that swarm amongst its leaves.

Algebra is a branch of pure mathematics, and has been defined to be "the method of reasoning about numbers, by means of letters which are employed to represent the numbers, and signs which are employed to represent their relations." The term algebra is generally considered to be of Arabic origin, the Arabs calling the science *Al gebr wal mokábala*—the art of supplementing and equalising—having reference to the processes carried on in the resolution of an equation. Some would restrict the term algebra, and define it simply as a method of resolving problems by means of equations. (*See* EQUATIONS.) An old writer well describes this science as "a peculiar kind of arithmetic, which takes the quantity sought, whether it be a number, or a line, or any other quantity, as if it were granted, and by means of one or more quantities given, proceeds by consequence, till the quantity at first only supposed to be known is found to be equal to some quantity or quantities which are certainly known, and consequently itself is known." With the ancients, and indeed until the sixteenth century, the unknown quantities alone were represented by some letter or character, the known quantities being always expressed by numbers. But in A.D. 1590, Vieta, a Frenchman, made a grand advance, denoting all quantities known and unknown by symbols or letters, thus easing the brain of the vast effort required to keep the several matters necessary to the discovery of a true solution ever present to the mind. The oldest known work on algebra is that of Diophantus, a Greek of Alexandria, in the fourth century after Christ. What evidence exists, however, seems to show that this work was not known in Europe till the sixteenth century, and that our knowledge of the science was derived through the Arabs, who in their turn obtained it from the Hindus. Previous to the publication of the treatise of Diophantus, the chief source of European information was the work of Mohammed Ben Musa, an Arab who lived in the ninth century. The advance in the science brought about by Vieta has already been mentioned; after his time the most valuable additions and improvements have been those of Descartes and Newton.

Algerian Embroidery.—This wondrous embroidery is principally executed by young girls, who accomplish their work with astonishing rapidity. The materials decorated by their needles are velvet, satin, cashmere, muslin, gauze, and kid. On these they broider elaborate designs with floss silk and gold and silver thread. The peculiarities noticeable in Algerian embroidery are its brilliancy of colouring, and the immense variety displayed. A pattern is never exactly repeated; the two sides of one curtain are not made alike. Probably the pattern itself would be different, but if no alteration were made in that, then the colours would be changed. A proof of its excellency is that there is no *wrong* side; one side of the work is equally as good and presentable as the other. It is costly, especially when broidered in gold or silver; then as large a sum as ten pounds will be demanded for a vest. This art has been greatly revived during the last few years, owing to the taste and patronage of those English who have resorted to Algiers for the sake of health.

Algerian Lace.—Gold and silver thread are employed to make this particular kind of lace. It is made braid fashion, and is both heavy and costly. It is fabricated in the country from whence it takes its name.

Algerian Trays.—These handsome trays are made of metal work, which is burnished, and has the appearance of gold veined with coloured threads.

Alias.—Literally, otherwise; at another time. In legal signification the term was applied to a second writ, after a former one had expired or proved abortive. It is more commonly used when a person has assumed one or more names, as Jones, *alias* Smith. The assumption of an alias does not absolve a person who has taken it from the responsibility of any act he may have done under that name. Thus a marriage under an alias is perfectly valid.

Alibi signifies elsewhere; in another place. When a person accused of some crime pleads in defence that he was at another place when the crime was committed, he is said to set up "an alibi."

Alicante Raisins. (*See* RAISINS.)

Alicante Wine is a rough and rather sweet wine, from the province of Alicante, in Spain. It is often called *vino tinto*, on account of its dark colour. It is largely used to "doctor" thin clarets for the British markets.

Alien.—A person born beyond the jurisdiction of the Crown of England. He was formerly, until naturalised, subject to many disabilities, and could not hold land. By Statute 33 Vict. c. 14 (the Naturalisation Act, 1870), many facilities for naturalisation are afforded, and an alien's position is now in great measure assimilated to that of a natural born subject. In particular he is empowered to hold real and personal estate of every description.

By 33 & 34 Vict. c. 77 (the Juries Act, 1870), aliens domiciled in England and Wales for ten years and upwards are competent to serve on juries or inquests.

Alienation.—The disposing of real or personal property by sale or otherwise. The right to alienate real (*i.e.*, landed) property has been of slow growth in this country, consequent mainly upon the rigour of the old feudal system. Formerly, all estates in land were

life estates only, and the consent of the lord of whom they were held was necessary to their alienation. However, the practice of what was termed "subinfeudation" gradually sprung up; and ultimately the Statute of *Quia Emptores* enacted that every freeman might, without his lord's consent, sell his entire land, or any part thereof. The power of alienation of real estate by deed thenceforward became complete. As regards personal estate, the power of alienation has always existed, qualified, however, by some difficulties in its exercise.

Aliment.—This is a term of wide application, signifying generally whatever affords nourishment to the body. The various articles of food differ greatly in the quantity of nutriment they contain, as well as in the character of their ingredients. Vegetable substances, such as starch, sugar, &c., are made up principally of carbon, hydrogen, and oxygen; most of the animal foods supply nitrogen also. A suitable combination of both descriptions is necessary for the proper alimentation of the human body. The gluten in wheat and the farinaceous seeds generally contains a notable proportion of nitrogen, in addition to the usual ingredients of plants; and hence the highly nutritive power of bread, combining as it does to some extent the properties of both animal and vegetable food.

Alimentation has reference to the process by which food is taken and digested, and assimilated, and will be further discussed under DIGESTION, FOOD, &c.

Alimony.—The allowance made to a married woman when she is living apart from her husband, either pending a suit for divorce or separation, when it is termed alimony *pendente lite*, or at the termination of the suit (*i.e.*, supposing it to result in a decree for divorce or judicial separation), when it is termed "permanent alimony." The amount of alimony is generally regulated by the condition in life of the parties, number of children, &c. The principal Statute regulating divorce and separation is the 20 & 21 Vict. c. 85, intituled "An Act to amend the Law relating to Divorce and Matrimonial Causes in England."

Alkalescent Drinks are natural mineral waters, the chief characteristic of which is the presence of sulphate and bicarbonate of soda. They are useful as medicinal drinks for constipation, gout, dyspepsia, &c. There are many springs of this kind on the Continent, the most celebrated of which are those at Ems, Carlsbad, and Vichy. In England they are found at Harrogate and Malvern. These waters should never be used except under medical advice, but when taken prudently they are of great advantage, and they can be purchased in bottles and used by invalids at home. They should be drank before breakfast, at intervals of a quarter of an hour between each tumblerful, moderate exercise being taken meantime. (*See* MINERAL WATERS.)

Alkali.—An Arabic name, originally limited to potash, but now applied to a whole class of substances, including soda, ammonia, and lithia. The alkalies will neutralise the strongest acids, forming compounds which are termed salts. They restore the bluish colour to vegetable infusions which have been turned red by acids. Lime, baryta, and strontia have many characteristics in common with them, and are therefore classed as alkaline earths. In commercial language the term is understood to mean soda-ash, an article manufactured on a very large scale in Lancashire, and in the neighbourhoods of Glasgow and Newcastle. This is the carbonate. Soda crystals are made from the ash by dissolving it in boiling water, and then running the solution out into cooling pans to crystallise; nearly two-thirds of the weight of the crystals consists of water of crystallisation. Caustic soda and the bicarbonate are also made from the ash.

Alkaline Lotions are used for irritable itchy affections of the skin. A very good one, useful and soothing in eczema, is made by adding half a drachm of carbonate of soda to half a pint of water.

Alkaline Solutions.—Various solutions of ammonia, potash, and soda salts are used in medicine as antacids. Those of the first-named alkali are also valuable as stimulants. (*See* AMMONIA, POTASH, SODA.)

Alkaloid.—There are a large number of vegetable substances which have many properties in common with the alkalies, and hence they have been grouped together as alkaloids. The list of them includes a large proportion of the most active vegetable poisons, as well as others that are more beneficent in their effects. Among them are the special principles of tea, coffee, cocoa, and white mustard; of the foxglove, henbane, hemlock, poppy, and tobacco plants; of aconite, belladonna, strychnine, veratria, quinine, &c. They all contain nitrogen in addition to the usual elements, carbon, hydrogen, and oxygen.

Alkanet.—A fine red dye, principally used in perfumery to colour ointments, lip-salve, pomades, &c. It is obtained from the bark of the root of a kind of bugloss, growing wild in some parts of England, and cultivated in gardens in others, but chiefly brought from the South of France. The dye can be distilled only in oily substances, or in alcohol, as in water it only yields a dull brown tint. White marble is sometimes coloured with the spirituous decoction. Alkanet is also used medicinally. The root is made into an ointment, and is used for bruises; and a decoction of it, with honey, is excellent for ague, jaundice, and diseases of the kidneys. The leaves, infused with hyssop, are recommended as a vermifuge; and when macerated with the root in wine, are considered useful for some internal disorders.

Alkermes.—Alkermes is the name of a liqueur much in use in Italy, Spain, and other parts of Southern Europe. It is made from bay-leaves, mace, nutmegs, cinnamon, and cloves. These are well bruised, and mixed with cognac, and the whole is carefully distilled (*see* KERMES), after which clarified spirit of kermes is added, to impart the peculiar flavour for which the liqueur is so much valued.

All Fours (Cards).—This game is played in this wise:—Two persons play with a complete pack of cards. Six cards are dealt out, and the thirteenth is turned up for the trump. There are four chances, so to speak, of scoring points; one point is scored for each chance. Should the four fall into the hands of one player, he has All Fours, hence the name of the game. He who can score ten points first wins the game. The four chances are these—high, low, Jack, and game. High signifies the best trump out; low is the smallest trump dealt (this is always scored by the person to whom it is dealt); Jack is the knave of trumps (when he is turned up as the trump card the dealer scores). Game is scored by the player who can count the greatest number from the following cards in his tricks—viz., four for an ace, three for king, two for queen, one for knave, ten for a ten. It is therefore the object of each player to keep his own court cards and tens, and also to try and get those of his opponent. The player who lays down high or low trumps may ask if it be high or low. Also, if a player is not satisfied with his cards, he may say, "I beg;" and the dealer is then obliged to give him a point, or else to deal out three more cards to each player, the seventh card being trump. But should this prove to be of the same suit, three more must be dealt, until the suit is changed. It must be remembered that this request can only be made once.

Alliaceous.—A term employed to denote certain bulbous roots of the garlic family, and used in domestic economy. The principal representatives of alliaceous plants among us are the onions, leeks, shallots, garlic, chive, and rocambole. Sometimes the word simply means what has the smell or other properties of garlic.

Allocatur.—Literally, it is allowed. In legal business the word is chiefly employed to indicate the amount allowed by the "master" (an officer of the courts of justice appointed for that purpose, but who also exercises other functions, as references, &c.) on taxation of a solicitor's bill of costs, for business done in the courts of justice, conveyancing, &c. (*See* Taxation.)

Allodial denotes the tenure of lands held by right of absolute possession, without the acknowledgment of any superior lord, and was used in contradistinction to feudal lands, which were held of a superior lord. There is now no strictly allodial land in England, all land being supposed, however fictitiously, to be held of the Sovereign.

Allopathy.—A term derived from two Greek words meaning "different feeling." A word very misleading, but supposed to distinguish the ordinary practice of medicine from homœopathy, which implies the use of medicines which seem to produce when given to healthy people symptoms similar to those which have to be relieved. (*See* Homœopathy.)

Allspice is a small dry berry, the fruit of *Eugenia pimenta*, an evergreen tree of the myrtle order, which grows to a height of from fifteen to twenty feet, and which is common in the West Indies. The berries are not left on the tree to ripen, but are gathered green, then are dried in the sun, and become black. The popular name allspice is given to pimento because it is supposed to combine the flavours of cloves, cinnamon, and nutmeg. The flavour is very agreeable, and contains about four per cent. of aromatic, pungent oil, somewhat resembling that of cloves. Allspice is much used for domestic purposes, and in pharmacy to cover the taste of disagreeable medicines. In itself it is both stimulating and strengthening, and is much esteemed for assisting the action of medicines intended to cure dyspepsia, flatulence, gout, and hysteria. Our supplies of allspice come wholly from Jamaica.

Allspice, Essence of.—Allspice yields its odour, with its other properties, to alcohol, ether, and water. The decoction, under the name essence of allspice, is used as a flavouring by cooks and confectioners. The essence of allspice used for pimento water is made from the essential oil of pimento mixed with spirits of wine.

Alma Mater (Latin, nourishing mother).—A name applied to a university to express its ideal relation to its students. (*See* Alumnus.)

Almanac.—An annual register or table containing a calendar of days, months, and the civil divisions of the year, the times of the rising and setting of the sun and moon, the ebb and flow of the tide, eclipses of the sun and moon, and other phenomena, together with much other useful information. From the earliest period of their history among the ancients until the end of the last century, almanacs consisted mainly of astrological and other predictions, and in consequence enjoyed great popularity throughout Europe. In this country a monopoly for the sale of almanacs was granted by royal letters patent to the two Universities and the Stationers' Company, and was enjoyed by them until 1775. At the present day, the space formerly occupied by astrological predictions, and other foolish and pernicious matter, is now admirably utilised in the higher class almanacs by a vast variety of useful information, statistical tables, political data, commercial and agricultural news, &c. The word almanac is derived from the Arabic particle *al* and *manah*, to count.

Almandine.—A variety of spinel bears this name, and is also known as almandine ruby from its resemblance in colour to the true gem. It is a fine lively red stone, but is less brilliant than a real ruby, and has a cinnamon tint mixed with it. The inexperienced might be persuaded to buy it for a genuine ruby, but experienced jewellers would readily detect it. The name almandine is also given to a sort of garnet, which, though very pretty, is of small value, and only used for comparatively cheap jewellery. (*See* Spinel.)

Almond Oil is produced from the kernels of fresh almonds, which are bruised in a stone mortar, and then placed in a hempen sack, and the oil is expressed without heat. The oil of almonds is obtained either from bitter or sweet almonds. It is black, emollient, and nutritious. It is one of the most agreeable

oils to take, and is mildly laxative. It is very frequently adulterated with poppies, rape, and even colza oil. Almond oil is the chief ingredient in many of the preparations sold for purifying and preserving the complexion. It is also used for flavouring cakes, custards, and blancmange. Great care, however, should be taken in employing it for this purpose. The essential oil always contains a considerable quantity of prussic acid, and no preparation of bitter almonds should be used in the kitchen until this most poisonous substance has been removed.

Almonds, Uses and Preparations of.—The almond disputes with the apple the title of the most useful of fruits. It is wonderful into how many preparations it enters, in some of which it is the chief ingredient, while in others it plays a subordinate part. In confectionery it forms the basis of many tempting sweetmeats, such as *nougat* and *hardbake*, *candied* or *sugared almonds*, and *pralines*. In cookery it is used in *almond cream*, which is simply cream flavoured with almonds, and employed to improve and enrich white soups and sauces; *almond blancmange*, which is the same cream sweetened, stiffened with isinglass, and turned out in a mould; *almond icing*, which is the best part of a wedding cake, and which lies between the cake proper and the sugar icing on the top; *almond syrup* or orgeate, which was originally barley-water flavoured with almonds, and from which the barley came to be left out; *almond milk*, which proves so useful to clergymen and singers, and all who have to use the throat much, and which is simply iced water in which almonds have been infused, with a little orange-flower water added. In pharmacy *almond paste* or *emulsion* acts either as a medium for the preparation of medicine, or as a pleasant, cooling drink, and is found most useful in fevers. It is beneficial in its action on the skin, and either cures or relieves cutaneous disorders. In perfumery *almond oil* is employed for the same purpose as olive oil, and forms the basis of various preparations for the toilet. The farinaceous matter which is left after the oil has been extracted forms the *pâte d'amande* so valued by Parisian beauties. Almonds are used also in *soap*, the large quantity of alkaline principle which they contain rendering them particularly suitable for the purpose. In the neighbourhood of Alicante the husks of the almonds are ground to powder, and prepared for this purpose. *Blanched almonds*, which are almonds freed from their skins, are served with raisins for dessert; they are also employed to garnish sweet dishes. Almonds have been used instead of coffee, and they have been introduced into bread. Altogether it would be difficult to name a fruit that has been utilised in so many different ways as the almond.

Almonds, Varieties of.—The almond is the seed or kernel of the almond-tree, the *Amygdalus communis* of botanists. This tree, which grows to a height of from twenty to thirty feet, resembles the peach in appearance. It is indigenous to Persia, Syria, and the north of Africa, and is much grown in the south of Europe. It is extensively cultivated in the northern parts of Germany and in Britain, but it is incapable of ripening its fruit in cold climates, and is valued for the sake of its beautiful vernal flowers. They are produced in great abundance, and resemble those of the peach in form and often in colour, though they are generally of a paler hue. The blossoms appear before the leaves, and are very ornamental in gardens and shrubberies during March and April.

There are several kinds of almonds, of which the most important are the sweet and the bitter varieties, so named from the flavour of the kernel. They are sold both shelled and unshelled.

Bitter almonds are smaller and thicker than sweet almonds. They are used to flavour confectionery and liqueurs, and to clear muddy waters. They used to be largely employed in medicine, and are said to have proved useful in pulmonary and dyspeptic affections, whooping-cough, and asthma. They are said to act as an antidote to intoxication, and thus in ancient times people chewed them when they wished to take large quantities of wine with impunity; and Plutarch tells us how a Roman physician, who was expected to drink freely, kept himself from being drunk by eating bitter almonds between his cups. The most rapid of poisons, prussic acid, is derived from bitter almonds, and great discretion is required when they are used for domestic purposes. Taken in large quantities they are poisonous, and even in small quantities they have been known to produce unpleasant symptoms. Bitter almonds are obtained from Morocco, and are exported from Mogador.

When almonds (simply) are spoken of or referred to, *sweet* almonds are always meant. Of these there are Jordan almonds, which are the finest; Valentia almonds, which come next in quality; Italian and Barbary almonds, which are like Valentia almonds, but smaller and plumper; and a fourth kind, of medium quality, which are sent over in baskets from Spain. Sweet almonds have a very agreeable taste, and are used both in a green and ripe state. When green they are preserved in sugar, like apricots; when ripe they serve as an article of dessert. Although they are considered nourishing, they frequently disagree with persons of weak digestion. The husks especially are likely to produce discomfort in this way, and therefore it is best to send them to table blanched. In domestic economy sweet almonds should always be used in preference to bitter ones.

Alms-bags.—The Saxon word "almes" denotes what is given to the poor out of charity. Within the last few years the alms-bag has almost universally taken the place of collecting box and plate, on the principle that gifts of this character should be given secretly. Alms-bags look best when made of velvet or cloth; other materials are used, but they are not sufficiently substantial to look well for the purpose. The shapes are various; the most convenient is a deep pocket. The velvet is pasted or tacked very firmly on to holland. The design is cut out in thin cardboard: this must be carefully and exactly executed. The card is then fixed on the front of the bag, and it is covered by taking purse-silk backwards and forwards

straight across it. The threads should be taken across very evenly, and laid flat side by side; the needle must be brought up on the one side and taken down on the other side quite close to the edge of the cardboard. This work looks easy, but requires practice before it can be done with neatness and precision. When the design is covered, a fine thin cord should be sewed close to the edge of the design all round the outline. In places of worship where the colours of the vestments are changed according to the seasons, that of the alms-bags accords with that in use elsewhere. Ordinarily, crimson worked with gold are the colours chosen. For colours appropriate for different seasons, *see* ALTAR-CLOTHS.

Almsgiving.—The act of bestowing upon the poor gratuitously, and for their relief, gifts of money, food, clothing, and such-like. Real almsgiving is voluntary, and proceeds from that principle which is commonly known as charity or benevolence. (*See* CHARITY.)

Alms-houses.—Dwellings provided by charity for the reception of the aged and infirm poor. These numerous and important institutions exist in favour of many classes, and supply the inmates with a comfortable home. The regulations for admission vary with circumstances, and information concerning them must be sought for by candidates from the officials or managers.

Aloes.—The juice of the leaf of *Aloe vulgaris*, which is used in medicine in various forms as a purgative of a warm and stimulating character.

Aloes Pills (various).—The following are the principal forms:—

The Compound Aloes Pill of the London Pharmacopœia.—Aloes, half an ounce; extract of gentian, a quarter of an ounce; oil of caraway, twenty drops; syrup, q.s. The dose is from five grains to ten grains; action purgative.

Pills of Socotrine Aloes (British Pharmacopœia).—Socotrine aloes, one ounce; hard soap, half an ounce; volatile oil of nutmeg, half a drachm; confection of roses, half an ounce. Dose, five to ten grains; action purgative.

Aloes and Iron Pill.—Sulphate of iron, one ounce and a half; Barbadoes aloes, two ounces; compound powder of cinnamon, three ounces; confection of roses, four ounces. Dose, five to ten grains. They are used for purgative, chalybeate, and emmenagogue purposes. Aloes pills are generally unfit in cases of piles.

Aloes, Varieties of.—The chief varieties are the Socotrine, the Barbadoes, and the East Indian. The most esteemed of these is the Socotrine, supposed to be derived from the island of Socotra, near the mouth of the Arabian Gulf.

Alopecia. (*See* BALDNESS.)

Alpaca.—The material known by this name has many excellent qualities, those of softness, elasticity, brightness of gloss, and strength without coarseness; hence it is light, durable, and not easily soiled. The wool of which this fabric is made is obtained from a species of sheep found in Peru. This animal is about the size of a deer, and of the same graceful form. Its fleece is superior to the ordinary sheep, in consequence of its greater length and softness; each filament is straight, and as it is quite free from shaggy defects, it spins easily and evenly. In the sixteenth century the Peruvians fabricated materials of considerable beauty and delicacy with the wool of the alpaca, for in their tombs were found bodies of the dead wrapped in textures of this description. This wool was not known or used in England until comparatively a few years ago. In 1830 it is said the first attempt was made to spin it, but the piece was only shown as a curiosity. A worsted warp was used, and that combination did not answer. In 1836 another attempt was made, this time with a cotton warp, which proved satisfactory. In a short time this material was much esteemed both at home and abroad, more especially in France, where it finds great favour. Nearly all the alpaca wool which is consumed in England is worked up in the neighbourhood of Bradford, in Yorkshire. The immense mill known as Saltaire was built for this kind of manufacture by the late Sir Titus Salt, who gave a great impetus to this branch of trade. The factory is situated on the river Aire, three miles from Bradford; it is now the centre of a large population, and forms a complete town in itself. It owes its origin, progress, and prosperity entirely to the energy and generosity of its founder.

Alpenstock.—Professor Tyndall observed that morality may exist in the oxygen of a mountain as immorality does in the miasma of a marsh; and much may be said from that view-point in favour of Alpine climbing. It is curious to note how these mountains, which for ages served to exclude their inhabitants from the world beneath them, are now the very things which are most attractive to their outside neighbours. To climb the high Alps has become a passion with a vast number of people, who delight in the novelties of their scenery and the exhilarating exercise of their ascent, while making light of all their dangers, real and terrible as they undoubtedly are. To such excursionists the alpenstock or climbing-pole—a long iron-shod staff—is an object of no small interest and importance; its weight and length cannot be too carefully considered, nor its strength too thoroughly tested. The best way in which the latter is accomplished is by placing either end of it upon a chair and subjecting the centre to sufficiently powerful pressure. It will be found of extreme service in many a hazardous slide and leap which could not be undertaken without its aid.

Alphabets, To Work.—It is very usual for ladies to embroider their initials on their pocket-handkerchiefs. These letters can be copied from books containing ornamental letters, or a monogram can be designed by the worker. The outlines of the letters are traced on paper, which is then tacked firmly on the cambric. The effect is better when the letters are worked across the corner than straight along the end, which is the usual place for the name when marked in ink. Satin and button-hole are the two stitches employed. Some workers prefer fine crochet thread, while others

think embroidery cotton best for the purpose; but much depends upon the fineness or thickness of the material worked upon. The paper is torn away when the letters are completed. Smaller letters always look better than those on a large scale; all letters should be distinct without being too plain in form.

Alpine Flowers.—Alpine flowers embrace such an endless variety of plants, and are now so freely cultivated, that they create a great interest among many who are deprived the pleasure of a garden, but by means of a fern-case or glass covering of any kind they may indulge in a mimic garden of great beauty all the year round, in which these plants will form a most attractive feature. They will also grow in places where no flowers of the garden will blossom. Masses of stone, or roots, or branches of trees, tastefully placed with light soil, made of dead leaves, rotten manure, and sand, in all the places between the stones, will make a garden to grow them in. Many plants cling to the damp hollows of the stone, and freely root, and soon form a large mass of growth.

Altar-cloth, &c.—There are various kinds of altar-cloths. Some few years ago the one in general use was the large cloth, which fell round the altar in natural folds. That has been almost entirely superseded by the frontal, which is stretched across the altar sometimes on a panel, and sometimes is suspended on a rod with rings, the top of the altar in all cases being covered with a separate piece. Velvet and repp silks are the most suitable materials. Utrecht velvet and cloth are also used, but do not look so handsome as the two former. The embroidery requires great skill and nicety, and is quite an art in itself. Most of the altar-cloths are worked by ladies in convents and sisterhoods. The design is cut out in cardboard, and on its top surface is laid a thick layer of wadding, which is bound on it by thread: this is for the purpose of making the design look raised. It is then placed on the material, and worked over with purse-silk. (*See* Alms-bags.) This is the simplest form of ornamentation. The more difficult is that of working emblems and flowers on the material itself. Where but one altar-cloth is used, crimson is the usual colour. The colours accorded to particular seasons are—green for Sundays and ordinary days, white for Christmas and Easter, red for feasts of apostles and martyrs, and violet for penitential seasons. Altar-cloths have been used from the earliest Christian times. The Anglo-Saxon and Anglo-Norman ladies spent much time in broidering costly coverings for the altar. The white cloth used at the celebration of the Lord's Supper should be of fine linen or lawn. It may have white embroidery in chain stitch.

Alteratives.—These medicines are used for the purpose of altering the secretions and processes of the body for the better. The milder preparations of mercury, such as blue pill, mercury with chalk, &c., are often used in this way, chiefly in consequence of their frequently beneficial action on the liver and bowels. (*See* Blue Pill, Calomel, Grey Powder.)

Alto-rilievo.—An Italian phrase meaning "high relief," and applied to certain sculptured figures and ornaments which project from a background. There are three degrees of pro-



ALTO-RILIEVO.

minence recognised by artists, the most elevated being called "alto-rilievo;" the least projecting (which is very slightly raised, as in an ordinary coin or medal) is called "basso-rilievo;" and for a medium relief we have "mezzo-rilievo" or "demi-rilievo." In various cameos, and in many sculptured monuments and architectural decorations, figures are to be found exemplifying all the above gradations in a single composition.

Alto Voice.—The highest natural adult male voice, formerly known as the counter-tenor. Its usual compass is from G, the fourth space on the bass stave, to C, the third space on the treble. It is chiefly used as the highest voice in part-music written for male voices, especially in old glees and cathedral anthems, and is only sparingly employed for solos. In music written for mixed voices the second part is called the alto, but it is usually taken either by a female (contralto) or a boy (second treble), whose voices lie within the same compass. (*See* Contralto; Voice.)

Alum.—The alum of commerce is a sulphate of potash and alumina, which, with a certain quantity of water, crystallises in octohedra. In chemistry, however, the word has a much wider signification, and includes all the double sulphates which crystallise in the same manner. For the potash any of the other alkalies can be substituted; and the alumina may be replaced by the oxides of iron, manganese, or chromium. The quantity of water will in all cases be constant. The common alum is manufactured in very large quantities in Yorkshire and in the neighbourhood of Glasgow. About 10,000 tons are made annually in these two districts. At Whitby, Campsie, and Hurlet there are beds of shale which contain the principal ingredients required in the manufacture, and as a very large bulk of the raw article is wanted to produce a single ton of alum, the process cannot be profitably carried on, except where such is the case. Alum is a powerful astringent, and is used in medicine as such. It is also used in the tawing of leather. A solution of alum in water has the property of absorbing the heat rays while allowing the light rays of the spectrum to pass through freely.

Alum Baskets, To Make and Colour.—Procure a little wire and twist it into the form of a basket. In doing so be careful to leave sufficient room between the pieces of wire for the formation of the alum crystals. Wind some worsted thread round and round the wire till it is completely covered. Put half a pound of alum into a tin saucepan, pour over it a pint of water, and boil it gently, stirring it constantly with a piece of wood till the alum is dissolved. Remove the liquid from the fire, and leave it till it is new-milk warm. Take a deep glazed earthen jar, and pour the alum solution into it. Place a piece of wood across the top of the jar, and from this suspend the basket in the liquor by means of a stout thread. At the end of about twenty-four hours take it out and let it dry in the shade. If it is wished that the basket should be coloured, put some dyeing material into the alum solution. Turmeric will give transparent yellow crystals; logwood, purple, &c. Other ornaments, such as vases, trees, grottoes, &c., may be made in the same way. Whatever quantity of alum may be required, the same proportions must be observed.

Alum in Bread.—Alum is often put into bread, ostensibly for the purpose of making it whiter; but the nutritive quality of the bread is far from being improved by it, and it can only be treated as an adulteration.

Alum Lotion.—A lotion made by adding alum to water in varying proportions according to the purpose in view—from one or two grains to an ounce, which makes a good eye-wash for weak and mattery eyes in children, to a drachm or more to a pint, which is used as an astringent lotion by women.

Alum Mordant. (*See* Acetate of Aluminium; Alum, Preparations of.)

Alum, Preparations of.—The most extensively used is the acetate of aluminium (*which see*), prepared usually by dissolving alum in acetate of lime liquor, and after agitating it well, leaving the sulphate of lime, formed by the interchange of the acids, to settle down; or by stirring powdered acetate of lead into a solution of alum, together with a little carbonate of lime or soda. A sulpho-acetate of alumina is also made from alum with a relatively smaller proportion of the acetate of lime liquor, so that there shall not be sufficient lime to take up all the sulphur. Alum is also used in the preparation of the basic sulphate of alumina, which when treated with acetic acid makes a very excellent mordant.

Alum Whey.—This preparation may be made with one ounce of milk for every five grains of alum. This is then strained to separate the curd. The alum is to be boiled in the milk until the curd appears. To this, after stirring, add ten or twenty drops of spirit of nutmeg. It is a pleasant and useful way of administering alum, which is used in diseases requiring astringents, such as hæmorrhages, mucous discharges, &c.

Aluminium Gold.—This alloy would be more correctly designated aluminium bronze. Aluminium itself is white, and though formerly valued at £3 per ounce, it has become very cheap indeed. When alloyed with copper, aluminium produces a most remarkable imitation of gold, and this, under the names of aluminium gold, Abyssinian gold, &c. &c., is very largely sold in the form of chains, pencil-cases, and a host of other articles for personal use and ornament. As a metal, aluminium and the aluminium gold weighs much less than zinc, tin, iron, copper, silver, gold, and platinum. The artistic resources of this alloy are so great that it will probably take an important place in the decoration of the future, as a substitute for other alloys and metallic ornaments, which are now cheaper, but will be less enduring in regard to beauty.

Aluminium, To Clean.—Soap and water made strong with either soda or ammonia is the best thing for cleaning aluminium. This metal is not in the least affected by sulphuretted compounds which blacken silver so much. It retains its lustre in the air, whether moist or dry, for any length of time. Hot water produces not the slightest effect upon it; but all alkaline solutions act upon it, and therefore it can be whitened by a heated solution of potash, by hydrofluoric and phosphoric acids, and by liquid soda or ammonia.

Alumnus.—A pupil or student; generally used to denote members of a university previous to their obtaining a degree. The word has been introduced into our language without change of form from the Latin, where its primary meaning was a foster-child; the alumni are looked upon as foster-children of the university at which they study, their Alma Mater. (*See* Alma Mater.)

Amadou, or German Tinder.—This is made from a kind of fungus which grows upon the trunks of old trees, and which, being removed by a sharp knife, together with the outer bark, is separated, washed, boiled in a strong solution of saltpetre, and afterwards dried. To facilitate the separation of the spongy yellowish mash of the fungus from the bark, it is, after being washed and boiled, beaten with a mallet. As tinder it will ignite with the feeblest spark. It is chiefly found on the trunks of oak, ash, and fir-trees. A substitute for tinder of this kind is sometimes made with coarse brown paper soaked in a solution of saltpetre, and dried in an oven.

Amalgams.—Mercury has the property of combining with almost all metals, iron and platinum being exceptions. The compound resulting from their union is an amalgam. This property of mercury is found to be very advantageous in separating silver and gold from the earthy matters with which they are associated in nature. Gold being found in the metallic state, is directly combined with mercury, and the very finest dust is readily picked up by it on their being stirred up together in water, a pasty mass being the result. Silver ores commonly consist of the chloride or sulphide of the metal, and hence in the amalgamating mill they have to be treated with other ingredients in order to liberate the metal, while at the same time it is being brought into contact with the mercury. The mercury is afterwards extracted from the amal-

gam partly, in the first instance, by pressure, and ultimately by distillation. A native silver amalgam has occasionally been found in the Kongsberg silver mines of Norway, and also in the mining district of Coquimbo. An amalgam of cadmium is used by dentists, and one of zinc by electricians.

Amalgams for Gilding.—An amalgam of gold is sometimes used for gilding metals. It is made by dissolving fine gold in about eight times its weight of mercury; the product is afterwards subjected to pressure, to expel as much as possible of the latter metal, leaving a pasty mass consisting of about one-third gold and two-thirds mercury. The metal to be gilded is first thoroughly cleansed from oxide, then brushed over with a weak solution of nitrate of mercury, and rubbed with the lump of amalgam, when a coating of the latter adheres firmly. On being subsequently heated, the mercury is expelled, and a film of dead gold is left, which can be burnished or not at pleasure. This process is technically known as "wash-gilding."

Amalgams for Silvering.—Looking-glasses are said to be silvered when coated on one side with a bright white amalgam, which, however, contains no silver at all. The glass is covered with a sheet of tinfoil very carefully and smoothly spread out over it, and then mercury is applied to the back of the tinfoil until the whole of it is thoroughly amalgamated. It is then covered with a piece of flannel, and heavily weighted to press out the superfluous mercury, the glass being placed in an inclined position to facilitate the drainage. The amalgam which remains will consist of about four-fifths tin and one-fifth mercury, and will adhere firmly to the glass.

Amaranth.—A deep red colour, inclining to purple.

Amaryllis.—This beautiful genus of bulbous plants includes a large number of varieties,



AMARYLLIS.

most of them, however, only adapted for greenhouse cultivation. As the great majority of them do not exceed three feet high, lofty greenhouses are ill-adapted for them, and they should be grown near the glass in a hothouse. Moisture is a great essential to their perfection of growth. The pots to grow them in should be much deeper than ordinary ones, but do not require so great a diameter in proportion. The soil that is best for them is peat and loam, or a soil found in meadows by riversides, or from an old sheep-pasture; this mixed with old stable-manure and sand, and allowed to rot, will admirably suit this order of plants. The amaryllis retains its leaves throughout the year, but if removed to a cold greenhouse will often perish outright. Syringing with water at 120° will often destroy insects, and by dipping the bulb in water at the same temperature before planting will destroy them also.

Amateur.—A person is styled an amateur who specially cultivates any particular art, or pursues any particular study, merely from love of the art or study, and not with the intention of deriving gain from it, or of making it a profession. Thus we speak of amateur musicians and amateur artists.

Amateur Concerts.—These are somewhat difficult entertainments to arrange and carry out satisfactorily, but the difficulty is much lessened if one person is appointed to take the full control of the arrangements, and if each member acknowledges him as head of affairs and obeys his behests. The programme should be varied in character and short in length. Lively music should be interspersed with that of a quieter description, for the tastes of the audience are sure to differ, and therefore endeavours should be made to please everybody; still, music which is bright and cheerful need not necessarily be light and frivolous in style. In the choice of instrumental pieces care must be taken to select those which are not lengthy, for however good the performance may be, the listeners will become impatient if long obliged to keep silent. The list of pieces in the programme should contain such a number as could be performed in an hour and a half; for an amateur concert should never extend itself beyond two hours' duration, and half an hour at least is sure to be spent in the interval and encores. The programme is usually divided into two parts, and it is well to arrange for the whole band of amateurs to take part in the first and last pieces in each part, for their combined efforts inspirit both themselves and the audience. When amateurs are requested to repeat their performances, it is better taste to suppose that it is the composition itself which has delighted the listeners, and therefore to give part of the same piece or song again instead of substituting another. Each amateur should be ready in place before the hour appointed; each should be warned beforehand to have their music at hand and in proper order. Very small mishaps often cause very great confusion, and all delays are irksome to the audience and imperil the success of the concert.

Amateur Theatricals.—In these and all entertainments given by amateurs, it is essential to their success that one person be chosen to carry out the arrangements, as mentioned in the previous paragraph. These are

many and varied, and whoever undertakes the office should possess a fund of spirit, energy, and good temper. It is difficult to induce all amateurs to learn their parts thoroughly; it is difficult to induce them to speak distinctly; it is difficult to persuade them to attend rehearsals regularly; but to these three points the manager must pay particular attention. It is a good plan to have rapid rehearsals—that is, for actors to repeat their parts quickly; they then become conversant and ready. It is also a good plan (when the parts are learnt) to station a person at the other end of the room with strict orders to stop instanter any actor whose words cannot be heard distinctly. The attendance at rehearsals should be made a matter of duty, for however well an actor may know his own part, he is very likely to become confused if he knows nothing about those of his fellow-actors. Amateurs are too much inclined to think of themselves or of the spectators during the performance; but their thoughts should dwell wholly and solely on the character they personate; they will then not be so apt to speak and act stiffly. Amateurs have a tendency to get as far away as possible from the audience, whereas they should keep as near the foot-lights as possible. The stage should therefore be shallow, and should incline slightly towards the foot-lights. The wings should be placed so that each comes a little more on the stage than the one in front. Let particular attention be given to the curtain, which often refuses to go up and come down when it ought to do so. Two curtains meeting in the centre are easier to manage than one large one. The pieces chosen should be short, and involve as little change of scenery as possible.

Ambassador.—The representative of one country in another. As such representative he is exempt, together with his official and domestic establishments, from the local jurisdiction both in civil and criminal matters. The Statute which regulates an ambassador's position in England is the 7 Anne, c. 12. An ambassador may, however, waive the privileges above mentioned—and he is always, of course, amenable to the jurisdiction of his own country. (*See* CONSUL.)

Amber.—A well-known fossil resin of varying degrees of transparency, and considerably diversified in regard to its tints and internal appearances. Some of it is grey and clouded, other is of the hue of fresh honey, and other examples are of a lemon colour, and so on till a deep and rich brown is reached. Many specimens contain embedded in them flies and other insects, and forms of animal life belonging to a far remote antiquity. Amber is of vegetable origin, and must have been produced from the wood of trees which grew in forests assigned to geological periods. For ornamental purposes, amber is much employed as a material for snuff-boxes, perfume bottles, mouth-pieces to tobacco-pipes, bracelets, necklaces, and even for brooches. The inferior sorts and refuse are used for making varnishes. As there is a fashion in regard to amber, it is useless to say which is most prized, because that which is valued at least now may soon take the highest place, and *vice versâ*. Amber when rubbed becomes highly electrified. Amber is polished by the manufacturer with whiting and water, or rotten-stone and oil, and it is finished off by friction, for which purpose flannel is used. It may be cleaned first with soap and water, and the polish may be restored by rubbing with flannel after the application of a drop of oil. Broken amber may be joined by smearing the broken surfaces with linseed oil, either boiled or raw, and then firmly pressing the pieces together over a charcoal fire, or any other sufficient heat, care being taken that the heat is not too great.

Amber, Artificial.—This is rather difficult for inexperienced persons to detect, but, according to Mr. Cooley, an imitation of amber had been produced by acting upon gutta-percha with sulphur at a high temperature. The result, either alone or combined with copal, is said to have been extensively passed off for genuine amber. Other imitations, for small articles especially, are mellite (or honey-stone), gum anime, copal, and common horn which has been carefully manipulated.

Amber Varnishes.—A strong durable varnish is obtained by dissolving amber in drying linseed oil. The amber is previously heated in an iron pot till it becomes half fluid; then the oil is added, and the mixture is stirred diligently. Amber enters into the composition of "black coachmakers' varnish." Amber spirit varnishes have been much used for varnishing collodion pictures. The coarser descriptions and chips of amber only are used in the manufacture of varnish. Copal, which bears a strong resemblance to, and is much cheaper than, amber, is occasionally substituted for it, fraudulently or through ignorance.

Ambergris (from the French *gris*, grey), is so called from its colour, and the resemblance in its substance and transparency to amber. It is found on the sea-coast, especially in Africa, from the Cape of Good Hope to the Red Sea, also of Greenland, Brazil, India, China, Japan, and the west coast of Ireland. Sometimes it is obtained in very large lumps, in the middle of which stones, shells, and bones are found. "Ambergris," says Mr. Rimmel, "for a long time puzzled the *savans*, who were at a loss to account for its origin, and thought it at first to be of the same nature as yellow amber. It is now ascertained, beyond a doubt, to be generated by the large-headed spermaceti whale (*Physeter macrocephalus*), and is the result of a diseased state of the animal, which either throws up the morbific substance, or dies of the malady, and it is eaten up by other fishes. In either case the ambergris becomes loose, and is picked up floating on the sea, or is washed ashore. The largest piece on record was one weighing 182 lbs., which the Dutch East India Company bought from the King of Tydore. I have in my possession a very curious specimen extracted by a North American whaler from a fish which he had killed. Part of it is quite grey, and the remainder still black, which shows that the disease had not attained its maturity. Ambergris is not agreeable by itself, having a somewhat earthy or mouldy flavour; but blended

with other perfumes it imparts to them an ethereal fragrance unattainable by any other means. Its price varies very much; it has been sold as low as 10s., and as high as 50s., per ounce." Ambergris is used for scenting snuff, and enters largely into French perfumery.

Ambergris, Preparations of.—There are various preparations of this marine substance; the essence of ambergris, the oil of ambergris, the *pommade*, and the concentrated and simple tincture. It also enters into cosmetic powders, snuff, and soap, and is an ingredient in sachet-powders.

The concentrated essence is chiefly used in perfumes. In making use of the dry substance of ambergris for the preparation of an essence, the most approved plan is to rub it down with powdered glass or siliceous sand before digesting it, rather than to cut it merely into small pieces. Amongst the perfumes of which this essence forms a part we may enumerate the "Essence of Musk," "Neroli," "Rondeletia," "Essentiæ Odorata," "l'Essence Royale," "de Vanille Double," "de Bouquet," "de Maréchale," "de Millefleurs," and "Odeurs Délectables."

The "Oil of Musk," "Huile Royale," "Oil of Styrax," and "Oil of Vanilla" are all prepared with ambergris.

The *Pommade* in which this ingredient enters is the "Maréchale" and the "Millefleur." The cosmetic powders with which ambergris is a component part we may name as the "Maréchale," "Frangipanni," and "Poudre à la Vanille;" and amongst the perfumed soaps the "Lavender Soap," "Orange Soap," and one called distinctively after itself, "Ambergris Soap."

Amboyna Wood.—Amboyna or kiabooka wood, imported from Singapore, is the excrescence or burr of some large tree. It is tolerably hard, and full of small curls or knots, and varies in colour from orange to various rich warm shades of brown more or less dark. It is highly esteemed in India and China, where it is used for decorative boxes, writing-desks, and similar articles.

Ambrette Perfume.—To be obtained from musk pears, which grow in France. Ambrette is the French name for musk. It is largely used in perfumery.

Ambulance.—A vehicle employed on the field of battle, fitted with surgical appliances, for the treatment and careful transport of wounded soldiers. It is of somewhat modern introduction, and until recently was confined to European armies. We first hear of it in the time of Napoleon's wars, but of late, owing to the voluntary assistance rendered by such societies as the Red Cross, it has become an essential feature in modern warfare, and its flag is held sacred throughout the civilised countries of the world. (*See* Red Cross.)

American Cheese. (*See* Cheese, American.)

American Drinks.—The Americans have invented a number of drinks, which are peculiarly their own, and to which they have given the most characteristic names—characteristic of the nation, that is, not of the liquors. They are mostly very delicious, but at the same time very insidious. Many of them are sucked through straws, and it is probable that this is done as a protection against the sudden inebriety which might otherwise result from their imbibition. The following drinks are the best known:—Brandy, gin, whisky and cider cocktails; whisky, gin, white wine, season ticket, and pine-apple juleps; sle^per, locomotive, hot egg-nogg, Baltimore egg-nogg, iced egg-nogg, General Harrison's egg-nogg, apple toddy, whisky sling, brandy or hollands smash; sherry, champagne, hock, sauterne, sangaree cobblers; soda nectar; nectar for 90° in the shade; spider, stone fence, stone wall, rum-fustian, prima donna, hour before, ribs, ice-cream, soda-water, ching-ching, tickle-my fancy, apple water, 'arf-and-'arf, asses' milk, black stripe, brandy champerelle, floster; knickerbocker à la monsieur; knickerbocker à la madame; white lion, St. Charles, Benson, Hill, &c.

American Flour. (*See* Flour, American.)

American Inventions.—The inventive powers of the citizens of the United States of America have been sharpened by the peculiar circumstances of their country. The labour market is higher than with us, especially as respects skilled labour. To this very want of human skill, then, and the absolute necessity for supplying something in place of it, may be attributed the extraordinary ingenuity displayed in many of their labour-saving machines, where automatic action so completely supplies the place of the more abundant hand-labour of older manufacturing countries. It is much to the credit of the American inventor that he is able so to meet the necessities of his case, and supply the want of fingers. Fifteen great American inventions, which have been adopted all over the world, are the following:—1. The cotton gin. 2. The planing machine. 3. The grass mower and grain reaper. 4. The rotary printing press. 5. Navigation by steam. 6. The hot-air (caloric) engine. 7. The sewing machine. 8. The india-rubber industry. 9. The machine manufacture of horse-shoes. 10. The sand-blast for carving. 11. The gauge lathe. 12. The grain elevator. 13. The artificial manufacture of ice on a large scale. 14. The electro-magnet, and its practical application by Henry and Morse. 15. The composing machine for printers. In addition to these we might mention many inventions of a strictly domestic character, but they will be found under their respective headings.

Amethyst.—This precious stone is a variety of vitreous quartz, the colour of which ranges from white to a deep purple. It is found in many parts of the world, and often in pieces of considerable size. The value of the pieces varies very considerably, according to their colour and size. It is best set with diamonds or pearls, but by candle-light it becomes less lustrous, and often of a blackish hue. The use of it is chiefly in jewellery, and it is at once attractive and moderately cheap. The Oriental amethyst is more costly, and is quite a different stone, being

in fact a ruby or sapphire of an amethyst colour, harder, and more brilliant. This is rarely met with. The amethyst is sometimes cut as a cameo; and the Oriental amethyst was in ancient times sometimes engraved as an intaglio. Mr. Emanuel states that in 1652 an amethyst was worth as much as a diamond of equal weight. The amethyst has been successfully imitated by artificial means. (*See* ARTIFICIAL GEMS.)

Amethyst, Artificial. (*See* ARTIFICIAL GEMS.)

Ammonia.—A transparent pungent gas, formed by the union of nitrogen and hydrogen, one part of the former to three of the latter. It is the basis of sal ammoniac, which takes it name from the district of Ammonia, in Libya, where it was first prepared. It exists in the air in very minute quantities, only about one part in 1,000,000 of air), but it is, nevertheless, most invaluable to the vegetable kingdom, for without it, as plants have not the power of assimilating free nitrogen, they could not form their seeds and fruit. The ammonia of commerce is principally obtained from the ammoniacal liquor of gas-works, and manufactories of ivory-black and animal charcoal.

One volume of water takes up 750 times its bulk of this gas, thereby forming a liquid termed spirits of hartshorn, from its being raised from that substance by distillation.

Ammonia, Poisoning by.—This form of poisoning is rare. It may be caused in either of two ways, by the vapour producing violent inflammation of the windpipe or of the lungs, or by a strong solution acting as an irritant on the mucous lining of the throat and stomach. The symptoms of the former are similar to those of croup, while in the latter case, violent vomiting and the passage of blood by the bowels are the chief indications. Weak vinegar and water and olive oil are the most suitable remedies to employ.

Ammonia, Preparations of.—The following are those enumerated in the British Pharmacopœia:—

Solution of acetate of ammonia	
Benzoite of	,,
Carbonate of	,,
Solution of citrate of	,,
Liniment of	,,
Oxalate of	,,
Phosphate of	,,
Strong solution of	,,
Aromatic spirits of	,,
Fetid spirits of	,,

The carbonate and the strong solution, and also the spirits, are used internally as diffusive stimulants. The liniment has the same action, but is applied externally.

Ammoniac, Sal, is the common name of the chloride of ammonium. It occurs in nature in volcanic districts, but the sal ammoniac of commerce is produced artificially. It used to be made from soot, bones, urine, and other articles, but now the great source of supply is the refuse from the gas-works. This liquor, after distillation, is treated with sulphuric acid, producing a sulphate of ammonia, and then with common salt, the chlorine of which changes places with the sulphuric acid, and chloride of ammonium is the result. It is then evaporated down till the sal ammoniac crystallises out. It is finally purified by sublimation, the inferior portion of the product being used in the preparation of other salts of ammonium, and the pure sal ammoniac sold to calico-printers and others.

It is used in galvanising iron; the melted zinc into which the iron to be coated with it is placed is covered with a layer of powdered sal ammoniac, for the purpose of preventing the formation of a film of zinc oxide on the surface of the bath. Sal ammoniac is used in soldering with a similar object, it being necessary to keep the surface of the metal to be soldered perfectly free from oxide, in order to ensure the solder's adhering firmly. The beautiful mottled surface sometimes given to tin plates (called *moiré*) is produced by brushing them over with sal ammoniac, which destroys the smoothness of the surface by eating away a little of the metal, leaving its crystalline structure displayed to the eye.

The carbonate of ammonia is made from the chloride by heating a mixture of the latter and chalk in closed vessels. A very pungent salt is the product, which is used in the manufacture of smelling-salts, and for other medicinal purposes.

Ammoniacal Liquor is one of the products of the purification of coal gas. When the gas first leaves the retorts in which the coal is distilled, it is made to pass through a hydraulic main filled up to a certain height with water; and in doing so the ammonia, along with other products of distillation, is taken up by the water, and a liquor highly charged with ammoniacal salts is the result. This is now utilised in the manufacture of sal ammoniac.

Ammoniacal Lotion.—A solution of hydrochloride of ammonium and water, used as a cold evaporating lotion for the relief of sprains and swellings, and supposed to possess the virtue of dispersing tumours.

Amnesia. (*See* MEMORY, LOSS OF.)

Amontillado. (*See* SHERRY).

Amphora.—A pitcher-shaped vessel, with a long narrow neck and two ears or handles—whence its name, from Greek ἀμφί (*amphi*), on



ANCIENT AND MODERN AMPHORÆ.

both sides, and φέρω (*phero*), I carry—in use among the Greeks and Romans. The amphora was chiefly used for wine, the Grecian containing about nine and the Roman about six English gallons. The Roman amphora sometimes ended in a sharp point, which might be inserted in the ground or in a stand. The shape of the am-

phora has been closely followed in modern times in the manufacture of flower-vases for brackets, mantelpieces, &c.

Amputation.—The removal of a limb or other part of the body by the surgeon's knife, an operation only resorted to when all other measures have failed, and in order to save life. The two principal methods of amputation are known as the circular, in which the skin and muscles are divided circularly, and the flap, in which one or two flaps are left to cover the stump.

Amulet.—Originally an object of metal, stone, or other material, which was supposed to act as a charm and preservative against accident, illness, enchantment, &c. The amulet was sometimes an image, or it bore an inscription, to which superstitious people ascribed mysterious powers. Its virtues were thought to include not only the prevention of evil, but the removal of diseases and imaginary evil influences. At present it is represented by the so-called "charms" which are worn as personal ornaments, and to which no superstitious ideas are attached, at least not often in civilised Europe, though there is reason to believe that the delusion concerning amulets yet prevails in many countries.

Amusements for Children.—Boys and girls should have plenty of play. A learned physician once gave it as his opinion that half their time should be spent in play. Lessons, of course, must be attended to, but if the periods of study are not wisely alternated with intervals of recreation, both in and out of doors, the mind will languish. Unfortunately there is a decided tendency in the present day to "cram" young people's minds with knowledge, as if the possession of knowledge were an end in itself, and not a means to an end, and *that* the healthy development of the faculties. Experience teaches, however, that those who adopt this "cramming" system, and in order to accomplish it keep their children too closely to their books, besides doing mischief in other ways, defeat their own purpose. Children whose hours of study are short, and who are relieved by frequent relaxation, learn more easily and thoroughly than those who are constantly at work. Besides this, they retain the knowledge they acquire better, for that which is quickly gained quickly passes away. Thus the unfortunate little students are losers in every way: they lose the information for which they have paid so dearly, and they lose the hours of enjoyment which were their right by reason of their tender years.

Amusements, In-door.—In-door amusements are generally welcomed during the long winter evenings, or during damp, cheerless weather, when active out-door occupation cannot be enjoyed. Those are the best which pleasantly exercise thought and skill, without causing bodily fatigue. Amongst these, games such as *chess*, *whist*, *draughts*, *dominoes*, and various round games are generally much enjoyed. *Billiards* is one of the best of games—that is, when it can be played at home. It requires skill, and also affords an opportunity for exercise at a time when exercise is particularly difficult to obtain. No one who has watched the progress of a game at billiards can doubt that it calls muscles into play which are not exercised in the ordinary avocations of life. The amount of walking alone which it necessitates is something considerable. The objection which is urged against it is that it too frequently degenerates into gambling. This, however, is the fault of the players, not of the game; and the same might be said of chess, or draughts, or dominoes, or any innocent amusement. The fact is, with reference to all amusements of the kind, that some natures are so vitiated that they communicate the poison that is in themselves to the simplest things about them. When once the miserable spirit of play takes possession of a man, every passing event affords an opportunity for its indulgence. Another most delightful amusement, and one which is refining and elevating in its influence, is *music*, both instrumental and vocal. Those who have a love and a knowledge of music, together with the means of gratifying their taste, are indeed to be congratulated. They possess within themselves that which will occupy pleasantly many an idle hour; which will form the basis of many delightful friendships, and be the medium of introduction to the most delightful society. All parents would do well to view the subject in this light, and to cultivate whatever musical taste their children possess. With regard to *singing*, however, the mother before she allows her children to take any lessons should ascertain that there is no actual disease of the lungs present. If there be, the effort of singing will be likely to excite it into action. If, on the contrary, the lungs are perfectly sound to begin with, singing will expand the chest, strengthen the lungs, and defend them from a tendency to disease. Dr. Chavasse, a great authority, draws attention to the fact that public singers are seldom known to die of consumption, and quotes the opinion of a learned friend. "Singing should be cultivated not only as an accomplishment, but as a means of preserving health. The Germans are seldom afflicted with consumption, nor have I ever known more than one case of spitting of blood among them. This is in part occasioned by the strength which their lungs acquire by being exercised frequently in vocal music, which constitutes an essential branch of their education." At the same time, the learned doctor is of opinion that to play upon any wind-instrument, such as the flute or the bugle, is decidedly injurious. The lungs and windpipe are brought into unnatural action, and thus disease is induced. The chief of in-door amusements, however, is *reading*. If those who have a love for music are to be congratulated, those who do not love books, however fortunate they may be in other respects, are to be pitied more than if they were crippled in person and poverty-stricken in circumstances. The taste for reading is scarcely ever acquired late in life. The true book-lover is brought up in an atmosphere of books. As a child he sees those about him regarding books as a necessary of life, and from the mere force of example he comes to take pleasure in that

which delights his friends. By-and-by to read is a necessity for him also. Parents may do a great deal to foster in their children this precious taste for reading, by providing them with interesting books. Scientific works and moral treatises may be very prettily got up, and are no doubt exceedingly valuable and excellent, but they do not, as a rule, give young people a love of reading.

Amusements, Out-door.—Out-door amusements should be of such a nature as will bring the muscles into proper action, and so cause them to be fully developed. There is scarcely any limit to the various games and amusements that might be enumerated. Some are excellent, and tend both to enliven the mind and invigorate the body. Amongst these may be mentioned, for boys—*cricket*, *quoits*, *football*, *rackets*, *bowls*, *skittles*, and *single stick*, which, as Henry Kingsley says, gives a boy "an upright and elastic carriage, and teaches him the use of his limbs." For girls, *skipping*, *dancing*, *lawn tennis*, and *archery* are among the best. For both boys and girls there is no greater pleasure than *walking* in congenial company. *Running* in moderation is good also, and in these days of travel *swimming* is an accomplishment which yields so much pleasure, and is so easily acquired, that it should never be neglected. *Boating*, too, expands the chest, and strengthens the arms and spine; and there is no reason why girls should not acquire the art as well as boys. *Skating* and *horse riding* also (with *bicycle riding* for boys) are excellent. Some games are not good; they are not only useless, but they are dangerous. Amongst these may be mentioned *leapfrog* and very *high leaping* and *jumping*, which are frequently productive of injuries, both internal and external. Football, too, although it was mentioned amongst useful games, proves injurious when it is carried on too roughly. But this same remark applies to all games. If they are abused—that is, if they are kept up so long that the bodily powers are strained and exhaustion follows—they are harmful instead of beneficial; and many a case of illness, and even of death, might be traced to injuries received in this way. *Croquet* is a very common amusement for the open air, but it is not exercise. It may be enjoyable as promoting social intercourse, and prove advantageous by keeping people in the fresh open air who would otherwise be in-doors, but this is all that can be said for it.

Anæmia.—Literally, this term signifies "absence of blood," but it is used medically to describe an alteration in the quality rather than in the quantity of that fluid. It is a characteristic symptom of consumption and other wasting diseases, and more especially of that condition which is termed "chlorosis," where the pallor of the skin indicates the poverty of the blood.

Anæsthetics (from two Greek words meaning "no sensation").—A term applied to a class of remedies used to produce insensibility to pain. The principal agents now employed are ether, chloroform, and nitrous oxide or laughing gas. Prior to the introduction of chloroform, ether was invariably used in this country; but the advocacy of Sir James G. Simpson, of Edinburgh, soon made the adoption of chloroform general, which was found to be more agreeable, as well as more speedy in its operation. Recently, however, a reaction has taken place in favour of ether, which is now used in most hospitals, the analysis of mortality obtained in America having established its superiority as the more harmless agent. Nitrous oxide is almost exclusively confined to dentistry, the influence lasting only from ninety to a hundred seconds. It is the most harmless of anæsthetics. (*See* CHLOROFORM, ETHER, NITROUS OXIDE.)

Anagrams.—The derivation of the word will greatly help to explain its meaning. It is from the Greek *ana*, backwards, and *gramma*, a word. In order to make an anagram the letters of a word must be transposed, so that they shall be made to form another word or words without omitting any of the letters in the original word, or interpolating others. Thus the letters in the word Constantinople will form the sentence—*Lion cannot step.* Rheumatism, *Emma is hurt.* Lawyers, *Sly ware.* Old England, *Golden land.*

Analysis is from a Greek word meaning literally the act of unloosing or untying; the separating of anything relating either to mind or to matter into its simple component parts. Evidence given in our courts of law is thus dealt with in order that truth and error may be clearly distinguished. The term is mostly applied to mathematics and natural philosophy, especially to chemistry where the process of analysis is used to determine the nature or relative proportions of a compound body. There are two chief varieties of chemical analysis, qualitative and quantitative. The former treats of the names and nature of the parts of the compound, the latter of their exact proportions when discovered.

Analyst.—One who analyses. (*See* ANALYSIS.) A public officer possessing competent medical, chemical, and microscopical knowledge, appointed under the authority of 23 & 24 Vict. c. 84, as follows:—In London and its liberties by the Commissioners of Sewers, in other parts of the metropolis by the vestries and district boards; in the country, by the Court of Quarter Sessions of every county, and the Town Council of every borough. His duties consist in analysing all articles of food and drink purchased within the district for which he is appointed. The appointment and removal of this officer are under the control of one of her Majesty's principal Secretaries of State; in Ireland under that of the Lord Lieutenant.

Anastatic Printing.—This is a process of printing based upon the law of the repulsion of dissimilar, and attraction of similar, molecules. The printed matter or picture to be copied is first submitted to the action of diluted nitric acid. It is then placed between sheets of blotting-paper to remove superfluous moisture. The ink rejects the acid, and the printed paper, while in the moist condition, is pressed upon a sheet of polished zinc, upon which the acid at once proceeds to act, affecting all parts except those which have received the printing-ink, a thin transfer of which the pressure trans-

mits to the plate. The plate is next washed with a weak solution of gum arabic. An inked printing-roller is afterwards passed over the surface, and impressions are taken from the plate in the same manner as in lithographic printing. Drawings for this process must be made in lithographic ink, on well-sized paper. The process was first worked by Mr. Joseph Woods. The word anastatic is derived from the Greek, and means "reviving."

Anchovy.—The anchovy is a small fish of the herring tribe, and is found in the Atlantic, along the shores of France and Portugal, and sometimes off the coast of England, but it is most abundant in the Mediterranean. Anchovies of the finest quality are caught off the island of Gorgona, near Leghorn. These are so celebrated as to lead to the frequent substitution of inferior fish of the same size, such as the sardine and the common sprat. The genuine Gorgona anchovy is about the length of one's finger, and may be known by its silvery appearance and the pink salmon colour of its flesh. The anchovy was the chief ingredient in most of the sauces of classical times. The Romans made from it a favourite one, which they called *garum*. It has been said that the anchovy was to the ancient world what the herring is to the modern.

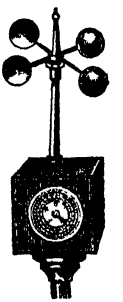
Anchovy Essence is used as a sauce and condiment, and when pure possesses a very fine flavour. It is a great mistake to imagine that the most highly coloured is necessarily the best, the fact being that the unadulterated essence is dull and by no means bright-looking. The brilliant appearance of that usually offered for sale is produced by the admixture of Venetian red and other minerals. The essence is readily prepared at home (see "Cassell's Dictionary of Cookery"), and if preferred of a bright colour, the most harmless way of securing this is by the addition of a little cochineal.

Anchovy Paste is used as a relish, and is made by cleansing, boning, and drying the fish, and then pounding them in a mortar with a little butter. The whole is then run through a sieve, and if required for immediate use is coloured with rose pink, and moulded into shapes for the table. If required to be kept, it is usually potted, and covered with a bladder to exclude the air, which would spoil the paste by changing its colour. The popularity of this relish has led to great adulteration, and of all the samples tested by different analysts, no fewer than six out of every ten were found to be coloured with red earth.

Anchylosis.—The true form consists of a stiffened joint occasioned by the uniting of bones. False anchylosis is caused by a thickening and adhesion of membrane. (*See* ANKLE.)

Andirons are iron bars made with legs to stand by the fire-place, for the purpose of supporting logs of wood. They are the "fire-dogs" of olden time before coal had superseded wood as ordinary fuel. Several expedients were resorted to by our forefathers for warming apartments before the introduction of the modern range and the now familiar long chimney. Brasiers were used for airing bedrooms, and also for heating the larger apartments. Andirons, which have usually long necks to keep the fuel from falling upon the floor, came into use with the introduction of chimneys. A smaller kind of irons, called creepers, were usually placed between the andirons to keep the ends of the wood and the brands from the hearth. Within the last few years the taste for antique furniture has led to the re-introduction of andirons into modern dining-rooms; but they are now simply regarded as ornaments, and are mostly made of brass and other bright metals.

Anemometer.—An instrument for measuring the velocity of the wind. The principle on which anemometers are generally constructed is that of a vane which rotates on exposure to a current of air, and which is connected with a self-registering apparatus for recording the rate of rotation. The commonest form of horizontal action consists of four hemispherical cups placed at the end of four arms branching at equal distances apart from an upright axis, the cups so placed that as they turn round the convex side shall always be the foremost. This kind, when properly adjusted, will revolve at the rate of one-third of the wind's velocity. The anemometers which are made to work vertically are usually in the form of a circular dish made of sashes, placed obliquely in the same way as the sails of a windmill are adjusted.



ANEMOMETER.

Anemone.—The dazzling brilliancy and varied richness and delicacy displayed in its variety of colouring, combined with its hardiness and neat habit of growing, have made this flower a general favourite, particularly in small gardens. The anemone is admirably adapted for planting in patches or clumps in borders, or as an edging for beds, or pots in the greenhouse. A rich loam soil is the best, but a well-drained border of ordinary garden mould will suit it. Plant in the months of October and November for flowering in early spring, and again in February or March for blossoming from April to June. A few potted in September and October, and placed in a cool dry pit or frame till January, and then taken into the greenhouse, will bloom much earlier, and be very attractive. There is a great variety of them, both single and double; they are easily propagated by cuttings and slips.

Anemone, Sea.—This name is popularly given to the species of *Actinia* and some other *Actiniadæ*. They are marked by the following characteristics:—Animal single, fleshy, elongate or conical, capable of extending or contracting itself, fixed by its base, but with the power of locomotion; mouth in the middle of the upper disk, very dilatable, surrounded by one or more rows of tentacula; oviparous and viviparous; marine. The name sea-anemone appears to have been first applied to them by Ellis, who, about a century ago, was one of the

most diligent investigators in the department of natural history to which they belong. Ellis points out that the tentacles of the *Actinia* "being disposed in regular circles, and tinged with a variety of bright lively colours, very nearly resemble the beautiful petals of some of our most elegantly fringed and radiated flowers, such as the carnation, marigold, and anemone." It is only, however, when in their native element that they display their beauty; left high and dry on shore, they look like a mass of jelly with a puckered hole in the centre. The most common of British sea-anemones is the *Actinia mesembryanthemum;* it is, perhaps, the species most easily kept in the aquarium. It shifts about pretty frequently from place to place, and its locomotion is an interesting subject of observation. It "walks" leech-like fashion, by alternately fixing base and mouth. A curious feature of anemone existence is the power possessed by the creature of resisting mutilation



SEA-ANEMONES.

and injury to an almost indefinite extent. We may divide an anemone longitudinally, and instead of the operation proving fatal, we will find each half becoming a distinct animal. The habits of sea-anemones are exceedingly odd. Their forms vary according to their expansion or contraction, presenting innumerable varieties. Their expansion is said to be a more certain indication of fine weather than the rise of the barometer. On changing their place of abode, some abandon themselves to the mercy of the waves; others creep along the bottom, turning themselves inside out, and making use of their tentacula as feet. When they find a suitable place, they fix themselves often so firmly that they cannot be detached without tearing their bodies. Sea-anemones are very voracious creatures, and in illustration of this fact almost every observer has his own anecdotes to tell. They are not the most desirable inmates of an aquarium, being apt to prey upon their fellow-captives. "Simple contact of the tentacula," says Sir J. G. Dalyell, "is the prelude of destruction. Some animals, as if conscious of their inevitable fate, seem paralysed by the touch, and yield without a struggle. Others, whose size and strength should ensure indemnity, are held in the relentless grasp: the tentacula crowding faster and faster around, until the victim is speedily swallowed alive." Other inhabitants of the sea seem to have an instinctive horror of the tentacula of the sea-anemone. The hermit crab, for example, will hurry from its shell with every sign of agitation, should the shell be caught by them. It is now believed that sea-anemones have the power of benumbing their prey. They have been tried as articles of food, and various experimenters have borne testimony to their excellence.

Aneroid Barometer.—An instrument for measuring the atmospheric pressure. It is on a different mechanical principle from the ordinary mercurial barometer, and hence the distinctive name, implying that no liquid is used in its construction. It consists of a metal box, from which the air has been exhausted, the lid of which is made of a plate of metal sufficiently thin and elastic to yield to small alterations of atmospheric pressure, collapsing to a certain extent as the pressure increases, and bulging out as the pressure is reduced. A graduated dial with pointers enables the observer to read off the variations, and the rest of the apparatus is merely the mechanical arrangement necessary for communicating the change of level of the vacuum box lid to the dial, multiplying the variations considerably in order that a very minute change may be easily read off upon the graduated scale. The instrument can be adjusted with a delicacy that leaves nothing to be desired, and it has the immense advantage over the ordinary barometer of being as portable as a ship's chronometer. Very fair instruments may even be made to be carried in a watch pocket. They are rapidly superseding the mercurial barometer, both on shipboard and on exploratory expeditions, especially in measuring the heights of mountains. For such scientific purposes the aneroid is fitted with a thermometer so that corrections may be made for variations in temperature. The instrument used should be compared with standard ones from time to time, especially after having been exposed to considerable variations of atmospheric pressure.

Aneurism (from a Greek word meaning "a widening").—A tumour formed by the dilatation of the coats of an artery. A true aneurism is the dilatation of all the three coats equally, the term false being applied to that variety where the inner and middle coverings are ruptured, leaving the external only intact. Aneurism is rather a disease of advanced life than of youth, and is said to occur more commonly in men than in women. When situated in some parts of the body the distension causes severe pain, pressure on the surrounding nerves, and is always dangerous from its tendency to rupture. The treatment of aneurism, which is sometimes brilliantly successful, is of course entirely beyond domestic ability.

Angelica is an aromatic herb or plant common to most parts of Europe, and frequently found wild in England, where, also, it is largely cultivated in the garden. Its roots are used as food in Norway and Lapland, and when dried form an agreeable tonic and aperient. It was formerly recommended as a medicine for diarrhœa, dyspepsia, and fevers, but is not now often used in this way. The stems when boiled in syrup make a pleasant sweetmeat, which is

sold by confectioners as aromatic candy. The seeds are dried and used for flavouring cordials and liqueurs, as Chartreuse. There is a variety of angelica grown in North America, where it is a popular remedy for colic and indigestion, and is regarded as a tonic and cordial. Angelica root is one of the ingredients used in the manufacture of absinthe.

Angina Pectoris, or, as it is usually called, breast pang, is a paroxysmal disease, the signs of which are sudden, severe, lancinating pain in the chest over the breast-bone, and tending in the direction of the left arm, and a horrible fear of imminent danger and impending death. After the attack passes away the person recovers his usual health, but a second or third attack is generally fatal. The treatment should consist in the administration of stimulants and other, and the external application of mustard or turpentine.

Angling. (*See* FISHING.)

Anglo-Japanese Work.—The principal material used in Japan is paper. Of this the Japanese make great varieties; one kind resembles leather, while another might be taken for fine gauze. With paper these ingenious people make innumerable articles—boxes, fans, screens, and knickknacks of all descriptions, caps, curtains, hats, even shirts; and wonderful to relate, these paper garments will bear washing, and are wearable after the process. A very pretty and useful lace for the decoration of rooms can be made with tissue-paper, if the Japanese method is followed. Cut the paper in strips a quarter of an inch wide, then roll them in a slanting direction. This process requires practice, as it must be evenly and firmly done; the fingers should be kept damp the while. When two strips are rolled, the two are made into one by being rolled together the reverse way. It is surprising how strong and tough this thread will now be found to have become. When it is necessary to lengthen the threads, the two which form the cable must not be joined in the same place; the joins are easily made. Tear the ends aslant, damp them, and put one on the other. With the cable thread an open lace-work is quickly made, by means of loops, knots, and double knots; it can also be used for open and close plaits for mats. Numerous articles known by the name of Japanese goods are now made in Birmingham.

Angola. (*See* ANGORA.)

Angora.—A particular kind of wool, which is also known by the names of angola and angona. It is obtained from the goats which inhabit the mountainous country around Angora, in Asia Minor. These goats have long fine white silky hair, which is allowed to grow until the animals are a year old, and then is clipped annually. Each year a greater weight is obtained until the goat has reached its full growth, when the quantity yielded is about four pounds. This wool is the whitest and softest known in the trade, and is now extensively used for the manufacture of fine goods, such as merino underclothing. In France a material having a warp of spun silk and weft of angora wool is manufactured; this fabric, called *poil de chèvre d'angora*, is pleasing to the eye, but not serviceable. In England a cotton warp is substituted, and this considerably lessens the cost of the material, which is known by the name of mohair, and is made in Bradford, Norwich, and Scotland. Lace is made in France of this wool; it has the appearance of Chantilly lace, and is largely patronised, as it can be made for half the price of that expensive lace. Shawls are also manufactured with Angora wool.

Angora Cat.—The varieties of the domestic cat are neither numerous nor markedly different from each other. The Angora cat is one of the most beautiful, being remarkable for its long silky hair. It is white or of a very light grey colour; the tail is long, and covered with hair about five inches in length. Besides its use as a household pet, and for keeping down rats and mice, there is a large trade carried on in the skins of cats for their fur. The cat also forms an addition to our food-supply, and according to the bulletin of the Society of Acclimatisation of Paris, domestic cats are more often eaten as food than is generally supposed.

Aniline Colours and Dyes.—Coal-tar, the source of the aniline colours, consists of the oily fluid obtained in the destructive distillation of coal during the manufacture of ordinary illuminating gas, and collected in a tank from the hydraulic main and condensers. The most important constituents in the highly complex composition of coal-tar consist in a series of homologous hydrocarbons, which are procured by distillation, and called "coal naphtha." By rectification this naphtha yields an oily liquid, of a light yellow colour, which constitutes the benzol of commerce. By the action of sulphuric and nitric acids combined together what is termed "nitro-benzol" is obtained, which is a heavy oily liquid, having an odour like bitter almonds. This nitro-benzol is converted into aniline by an apparatus similar to that employed to procure it, in the first instance, from benzol, only that a means for letting in a stream of superheated steam has to be provided to condense the aniline as it distils over; when it is collected, an oily liquid, boiling at 360° Fahr., appears, of a pale sherry colour. The first aniline colour discovered was mauve, procured during experiments for obtaining artificial quinine.

Aniline Colours.—Mauve, mauveine, magenta, aniline blue (or bleu de Lyons), violet imperial, Hoffmann violet, dahlia, Britannia violet, aldehyde green, iodide green, Perkins' green, picric acid, isopurpurate of potassium, aurine (or rosolic acid), peonine (or coralline), azuline, and dinitronapthall (or Manchester yellow), are the most important.

Aniline Dyes.—By this discovery we have obtained the numerous aniline dyes by which feathers, horse-hair, leather, silk, wool, cotton, wood, hemp, sea-weeds, ivory, bone, and basket-work, as well as dried grasses and overlasting flowers, may be dyed without disappointment or trouble in a few minutes. Many inexpensive preparations are sold in liquid form, which may be procured from any chemist. The colours comprise magenta, mauve, violet, puce, purple, canary, maroon, buff, cerise, scarlet, orange,

blue, pink, green, claret, ruby, brown, crimson, lavender, black, slate, grey, ponceau, lilac. Curtains, table-cloths, and dresses may also be dyed with the most satisfactory results.

Animal Charcoal, commonly called bone black, consists of bone which has been calcined at a red heat in a kiln, and reduced to a coarse powder. It has remarkable powers in clarifying solutions, and is used in large quantities by sugar refiners, in order to decolorise the boiled sugar. It is also more effective than wood charcoal as a deodoriser; and even extracts from water the mineral ingredients that may be dissolved up in it, rendering it at the same time sweet and clear and pure. When the animal charcoal is exhausted by reason of use, it can be revivified by being first washed thoroughly, and afterwards heated to redness; it is thus made to serve over and over again.

Animal Foods.—All which constitutes the flesh of animals is derived from the vegetable kingdom. There are some substances, however, which are distinctive of animal tissue which do not occur at all in plants, but are found in the bodies of various animals which are used as food for man. Amongst these are the ossein of bones, the cartilagin of cartilages, the nitrogenous compounds of connective tissue and skin, the hœmoglobin of the blood, and some of the rarer constituents of the brain and bile. Animal food is richer and more nutritious than any other. As a matter of history, those races of mankind who have lived upon animal food are the most vigorous, the most moral, and the most intellectual. The ancient Jews are an example of this fact. Although they observed certain regulations as to the method of killing animals, they partook of meat largely, and they were a most vigorous race. In modern times those nations are the strongest who take the most animal food, and in every-day life those persons who eat most freely of butchers' meat are capable of the largest amount of intellectual or physical labour. There are many people who are not of this opinion. Some advocate a purely vegetable diet. Experience teaches, however, that a mixed diet is the one best adapted to man. Milk, which may be regarded as the perfection of all food, indeed, as furnishing a type for all other foods, is certainly an animal product, and when analysed is found to contain representatives of all the different groups.

The most important of the animals slaughtered for food are the ox (and calf), the sheep, and the pig. Different kinds of meat, and even different joints, vary considerably in the amount of nutriment they contain. As a general rule, if heat-givers and force-producers are required, fat meats are the most suitable; if flesh-forming materials are called for, lean meat is the best.

Animal Heat.—The temperature of a living body is, or ought to be, pretty nearly constant, the heat being due to the chemical action always going on within the body through the processes of respiration and of the assimilation of food. The normal heat of man is about 98° Fahrenheit, though that of young children is slightly higher. Under the influence of disease the temperature may be raised or lowered to the extent of several degrees. The temperature of birds is much higher than that of man, in consequence of their respiration being more active in proportion; while that of cold-blooded animals, for the opposite reason, is lower. Animal heat is independent of the external influences due to change of season or climate.

Animal Magnetism.—By this is meant the influence, or supposed influence, of one individual over another, producing various effects upon the muscular and nervous systems of the persons operated upon. It has no relation to the science of magnetism, beyond that it was introduced to public notice by some of the doctors of the last century, who had been in the habit of applying the loadstone, and also artificial magnets, to their patients as a cure for a variety of diseases. Mesmer, the magnetic doctor of Vienna, discovered that he could effect his cures as well without them as with them, and therefore discarded the magnets, though he retained the name. It is often called mesmerism, after his name. By some it has been ascribed to what is called odylic force, though what this is it is difficult to define accurately. Electro-biology, so called, is another development of the same practice.

There can scarcely be any reasonable doubt that certain persons, possessed of strong purpose of will, can exercise considerable influence over others who are mentally their inferiors, and still more, perhaps, over those who are suffering more or less from disorders of the nervous system. This influence, under the hands of Mesmer and others of his craft, enabled them to produce extraordinary effects upon those of their patients who were subject to hysterical affections; but animal magnetism is an agency which, in the hands of either enthusiasts or unscrupulous persons, may be made to do almost anything, and hence a large proportion of the phenomena that have been ascribed to it can only be attributed either to delusion or imposture. The great majority of the cases on record possess no scientific weight whatever; while others attributed to it can undoubtedly be produced at times without the intervention of the living operator. The latter class include such as sleep and insomnia, dulled or intensified sensibility, catalepsy, &c.

Animal Poisons.—Poisons communicated by means of animal food taken in such conditions as to produce morbific effects. Fish, cheese, mussels, sausages, and the diseased flesh of animals have been known to occasion the symptoms of irritant poisoning, and in such cases they are termed animal poisons. The bite of a mad dog, or a wound received in a dissecting-room, are instances of blood-poisoning which may be classed under this head.

Animalcula.—This is a diminutive term (derived from the word animal) applied to those minute creatures which are distinguished in various fluids by the aid of a microscope.

"Take any drop of water," says Professor Rymer Jones, "from our rivers, from our lakes, or from the vast ocean itself, and place it under the microscope; you will find therein countless living beings moving in all directions with

considerable swiftness, apparently gifted with sagacity, for they readily elude each other in the active dance they keep up. . . . . Increase the power of your glasses, and you will soon perceive inhabiting the same drop other animals, compared to which the former were elephantine in their dimensions, equally vivacious and equally gifted. Exhaust the art of the optician, strain your eyes to the utmost, until the aching sense refuses to perceive the little quivering movements that indicate the presence of life, and you will find that you have not exhausted Nature in the descending scale."

Amongst the curious discoveries of modern science must be included that of fossil animalcules, which have been met with in such abundance as to form the chief part of extensive strata. The polishing slate of Bilin is almost wholly composed of the silicious shields of a minute fossil animalcule, the length of one of which is about $\frac{1}{288}$th of an inch, so that about twenty-three millions of animalcules must have gone to make a cubic line, and forty-one millions to form a cubic inch of the rock. The mountain meal of Sweden, and other parts of the Continent, sometimes eaten as food, is nothing but the remains of countless animalcules.

Animals, Cruelty to.—Any one subjecting animals to cruel treatment commits an offence against the criminal law. The Act of Parliament under which he may be convicted is the 12 & 13 Vict. c. 92, passed in 1849. By this Statute it is provided that if any person shall cruelly beat, ill-treat, over-drive, abuse, or torture any horse, mare, gelding, bull, ox, cow, heifer, steer, calf, mule, ass, sheep, lamb, hog, pig, sow, goat, dog, cat, or any other domestic animal, he shall forfeit a sum not exceeding £5 for every such offence, recoverable before a justice of the peace in a summary manner; and if by any such misconduct he shall injure the animal, or any person or property, a further sum not exceeding £10 to the owner or person injured. Penalties may also be inflicted in the case of conveying cattle by railway without supplying them with water, &c.; and a variety of humane provisions have been made by Parliament for the regulation of the business of slaughtering horses and other cattle not intended for butchers' meat. The Vivisection Act recently passed is another step in the same praiseworthy direction. England, it may be added, has the honour of having first directed public attention to the importance of a kindly treatment of the animal world. The movement has now extended to France and Germany.

In Scotland cruelty to animals used to be punishable at common law—that is, according to the Scotch legal principle, common law as distinguished from statute law—and "so late as the year 1826 a man was convicted there of affixing a stob, or prickle armed with iron nails, to the tail of a pony, by which the animal was wounded in the hind legs, and punished with two months' imprisonment; but the Scotch law at that time did not view such conduct so much as an act of cruelty to the animal injured as of 'malicious mischief,' as it was called, and in fact regarded such treatment of animals as simply an offence against property." An Act of Parliament, however, was passed in 1850 putting the law on this subject on the same footing as it is in England. (*See* VIVISECTION.)

Animals, Domestic.—Animals which man has brought under subjection, and of which he makes use, either as beasts of burden or means of transport, as the horse, ass, mule, camel, elephant, &c.; or as servants, as watch-dogs and fox-hounds; or for his amusement, as certain kinds of dogs and cats. The name is also extended to cover all those animals reared by man to furnish him with food or clothing, as the cow, sheep, goat, pig, &c. Domestication has the effect of sweetening the tempers of wild animals; it makes them fatter, and in some cases modifies the colour of their hair or plumage.

Animation, Suspended.—An interval during which certain functions of the body refuse to act. The appearance being often mistaken for death, treatment which applied earlier might have restored respiration and circulation is often neglected till too late to be of service. Drowning is an instance in which judicious efforts rightly directed seldom fail to reanimate the body. Hanging, when the neck is not dislocated by the fall, also results in death from suspended animation; while simple fainting, if attention be not paid to it, may end fatally for similar reasons.

Aniseed.—The fruit of an umbelliferous plant, the *Pimpinella Anisum*, used as a carminative medicine, and as a flavouring adjunct to liqueurs.

Aniseed, Balsam of.—A patent medicine manufactured from the preceding, much used in the treatment of coughs and colds.

Aniseed, Cordial of. (*See* ANISETTE.)

Anisette is a cordial made from aniseed and sugar, highly condensed to produce a full flavour. In this form it is used chiefly as a medicine for children, and is serviceable in warming the stomach and relieving flatulency. In France it is taken as a liqueur under the name of Anisette de Bordeaux. To make this, coriander and sweet fennel seeds are used in addition to the aniseed, and these are distilled with rectified spirit and lump sugar. It has a somewhat sickly flavour, and is enjoyed only by those who have acquired the taste for it.

Ankle.—The joint uniting the foot and leg. The movements are limited to extension and flexion, there being no power of lateral motion. Some of the chief affections to which this joint is liable will be found under their respective headings. (*See* ANCHYLOSIS, SPRAINED ANKLE.)

Anklet.—A band of metal worn round the ankle. This form of ornament is almost universally adopted by Oriental women. In India little girls wear these appendages, and they, together with armlets, are the only noticeable marks in dress which distinguish girls from boys. Anklets are made sometimes of gold and brass, but principally of silver; some of them are engraved by native artists with the point of a nail; many of them have tiny silver bells attached to the band, which tinkle at every step the wearer takes.

Anna.—An East Indian coin, the sixteenth part of a rupee, or about 1½d. sterling.

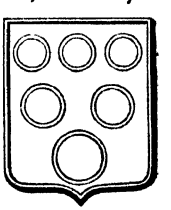
Annatto.—A vegetable dye obtained from the seeds of the *Bixa Orellana*, an evergreen tree extensively cultivated in the East and West Indies, and other tropical countries. It is used as a colouring matter for cheese. It should only be sparingly employed, and great care should be taken to see that it is pure. Its principal use is in dyeing cotton, silk, and wool, although it is sometimes made also into a pigment for painting. Pure annatto is of a brilliant orange red, but it is nearly always adulterated, the chief ingredients used for the purpose being flour, chalk, and common salt. It is made up into cakes, eggs, rolls, and solutions. The roll is the form generally used for colouring cheese, and the solutions for dyeing purposes. The liquid sold under the name of nankeen dye is made from annatto.

Annuals (Books).—This title was originally given to a series of yearly volumes, contributed to by the best writers in prose and verse of the day, and illustrated by steel engravings from paintings by the most celebrated artists. The *Forget-me-not* was the first annual issued in this country (London, 1822), the idea and the title being both borrowed from Germany, where a similar class of productions had been popular as gift-books for Christmas, the New Year, &c., for some time previously. The *Forget-me-not* was followed by *Friendship's Offering* and the *Literary Souvenir*, in 1824; the *Amulet*, in 1827; and the *Keepsake*, one of the most popular of all the annuals, in 1828. Originally all these annuals were issued at twelve shillings each, with the exception of the *Keepsake*, which was started at a guinea; this latter was edited at various times by Mr. W. H. Ainsworth, Lady Emmeline Stuart Wortley, and the Countess of Blessington. In the early days of annuals very large sums of money were invested in the various departments of their production, and immense profits were realised by all interested in their sale. Changed tastes of the public, however, combined with the great progress in the art of wood-engraving, and the decreased cost of production, gradually interfered with the demand, and, one by one, these annuals, of which in 1829 no less than nineteen were published, were discontinued, the *Keepsake* for 1856 being the last to make its appearance. Since the decease of the annual proper, however, another class has sprung up, differing but little from a literary point of view from their progenitors, but much less ambitious in form and price. They generally consist of collections of short tales, sketches, and poems, light in character, and illustrated with wood engravings. These annuals, the general price of publication of which is sixpence or a shilling, are sometimes connected with the magazines in the form of extra numbers issued at Christmas and other seasons. (*See* MAGAZINE.)

Annuals (Plants) is that tribe of plants which require the seed to be sown every year, and in some instances need to be planted out when sufficiently matured. Many are very beautiful, and they are easy of culture, requiring little more than sowing the seeds where they are to remain. Annuals may be divided into three classes—hardy, half-hardy, and tender. The first are sown on the ground which they are to occupy; the half-hardy succeed best when aided by a gentle heat or hot-bed, and then when large enough transplanted in the open air. The tender are kept in pots, and treated as greenhouse plants. The best time for sowing the out-door seeds is during the beginning of April, and by the middle of May, should the weather have been propitious, those sorts that need it may be transplanted. In sowing all seed great care should be observed. Wherever the spot has been selected remove the top of the mould, and make even and firm the surface where you intend putting the seed, and do not put too much seed, as when it comes up it must be thinned, and so cause a waste of it; then place some fine mould over the seed, and water with a fine rose watering-pot. Some people recommend watering the seeds before covering them with mould. It is important to put a notice of the name of the seed on the spot where it is sown.

Annuity.—A yearly income secured to one either in fee (*i.e.*, for a perpetuity), or for life, or for a term of years. It may be paid annually, quarterly, weekly, or otherwise; where land is charged to secure an annuity it is usually termed a "rent charge." By the Apportionment Act (4 & 5 Wm. IV. c. 22), annuities were made apportionable—that is, where the death of an annuitant, or other event on which an annuity depended, takes place between the several appointed days of payment, his estate becomes entitled to a portion calculated *de die in diem*, from the last period of payment up to the death or event, including the day on which the same happens. By the payment of a certain sum of money, supposed to be its equivalent in value, an annuity may be secured at given periods of life, to continue until death. Such annuities are granted by insurance offices, and may be either immediate, deferred, or survivorship annuities. (*See* LIFE ASSURANCE, TONTINE.)

Annulet (Heraldic).—There are certain heraldic marks used by junior branches of the same family to show their position in that family. An annulet is one of these signs; it is used by the fifth son, and its representation is a plain ring of any size.



ANNULET.

Anodynes (from two Greek words meaning "no pain").—Medicines that act on the nervous system, producing insensibility to pain and diminishing spasm. The most important is opium and its preparations.

Anosmia. (*See* SMELL, LOSS OF.)

Answer.—This word had up to a recent period a special legal signification, being the word used to describe a defence to a Bill of Complaint in Chancery, and which was more common than either plea or demurrer. By the Judicature Act, "a statement of defence" is now the ordinary answer to all actions.

Antacids.—Remedies which are correctives of acidity by virtue of their action upon the blood. The most common are the prepara-

tions of soda, potash, lithia, and magnesia, all of which are found most serviceable in the treatment of gout—a complaint supposed to be occasioned by the presence of free acid in the blood.

Antalkalines. — Preparations used to counteract the effects of an alkaline condition of the urine, such as dilute phosphoric or dilute nitric acid. Ten drops of either in one ounce of water, taken three times a day, will be found sufficient in a short time to produce the effect required.

Ante-room.—An apartment through which access is obtained to another room. It is one in which servants wait, and strangers are accommodated till the person to be spoken with is at leisure. In the arrangement of many houses the peculiarity of the plan obliges the architect to introduce ante-rooms, and in most cases, it must be owned, they add both dignity and elegance.

Anthelmintics.—A term used to denominate a class of remedies used to destroy worms when situated in the alimentary canal. There are two varieties—direct anthelmintics, or vermicides, that act directly, killing the worm; and indirect anthelmintics, or vermifuges, that have for their object their forcible expulsion by purgation. (*See* Worms.)

Anthony's Fire, St.—A name used in some parts of England for the disease usually known as erysipelas. It is characterised by a diffused red inflammation of the skin, producing great heat and pain. It may occur on any part of the body, but that variety known as idropathic usually appears on the face and head, while the traumatic, consequent upon wounds, may attack any part. (*See* Erysipelas.)

Anthracite, Anthrax.—A mineral of the nature of coal, but much harder, and consisting chiefly of carbon. It is difficult to light, but burns almost without flame or smoke, and throws out a great heat, leaving scarcely any ash. In England it is principally used in the burning of lime and bricks, and for the smelting of iron, but in America it is used as fuel, and requires a strong draught to keep it alight, owing to its excessive hardness. It is found in Ireland, Wales, and on the Continent, but the largest beds are in North America. It is unquestionably of vegetable origin, but being the oldest of coals, and found only in the lowest parts of the carboniferous strata, it is entirely devoid of fossils, and exhibits no impressions of plants. It is sometimes called "glance coal," from the lustre it displays and the play of colours which some of its specimens exhibit. It is also denominated "stone coal," from its hardness; "blind coal," because it burns without flame; and is occasionally termed mineral charcoal.

Anti-asthmatic Preparations. — Drugs that have the power to control or relieve in attacks of asthma. Tobacco or stramonium may be smoked with benefit. The chief internal remedies are belladonna, chloral-hydrate, lobelia, ether, and opium. Both chloroform and nitrite of amyl are of great value for inhalation for this purpose, but the latter, although especially efficacious, requires to be used with caution, and only under medical advice.

Anti-attrition, which means literally the "prevention of friction," is the name given to a composition used to prevent the friction of one portion of machinery with another, whereby they are liable to become worn away. Powdered blacklead, made up into a paste with a little tallow, is about the best that can be used, especially when applied to wood-work.

Antibilious Medicines.—Drugs used to stimulate the action of the liver and promote a flow of bile, or to carry off bile when secreted to excess. Calomel, blue pill, grey powder, dandelion, and phodophyllum are the best known remedies of this class. (*See* Bile.)

Anticardium, or black reviver, is used to restore the colour of faded cloth. It is made from galls, logwood, and copperas, and can be readily prepared at home, the quantities used being one of copperas to two of galls and four of logwood. The ingredients should be thoroughly crushed, and then boiled for two hours with water, in the proportion of five quarts of water to half a pound of copperas. Blue reviver is made from soluble Prussian blue dissolved in distilled water; one ounce to a quart of water.

Antidotes. — Remedies administered to destroy the baneful effects of poisons. Some, whose action is said to be direct, meeting with the poison in the system, entirely alter its character and render it harmless. Others act indirectly, producing in the system effects precisely the reverse of those occasioned by the poison. Emetics, often miscalled antidotes, have the same ultimate object, and where practicable are preferable, but some poisons lacerate the coats of the stomach, rendering vomiting useless. External applications to envenomed wounds are also termed antidotes.

Anti-gropelos.—A name given to leggings made of waterproof material, used in riding. They are generally manufactured of enamelled leather. The name is derived from three Greek words, meaning *against* the *mud* of the *field*.

Anti-lithics.—A class of remedies which prevent, or tend to prevent, the formation of stone in the bladder. The term is not one applied solely to drugs, but also to various articles of food. The stones which are most easily prevented forming are those of uric acid, and this is found to form more readily in some people than in others. Such persons are said to have a constitution favourable to its formation, or lithiasis. This is favoured by high living, much animal food, port wine, porter, beer, confined living in hot rooms, want of exercise. It is counteracted by the opposites of these, by fresh air, by moderation and temperance, by exercise. These are great anti-lithics. Some medicines, too, tend to correct the excessive acidity of the secretions, such as bicarbonate of soda or bicarbonate of potash, ten grains, taken three times a day in water. Simple water, too, is useful for this purpose,

as also are various alkaline waters, especially those of Carlsbad and Vichy. There are other forms of stones, such as those which consist of oxalate of lime or phosphate of lime, which require different antilithics from the uric acid class. (*See* GRAVEL, LITHIASIS.)

Anti-macassar.—A name given to the loose covers placed on the backs of chairs and couches to prevent them from being soiled. Anti-macassars came into general fashion some fifty years ago, when it was the custom for people to anoint their hair with macassar oil, hence the name which was bestowed on them. They are called by the French *couvrettes*. These covers are made in many ornamental ways, and of a great variety of materials. To be of real use, and not to be a continual source of trouble and annoyance to every one concerned, anti-macassars should always be firmly fastened on those chairs whose backs they are intended to protect. Few things make a room look so untidy as a number of anti-macassars lying about the floor or on the furniture.

Antimonial Pills are not now recognised by the British Pharmacopœia. A formula for them is given in some books as follows:—Antimonial powder, half a drachm; calomel, camphor, opium, of each six grains; conserve of roses, nine scruples. Divide into four-grain pills. They have been frequently recommended for coughs, rheumatism, &c., but should not be taken without medical advice. The dose is one or two at bed-time.

Antimonial Wine consists of a solution of forty grains of tartrated antimony in one pint of sherry wine. One ounce contains two grains. It is less used now than formerly. It is in large dozes an emetic, and in smaller ones a depressant. For emetic purposes, according to age, a quarter of an ounce to an ounce is the dose; but as an emetic it is not to be given if other emetics can be had, such as ipecacuanha wine, or sulphate of zinc (*which see*); it is too depressing. As a depressant it is still used by some in acute inflammation of the chest, with very hot skin and tight, hard cough. For children the dose is one to five minims; for adults, ten to twenty.

Antimony is one of the metals. It is brittle and whitish, and usually found in association with sulphur, as native sesqui-sulphuret of antimony. From this all the preparations of antimony used as medicine are made. The most common form of antimony in medical use is the tartarated antimony, a tartrate of potash and antimony. (*See* ANTIMONIAL PILLS, ANTIMONIAL WINE.)

Antimony, Poisoning by.—Generally the form of antimony is the tartrate, either in wine or in powder. The recurrence of poisoning by antimony is not very common. The poisoning effect of a large dose is generally defeated by the emetic effect of it. Still, there are undoubted cases of poisoning by antimony. In one by orfila, forty grains caused death, with symptoms of vomiting, violent purging, convulsions, pain at the pit of the stomach, swelling of the belly, and delirium. These may be taken as the symptoms of acute antimonial poisoning, preceded by a strong metallic taste in the mouth during swallowing. There is also great heat and constriction of the throat, with difficulty of swallowing. The pulse is small and rapid, sometimes imperceptible, and the respiration is painful. There is great prostration. But much larger doses than the above have been taken with no fatal effect, and often with but slight inconvenience. There have been several cases of *chronic poisoning by antimony*, given so as to simulate disease. In these there is great nausea, vomiting of mucous and bilious liquids, great depression, watery purging, small contracted feeble pulse, loss of voice and muscular strength, coldness of the skin with clammy perspiration, and death from exhaustion. In cases such as these, antimony is found in the urine and other secretions, and, after death, in various organs.

Antimony, Yellow (Pigment), was a compound of hydro-sulphuret of antimony and lead used in colouring glass, and also in enamel and porcelain-painting. It differed greatly in its tints, and was deeper in colour than Naples yellow, although similar in its properties. It was liable to change, even to blackness, by damp and impure air; and iron was also destructive of its colour. It is not at present in great request, on account of these fugitive qualities. See Field's "Chromatography." (*See* NAPLES YELLOW.)

Antipendium.—A Latin word which is sometimes given to the frontal—*i.e.*, the hanging or panel in front of an altar.

Anti-phlogistic Lotion.—The following formula, by Copland, has been given as that of anti-phlogistic lotion:—Solution of diacetate of lead, three fluid drachms; solution of acetate of ammonia, two fluid ounces; distilled water, one pint. Rags dipped in this have a cooling effect. But as a matter of fact it will be found that warm applications, such as fomentations or poultices, are more effective in reducing the inflammation of parts. Cold lotions like the above are of very doubtful use. (*See* ANTIPHLOGISTICS.)

Anti-phlogistics (from two Greek words meaning "against inflammation").—Remedies supposed to have the power of combating fever and inflammation, as blood-letting, purgatives, diaphoretics, diluents, diuretics, &c. &c. The remedies and the theory upon which they were based having both fallen much in the esteem of good practitioners, it is not necessary to descant on them here.

Antique.—Literally, what is ancient. The word is applied to objects which are really ancient, or which imitate patterns and models of ancient origin. In the former case, and as "antiques," curious, rare, or valuable old relics and works of art are meant, such as are prized by collectors. In the other case, the term is used of a great number of patterns and ornamental articles, the style of which is old and the work new.

Antique, Oils (French, *Huiles Antiques*, oils for the hair).—These are very numerous, the basis of them being generally those of almonds, ben, or olives. The methods adopted for their preparation vary with the nature of

the substances whose fragrance it is intended to convey to the oil. Continental perfumers employ three different processes for this purpose, which they technically distinguish by terms indicative of their nature.

The *Huiles Antiques* are numerous. In general a mixture of two or three perfumes is preferred in this country to that of any single flower. Some of these oils are coloured. A red tinge is given by allowing the oil to stand for a few hours over a little alkanet root (two drachms to the pint) before scenting it; the application of a gentle heat facilitates the process. Yellow and orange are given by a little annotta or palm oil; and green by steeping a little green parsley or lavender in them for a few days, or by dissolving two or three drachms of gum guaiacum in each pint, by the aid of heat, and when cold decanting the clear portion.

Huile antique au jasmin.
Huile antique à la fleurs d'oranges.
Huile antique à la rose.
Huile antique à la tuberose.
Huile antique à la violette.

These are all simple oils, flavoured with the respective perfumes by which they are called, or their preparations. Huile antique rouge à la rose is the ordinary oil of roses coloured with alkanet root. Huile antique verte is simple oil coloured green, and scented. Huile antique aux mille-fleurs is so scented with several perfumes that none predominate. A mixture of bergamotte, lemons, lavender, neroli, pimento, and ambergris, or musk, is commonly employed for this purpose.

Anti-scorbutics.—Remedies which oppose scurvy. It is well known that scurvy is caused by, above all other causes, a short allowance of vegetable food. Salt meat seems favourable to its production. So are cold, darkness, anxiety, depression, and despair. But none of these will produce scurvy if there is a good supply of fresh vegetable and animal food. The principal anti-scorbutics are lemon or lime-juice, oranges, salads, watercresses, pickles, broccoli, cabbage, vinegar, horseradish, wood-sorrel, common sorrel, milk, wine, beer, spruce beer, fresh meat and fish, raw meat, fresh blood, pure air, the recumbent posture. Lemon and lime-juice certainly stand first in the above list, and are among the most marvellous remedies known to medical men. An ounce or an ounce and a half of lemon or lime-juice, daily, on long voyages, is a preventive of scurvy; and when the disease has broken out, four or six ounces a day will arrest it. The quantity required will depend on the supply of fresh vegetables and the severity of the scorbutic symptoms. (*See* Scurvy.)

Anti-scrofulous Preparations. (*See* Scrofula.)

Anti-septics (from two Greek words meaning "opposing putrefaction").—Remedies which oppose the putrefactive changes of the blood or tissues of the body, such as chlorine, hyposulphites, carbolic acid, &c. The tendency of modern science has been in favour of such medicines, both in surgery and in medicine. In surgery, particularly, great advantage has resulted from preventing the occurrence of putrefaction in wounds—first, by excluding air, or the organic germs contained in air; and secondly, by preventing the accumulation of those fluids and secretions in wounds which tend to putrefy by the introduction of drainage tubes. (*See* Disinfection, Preserving.)

Anti-spasmodics are remedies which are thought to possess a power of opposing *spasms*. They belong largely to the class of ethers, as sulphuric ether, chloric ether, nitric ether, &c. The following will be found a very good anti-spasmodic:—Chloric ether, ten minims; bicarbonate of soda, ten grains; spirits of ammonia, fifteen minims; peppermint water, an ounce. This is applicable to spasms of the stomach. For spasms of the chest, such as asthma or bronchial spasm, remedies are often best inhaled, such as the steam of hot water; or the smoke of medicated cigars, as those of stramonium, cannabis Indica, &c. (*See* Anti-asthmatic Preparations.)

Ants, To Destroy.—These industrious little insects are very difficult to get rid of when once they establish themselves in a house or garden, where they are exceedingly destructive both to fruit and flowers. They multiply so rapidly, and their powers of penetrating through almost any substance are so great, that it has been found necessary to resort to all sorts of expedients in order to destroy them. Very few of these are thoroughly effectual. Quicklime scattered about their haunts, with boiling water poured over it, will sometimes drive them off. A strong solution of tobacco water or camphor dissolved in spirits of wine, or spirits of turpentine or ammonia, will keep them away as long as the odour remains. They do not like strong scents. A sponge soaked in oil of tar expels them from the cupboard. But unless all these are frequently renewed they are of no use, and they will return again in as great a force as ever.

Antwerp Blue, known also as Haerlem blue, Berlin blue, mineral blue, &c., is a lighter and somewhat brighter blue than the Prussian blue, but with less depth and permanence. The composition of Antwerp blue is precisely similar to Prussian blue, the colour being slightly altered by the addition of more white clay or chalk. It can be distinguished from it only by its more earthy fracture. (*See* Prussian Blue.)

Antwerp Brown.—A preparation of asphaltum or bitumen, that mineral pitch or tar which rises to the surface of the Dead Sea, and floats in masses to its shores, where it is collected by the Arabs. It is also produced in great abundance at the gas manufactories. The asphaltum is ground in strong drying oil for Antwerp brown, by which it becomes less liable to crack. It is sometimes called bitumen, and a similar preparation for the use of water-colour artists is employed under the name of liquid asphaltum. In practice it must be regarded more as a dark varnish than as a solid pigment, and it is liable to crack and contract

by changes of temperature and atmosphere, and thus utterly ruin the pictures in which it is employed.

Antwerp Lace.—This lace is very similar to that made at Brussels and Mechlin. At an earlier period it possessed a peculiar character of its own. The usual pattern was a guipure of large flowers, and this fabrication was largely exported to the Spanish Indies. At no period do the Antwerpians appear to have indulged in much diversity of design, for in the present day the lace which they make for their caps exhibits but one idea—that of a vase of flowers, or a vase without the flowers. This lace bears the name of *potten kaut*, or pot lace. The reason of the choice of this pattern is said to be that a flower-pot or vase is the symbol of the Annunciation.

Anucapnic Stoves and Lamps are recent inventions for the better and more effectual use of petroleum as a lighting and heating material for household purposes. The objection to this particular oil has been the offensive vapour which is thrown off during its consumption. The peculiarity of the stoves and lamps called "Anucapnic" is, that the draught is increased so as to ensure complete combustion and exhaustion of the oil. An intensely white and brilliant flame is produced, which is perfectly free from any taint of smoke or smell, and this without the necessity of using a glass chimney. The name is derived, as are those of so many patent inventions at the present day, from two Greek words meaning "without smoke."

Anvil.—The anvil is a large block of iron with a surface of sufficient hardness, smoothness, and flatness, having a hole at one end for the purpose of inserting tools, and a strong steel chisel on which a piece of iron may be laid and cut through by the blow of a hammer. In Christian art, the anvil is the attribute of St. Adrian, and St. Eloy, the patron saint of all workers in metal.

Anxiety.—Under this term we commonly include disturbance or trouble of mind in regard to results or events which are future or uncertain. Pathologists apply it to bodily and mental restlessness, and painful uneasiness, which are often the forerunners or symptoms of dangerous and acute diseases. The presence of anxiety in cases of illness or even trifling indisposition in nervous subjects should be carefully noted. It is associated with some of the most distressing ailments to which men are liable, such as insanity, hypochondriasis, &c.

Apartments.—This term applies to rooms into which a person may go apart from others. Thus a hall or passage would not be styled an apartment. Hints about the arrangement, decoration, &c., of the various apartments in an ordinary house will be found under their respective headings. (*See* BEDROOMS, DINING-ROOM, DRAWING-ROOM, LIBRARY, NURSERY, STUDY.)

Apartments, Hiring of. (*See* LODGINGS.)

Apatite.—A mineral containing superphosphate of lime and other constituents, chiefly used for the manufacture of an artificial manure. It is found in England and elsewhere.

Aperient Medicines are those that have a purgative quality which promote the functions of Nature by removing obstructions. Some of them possess this property in a mild, others in an intense degree, and they therefore have to be selected and administered according to the special circumstances of the case. The larger proportion of simple aperient medicines may be used without medical advice, and experience will easily teach in each case the kind of medicine most suitable for the purpose, as well as the quantity to be given and the best times for taking it. In all cases it should be remembered that the action of these medicines should be assisted by the observance of a suitable diet and regimen; care should also be taken to avoid a chill after taking them. It is also important to remember that they should not be taken habitually, otherwise an unnatural state of things may be set up, under which they become an absolute necessity. Aperients are administered under the form of pills, powders, and draughts, which will be found treated under their respective headings. Other valuable aperients are castor oil, Castille soap, Epsom salts, jalap, and senna (*which see*). (*See also* ALOES, CALOMEL, COLCHICUM, COLOCYNTH.)

Another useful and safe form of aperient medicine is to be found in mineral waters, such as *Pullna*, Frederichshall, Hunyadi Janos, or Carlsbad. Half or a third of a tumbler-full of these waters, taken in a morning before breakfast, with an equal quantity of hot water, will answer well.

Aperient Pills.—Of these there is a great variety, as a pill is found to be the most convenient form for administering an aperient. The following is a safe and mild prescription: —*An adult:* two grains of blue pill, two grains of extract of henbane, and six grains of compound rhubarb pill, divided into two pills, which are a dose for an ordinary person. Many people make too free with such medicines. They compound for various excesses by taking such occasional depletives. This is to be condemned; but the occasional use of such pills as the above will do no harm, and often good.

Aphasia, or Loss of Speech.—This word is used by physicians to signify the loss, not of the faculty of speaking, but of the faculty of calling objects by their appropriate names. This is a very curious and instructive affection, which has lately excited much attention. A person so affected will, on being shown a watch, say *tempus fugit*, or will call a hat "a window," but signify at the same time that he knows that he is making a mistake. One point of peculiar interest in nearly all the recorded cases is that the disease has been peculiarly *localised* in a certain spot in the brain. This spot is in the front part of the brain and on the LEFT side. Further particulars would not be edifying to unprofessional readers.

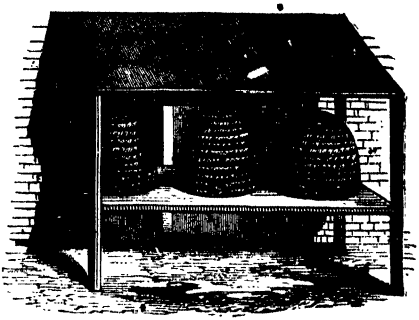
Aphides, or Plant-lice.—An extensive genus of insects inhabiting trees and plants. They are interesting to naturalists on account of their very peculiar economy, and no less so to

gardeners and farmers, on whose crops many species commit most destructive depredations. They are all injurious to vegetation, living on the juices of plants, which they suck with their beaks. Aphides are indicated by an unhealthy appearance in plants; the young shoots and leaves curl up, and multitudes of ants are seen about the stems. A good remedy is to syringe the leaves and stems with tobacco or lime-water, or with gas-tar water. Lady-birds do good service in gardens by destroying myriads of aphides. The wheat-plant louse devotes its attention to grain crops. In July and August it is sometimes abundant on the ears of wheat, sucking the stem and impoverishing the grain. Aphides are most troublesome insects to the gardener, they come in such swarms, multiply so rapidly, and do so much mischief to the rose-trees. Though easily dislodged, if even but one or two insects are allowed to remain, in a few days the number is as large as ever.

Aphides, To Destroy.—Many things are useful in keeping aphides down, but that which is better than any cure is prevention. Mr. Reynolds Hole, who is a great authority on the management of rose-trees, speaking of aphides, says:—"You may brush, you may powder, you may syringe, you may dip, you may mix your tobacco water, your decoction of quassia, but where the aphis has once taken possession you shall not see the rose in its integrity. The injury was done before the aphis came. It finds no food when the tree is in perfect health. It will not taste the sap which is pure and untainted. It is a leech which sucks bad blood only." The most effectual means of destroying this pest is to patiently pick the insects off by hand, taking the greatest possible care to destroy each one. If the tree is shaken, and they are simply knocked off the tree, they will re-ascend. Syringing should be done afterwards, with tobacco-juice or other compounds, of which several are sold for the purpose. The best time for doing this is in the evening, or on a dull day when there is no sun. The lady-bird is one of the most deadly enemies of the aphis, and on that account should never be destroyed.

Aphonia is the loss of speech, or rather of *voice*, not from any fault in the brain, or the part of the brain that presides over language, as in aphasia; or that presides over the movements of the tongue, as in *paralysis;* but from the fault of the vocal cords, which are muscular in structure, and may lose their tone, or tension, or contractility, either from cold, producing congestion and swelling; or from weakness, general or nervous. The remedy must be, for cold or for weakness, according to the facts of the case.

Apiary.—A place for keeping bee-hives. Sometimes this is a small house with openings for the bees in front, and a door behind, the door being kept locked for security. Sometimes it is an area wherein each particular bee-hive is chained down to a post and padlocked. Greater attention to this useful appendage to the cottage would not only be useful from a commercial point of view, but would tend to improve the condition of the peasantry. Very profitable returns may be obtained at a trifling expenditure of time and trouble, by very simple processes. (*See* BEES.)



SMALL APIARY.

Apnœa. (*See* BREATH, AILMENTS OF.)

Apoplexy (from a Greek word meaning "to cripple by a stroke," because those attacked sometimes fall as if struck).—The essential feature of apoplexy is more or less sudden and continued loss of consciousness, accompanied with *paralysis*, loss of power of moving one side of the body, or a part of one side. In epilepsy there is a sudden loss of consciousness, often more sudden than in apoplexy, but it is generally accompanied with convulsions or violent movements of the body, and is temporary. It passes away after a short time, and is not accompanied with loss of power, or *paralysis*. Apoplexy may have various degrees of severity. The loss of consciousness and the power of moving may be imperfect, or may be complete. They may endure for a few hours or days and gradually disappear, or they may undergo no abatement. In the latter case life is seriously and soon imperilled. The attack generally depends on the escape of blood in the brain from one or more of the blood-vessels, caused by a rupture of the vessels. This is generally attributed to what is called a determination of blood to the head. But though there is sometimes such an element in the case, the fault lies rather in the blood-vessel itself. The wall of it is diseased. It has undergone some degeneration which makes it less elastic and effective, and on the occurrence of some unusual strain, which a healthy vessel would bear without harm, it gives way. Such changes in the blood-vessels are the result of various causes. *Age* itself leads to them; anything which *ages* the body tends to favour them. Anxiety, alcohol, things which do the work of time, produce this deterioration of the blood-vessels, either directly or by causing disease in other organs, such as the kidneys or heart, which leads to changes in the vessels. Though there is some hereditary element in such changes as lead to apoplexy, it can be greatly opposed and resisted by healthy, sober living. When apoplexy occurs, pending the arrival of a medical man, the patient should be placed in a comfortable position, with the head and shoulders slightly raised, the collar and clothes loosened. Fresh air should be admitted to the room. Mustard plasters may be applied to the soles of

the feet for ten or fifteen minutes. Vinegar and water rags may be applied to the head. Where no medical help can be obtained, it should be remembered that a patient with apoplexy can only swallow imperfectly, if at all. Care must be taken not to do too much. If it is remembered that the symptoms are caused by the escape of blood into the brain, it will be understood that quietness of the circulation, by absolute rest, by giving no stimulants, is essential. If there is a bloated face, a drop of croton oil may be placed on the tongue to act purgatively. Thereafter time should be given to see what happens. If the internal hæmorrhage is slight, the blood will be absorbed, and considerable power may be restored.

There are two other kinds of apoplexy described in some authors:—1. *Nervous Apoplexy*, or loss of consciousness of a temporary character. This is more epileptic in character than apoplectic. 2. *Serous Apoplexy*. This occurs in persons with advanced disease of the kidneys. In consequence of this there is retention in the brain, as in other parts, of the water and other elements of urine, which cause coma or insensibility. But apoplexy, as understood now by medical men, implies the first condition we have described.

Apothecaries' Measure.—The standard of liquid measure by which apothecaries dispense medicines, thus:—

			Abbreviated
	1 minim	.	m
60 minims	= 1 fluid drachm	.	f ʒ
8 drachms	= 1 ounce	.	f ℥
20 ounces	= 1 pint	.	O
8 pints	= 1 gallon	.	gal.

Where medicines are prepared at home from various component parts, exact measures should always be used, avoiding the so greatly-abused tea-spoonful or table-spoonful, since all such ordinary domestic measures must vary very greatly in their capacity in different households. Graduated glasses may be had at all chemists, divided to scale, holding a certain stated quantity, all the component parts of which are marked on the glass. These glasses should also be used in administering medicines; no direction can be more fallacious or untrustworthy than that stating the number of drops of any liquid to be taken. Drops must vary in quantity according to the shape and size of the mouth of the vessel poured from; and grievous mistakes, involving most serious consequences, may often result from the common practice of measuring drops *by the eye*. Of course, there are cases in which actual nicety of measurement is not imperative—the administration of a little more or less of a medicine being attended with no practical result—and in such instances a few average equivalents of measures may not be without use. Thus, a common tea-spoonful averages about twenty-five drops of any liquid; an ordinary wine-glass holds about two fluid ounces; a table-spoon, four fluid drachms; a dessert-spoon, two drachms; a tea-spoon, one drachm.

Apothecaries' Weight.—The standard of weight by which apothecaries dispense medicines. This differs from the ordinary avoirdupois weight, and is as follows:—

20 grains	= 1 scruple	=	20 grains	troy
3 scruples	= 1 drachm	=	60 „	„
8 drachms	= 1 ounce	=	480 „	„
12 ounces	= 1 pound	=	5,760 „	„

In medical prescriptions, &c., each of the above quantities is, for the sake of brevity, denoted by a sign, thus:—*grain*, gr.; *scruple*, ℈; *drachm*, ʒ; *ounce*, ℥; *pound*, lb. In buying and selling drugs, apothecaries use the ounce and pound avoirdupois, thus:—

437½ grains troy . . . = 1 ounce
16 ounces (7,000 grains troy) = 1 pound

Apothecary means one whose duty it is to compound and sell medicines. This was the original function of the old apothecaries, who stood in the relation of dispensers to the old physicians. Besides this, however, they were the family medical practitioners of the day whom, in grave cases, the physicians met in consultation. Now, still more, an apothecary implies a medical practitioner, possessed of a medical qualification, namely, the license of the Apothecaries' Society. He does not dispense other medicines than those he prescribes for his own patients.

Apparatus.—By apparatus we mean the whole of the instruments, implements, utensils, or mechanical arrangements used for any specific purpose, such as chemistry, cooking, disinfecting, brewing, distilling, astronomy, and any other operations and observations. The word is also used by anatomists, &c., for any set of organs, such as those of digestion and respiration.

Apparatus, Culinary.—In every kitchen the number and quality of the culinary articles provided vary with circumstances. Whether they are sufficient or not, they should be kept scrupulously clean. Cleanliness, the great essential in all cooking operations, cannot be too strongly insisted upon. A kitchen may be small and inconvenient, the kitchen utensils may be common and old-fashioned, but everything should be *clean*. Saucepans of every description should be washed, scoured with fine sand, and rinsed each time they are used. Tinned saucepans should be examined daily, and should be retinned as soon as they require it. For a list of the culinary apparatus required in large, small, and medium sized kitchens, see "Cassell's Dictionary of Cookery."

Apparel.—This term signifies the external habiliments of a person. (*See* Apron, Boots, Bonnets, Cloaks, Dress, Gloves, Hats, Shawls, Suits.)

Apparitions.—In some cases of disease the patient is subject to hallucination, and sees, or thinks he sees, persons and things which have no objective reality. Without entering upon the subject of ghosts and so-called spirit manifestations, we refer to the article Spectral Illusions.

Appeal.—This word describes the proceeding of a litigant dissatisfied with the decision of a particular court, and it is made to "the court above," as it is termed—*i.e.*, the court

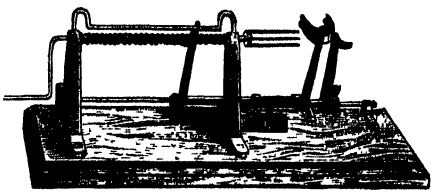
properly constituted to entertain such appeal. By the Judicature Act, the Court of Appeal is to consist of five *ex-officio* judges thereof, and also so many ordinary judges (not exceeding nine at any one time) as her Majesty shall from time to time appoint. The *ex-officio* judges are determined to be the Lord Chancellor, the Lord Chief Justice of England, the Master of the Rolls, the Lord Chief Justice of the Common Pleas, and the Lord Chief Baron of the Exchequer. There is also a statutable right of appeal from the decisions of the county courts in certain cases.

Appearance.—In legal signification the step by which a defendant served with process from the courts of justice evidences his presence in court and readiness to be served with the plaintiff's pleadings. Any one served with process should always immediately instruct a duly qualified solicitor to act for him. This will prevent his being defeated or prejudiced by any technical oversight of which he may be unaware. The following is, however, a short statement of this proceeding and its exigency:—A defendant is bound under the ordinary writ of summons to enter his appearance within eight days from service thereof. It consists in entering a memorandum with the proper officer of the court according to a prescribed form, stating that defendant has appeared as commanded by the writ. This is called "entering an appearance." Appearances are entered alphabetically in a book kept for the purpose and open to inspection. There are some cases in which a defendant cannot enter an appearance without the special leave of a judge, as when he is sued on a bill of exchange, or promissory note, within six months of the same becoming due, in which case he must be able to show by affidavit to the satisfaction of the judge that he has a good defence to the action on its merits.

Appetite (from *ad*, *peto*, to ask) in strictness means any strong desire of a sensual kind, but is generally applied to the desire for food. This is a recurrent and intermittent feeling. The intervals are very short in infancy and childhood, and shorter in women than men. But it should be felt twice or thrice a day more or less by all people in health, though the intensity of it varies much within limits of health. An old gentleman about threescore once drew a fine distinction—"I am never hungry, but I always enjoy my meals." Appetite depends on healthy changes in the system. The body is in a continual state of flux and change, the tissues undergoing metamorphosis continually. Wasted tissues are eliminated in the excretions, and the waste gives rise to want of fresh supplies. This feeling of want is appetite. It is favoured by work, by plain living, by cheerfulness; it is the luxury of the poor, and is often denied to the rich.

Appetite, Loss of, &c., arises from a variety of causes. It may be due to an insufficient flow of gastric juice, or to the retention of undigested matter in the stomach, producing nausea, or distaste for food; or it may be a symptom of more serious disorders. The simpler form usually yields to mild aperient remedies, assisted by vegetable bitters. Other and more obstinate cases require skilful medical attention.

Apple-paring Machine.—This is an ingenious American machine, which created



APPLE-PARING MACHINE.

much admiration and amused surprise when it was introduced into England. The date of its invention is not known, but it was spoken of in 1840 as a novelty, and in America some of the earlier patents, of which there are now eighty, were registered so far back as the commencement of the present century. The fruit is fixed upon the end of a fork, and is made to revolve beneath a cutter, which describes a semicircle in the plane of the axis of the fork. By this operation a paring is removed from the stem to the blossom end. The machine has also another movement which causes the fork to work from side to side, presenting the rounded surface of the rotating apple to the knife. Many improvements have been made since the first of these machines was invented, and the more recent ones have attachments for dividing the fruit still further into quarters, and also for cutting out the core. Separate machines are also made for coring and quartering apples.

Apple-pie Order.—Much discussion has arisen as to the origination of this familiar phrase, for there seems to be no connection between apple pie and the prim and precise neatness which the saying is supposed to express. It is popularly conceived to be a corruption of *cap au pied*, or *cap-à-pie*. A knight was said to be armed *cap-à-pie* (from top to toe) when habited in a complete suit of armour. The following is a theory which has been lately advanced:—In Books of Common Prayer the order of service was written in parti-coloured letters called *pies*. In the first Prayer Books, the Psalms began again on the 31st of January and on the 2nd of March, so that the first day did not coincide with the day of the month until April. Perhaps "April pie" passed into this sort of proverbial use just as the term "Stir-up" Sunday has done.

Apple Wine.—The traveller passing through the green lanes of Devonshire or Dorset is often tempted by the branches laden with pretty fruit which, hanging over his head, invite him to taste. If, however, he does put in his teeth, he will surely repent it in acid and sourness, when he finds that the pretty little pippin is an apple, the fruit which provides the *aepfel* wine of the Germans and the cider of Old England. (*See* CIDER.)

Apples, To Choose.—In choosing apples for dessert it is well to remember that it is with

this fruit, as with many other things—those which look the most tempting are not always the best, and the waxen-cheeked beauty may not hold half the sweetness of its shabby greenish-brown neighbour. The apples to be first recommended are the Joannetings, or June eating apples—sometimes called Jennettings. These are the first to appear and the last to depart. They ought to be ripe somewhere about the 24th of June (St. John's Day), but in our changeable climate we can scarcely count on them before July. They soon disappear and make room for the Margarets, a rather mealy fruit of a greenish-yellow colour. They ought to be ready by the 20th of July (St. Margaret's Day, after which they are named). Next comes the cone-shaped King of the Pippins; the Summer Pearmain, one of the very oldest apples known in England; the Gravenstein, an apple which came to us from Germany; and another King of the Pippins, whose real name is Hampshire Yellow or Golden Winter Pearmain, which lasts till January. Then there is the bright Golden Reinette, and the pretty Pomme d'Api, or Lady Apple, named from the forest of Api, in Brittany, where it was first discovered. In November we may look for that old favourite, the Golden Pippin, of which it is said the Empress Catherine of Russia was so fond, that she had a large supply sent to her every year from England, each golden ball wrapped in silver paper. Next we have Bradick's Nonpareil, and that oldest of English apples, the Winter Pearmain, and best and sweetest of all, the modest reddish-yellow coated Ribston Pippin, which was brought from no one quite knows where, and planted by some one, no one quite knows who, in the garden at Ribstone. These late-comers do not ripen till December. After them we have the Dutch Mignonne, the Nonpareil, brought over by a Jesuit from France, and that large, pretty, and delicious American, the Newtown Pippin, which English gardeners have long vainly tried to rival. These apples are cheap enough if bought by the barrel at Liverpool, and are now retailed by many grocers. They are very good while fresh, but the worst of them is they soon decay.

The best kitchen or cooking apples are called Codlings, from the old English word to coddle, or simmer at a gentle heat. Good kitchen apples will "fall" when coddled—that is, they will lose their firmness, and form a soft pulpy mass. Some dessert apples possess this virtue, and may be used both for cooking and eating, and amongst these are the Pearmains, the Blenheim and Ribston Pippins, the Dutch Mignonne, the Downton Nonpareil, the Reinette de Canada, and the Wormsley Pippin. Amongst the best kitchen apples may be named the Keswick Codling, which comes in August, but which unfortunately is soon gone, the Carlisle Codling, the sour Sops in Wine, the matchless Newtown Spitzemberg, and the Beauty of Kent. All these fall to perfection, and are delicious when cooked and eaten with sugar and cream, or mixed with other fruits such as quinces or apricots. It is an understood thing that kitchen apples are not good for eating. The Keswick Codling must certainly be placed as an exception to this rule. When fully ripe, which is shown by its being lightly tinged with a light golden-brown tint, it is fit for anything, and will always be a favourite with those who are partial to a sharp acid flavour in apples.

Kitchen apples should always be thrown into cold water as soon as they are peeled and cut; this will keep them white. If they should become discoloured, a little lemon-juice will make them right again. It is a good plan to divide apples that are to be made into pies into two portions, and to cook the one a longer time than the other, and so make it into a kind of marmalade. The pulpy mass should be placed at the bottom of the dish, and will form a kind of bed upon which the firm slices may repose.

Apples, To Store or Keep.—Those who wish to keep their orchard treasures for as long a time as possible should remember that the best apples, and those that keep the longest, ripen the last. When gathering apples to store, be sure to choose a dry bright day, and be careful that the fruit is sound and not too ripe. Lay the apples separately on a dry floor, and let them remain there for about three weeks; then, having carefully wiped them one by one, pack them in layers with straw between them. It will be found that the best early keeping apples are the Colvilles, while later in the season Ribstons and Pearmains of that good old-fashioned kind that does not ripen till November; and rough warm-looking Russets will store well. As a rule, all rough-coated apples are the best for eating, and the smooth ones the most suitable for culinary purposes. The largest and best apples should be chosen for drying. They should be placed in a very slow oven for some hours, and taken out occasionally in order to be rubbed and pressed flat. This is the way the well-known Norfolk beaufins, or biffins, are preserved, being slowly dried in a baker's cool oven, and then pressed into shape.

Apples (Various).—The apple is an ancient and well-known fruit, a favourite almost all the world over; as great a favourite in these days as in the old times when those epicures, the Romans, thought no banquet complete without apples, and when "from the egg to the apple" was a common saying to denote from the beginning to the end of a feast.

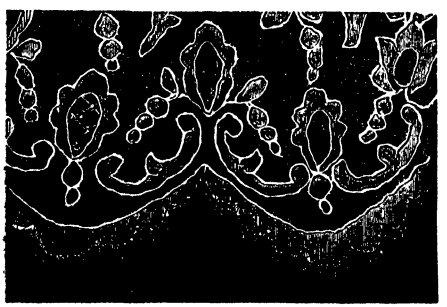
This fruit is mentioned more than any other by the old writers. We must remember, however, that the term "apple" included all firm fruits which required to be pared. To this day we give the name of love-apple to the tomato, and apple of Sodom to two varieties of the Nightshade family, which are not apples at all. The small wild sour crab or wild apple is the great-grandmother of all our English varieties, of which there are over 1,500 of all sorts and sizes, from the shining little golden pippin to the huge old-fashioned Gateshead, one of which would fill a dumpling big enough to make a meal for a Kentish ploughboy.

There is a curious theory current among fruiterers that an apple only lasts as long as its original tree—that is to say, that when the tree from which the first slip was taken dies, all the rest, however many removes there may have been, cease to bear. This is of course a mistake.

The opinion is not held by scientific gardeners. It is true that though new varieties are continually produced, old ones disappear, and the reason is that they have been neglected. Amongst those which have been forgotten or superseded is the redstreak, which is said to have inspired Sir Isaac Newton, and which was once a very great favourite, and the costard, which still gives its name to our "coster"-mongers, or street dealers in apples and other fruit. But there are fashions in fruits as in all other things.

Applications, Surgical. — Mechanical contrivances to correct deformities, or to adjust displacements. Bandages, crutches, splints, trusses, artificial limbs, spinal supports, &c., come under this denomination. So also do dressings of all kinds, lotions, ointments, &c.

Appliqué Work.—This art originated in France, hence the French word which designates this style of work. The Italians also greatly excelled in the art. It consists of laying one material on another; thus mosaics of cloth are laid upon cloth, medallions of velvet upon satin, and velvet on cloth. The richest and most gorgeous combination is that of different coloured dark-hued velvets laid upon satin. The method followed is to stretch a piece of thin holland (dark grey if the groundwork is to be dark), to cover this smoothly with a thin layer of embroidery paste,



APPLIQUÉ WORK.

and then to lay on it the groundwork of velvet or satin. The designs are then cut out, laid on, and fastened closely round their edges with minute pins. The mosaics are either button-holed round, or else their edges are held down by a narrow silk braid. The former plan, though not so expeditious, is the most satisfactory; purse-silk is used, and it works more smoothly when waxed previously. One of the newest kinds of appliqué work is that of cutting groups of flowers out of cretonne chintz, and laying them on black satin. The edges are fastened down with button-hole stitch, the petals of the flowers are worked in crewels, and the leaves veined with embroidery stitch.

Appraisement.— The ascertaining and fixing the proper price on goods. By Statute 11 Edw. I., appraisements are to be made at the true value, under the penalty of the excessive appraiser having to purchase at his own valuation. By Statutes 46 Geo. III. c. 43, and 8 & 9 Vict. c. 76, appraisers must be licensed; and by the Stamp Act, 1870, every appraisement must bear a 6d. stamp for every £10 of value up to £50.

£50 and under	£100	. . .	5s.
£100	,, £200	. . .	10s.
£200	,, £500	. . .	25s.
£500 and over	. . . . .		£1

But *ex parti* appraisements not obligatory on the parties are exempted from stamp duty.

Apprentice.—A person set to learn a trade or profession. The term is now generally restricted to trade. It is usual for a youth to become bound for a certain term (five or seven years being most common) to a tradesman, who undertakes on certain conditions to teach him his trade, and qualify him for its exercise. What is called an apprenticeship indenture is usually entered into between the parties—*i.e.*, the father or guardian of the apprentice, the apprentice, and the master. The stamp duty on this document, where there is no premium, is 2s. 6d.; where there is a premium, for every £5, and any fractional part of £5, 5s.

Approvement has several meanings:— 1. The enclosing of part of a common by the lord of the manor for cultivation, leaving sufficient for the commoners. 2. The profits of a farm. 3. The act of an approver in treason or felony who on arraignment confesses before plea, and accuses others of his accomplices of the same crime, in order to obtain his own pardon.

Appurtenances.—In legal signification, what is annexed or belongs to the grant or demise. It is a usual term in conveyances and leases, and means all such rights and interests as have been usually enjoyed with the property —*i.e.*, appurtenant thereto, as rights of way, rights of common lights, easements, &c. These are known in law by the generic term of "incorporeal hereditaments."

Apricot.—This fruit is one of the most delicious members of the Plum family, and is a native of Armenia. It was brought to England by a Catholic priest named Wolf, who was gardener to Henry VIII. It is a tree of medium size, from fifteen to twenty feet high, and is generally grown as a wall-tree or an espalier, although in the south of England it is sometimes trained as a standard. The fruit resembles the peach, and is of a downy-yellow colour, with a pinky hue on the side exposed to the sun. It is a moot-point amongst gardeners as to whether it is not identical with the peach-apricot; but the distinguishing feature is the stone, which is pointed at one end and perforated, so that a pin can be passed through it. There are about twenty varieties of apricots, the best of which is the Moor-park, which is of large size and fine colour, and excels in sweetness and abundance of juice. Apricots are found in perfection in Persia, where they are called the "seeds of the sun." They also flourish in many of the fertile oases of the deserts of Africa. In Japan the trees grow to a very large size, whilst in China they are cultivated in a dwarf form, and used to ornament the interior of houses. The fruit keeps only for a short time, but can be made

into the most delicious jam and jelly. Apricots are also sold dried. The fruit is split up, and the stone taken out. The kernels, some of which are sweet and others bitter, are often used for the same purposes as almonds. From the south of France they are largely exported in a preserved or candied state. Eau de Noyau is distilled from the bitter kernels, and the stones, when burnt, make a pigment similar to Indian ink.

Apricot Wine. (See "Cassell's Dictionary of Cookery.")

Apricots, To Preserve Green.—The best way of keeping apricots good for two or three days is to make them into a compôte, which preserves the pure flavour of the fruit, whilst its acidity is softened by the water added to form the syrup in which it is boiled. The most suitable fruit for this dish are quite young apricots, from which the down has been carefully wiped, and which should be stewed *very* gently until tender in thin syrup.

Apricots, To Preserve Ripe. (See "Cassell's Dictionary of Cookery.")

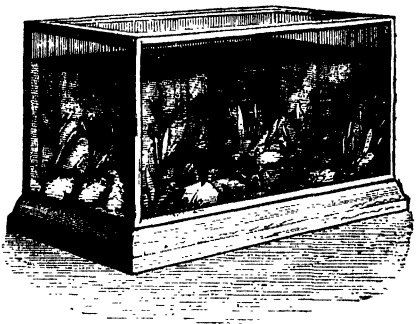
Apron.—The newest form is that made after the German housewife pattern. It is large in size, has one capacious pocket which extends across the front, and a square stomacher or bib which is fastened to the dress by little bows at either corner. These aprons are made of unbleached linen or holland, and are embroidered in crewels or braided. They are more especially worn by housewives and lawn tennis players. Black silk aprons, with a border of silk embroidery, and black satin or velvet aprons, bordered with white hand-made lace, are handsome, and may be made artistic. Aprons should always be made of black or white materials. It is said that the word apron was originally "napperon," from the French word *nappe*, cloth, and that it has been gradually curtailed to its present short form.

Aqua fortis.—An old name for nitric acid (*which see*), so called on account of its great power in dissolving most metals.

Aquamarine.—The aquamarine and the beryl are by some treated as identical, because they are chemically similar; they are, however, distinguished in commerce. Mr. Streeter says the jewellers give the name of aquamarine to the green and blue varieties, while the yellow variety is called beryl. This precious stone, though not of much value, has one admirable quality, which is that it retains its brilliancy in artificial light. Brazil is the country from which most aquamarines are derived, ready cut. Three sorts of aquamarine are recognised: —(1) *Aquamarine*, pure light blue; (2) *Siberian Aquamarine*, light greenish blue, bright lustre, and faintly coloured; (3) *Aquamarine Chrysolite*, greenish yellow, sometimes yellowish green, with bright lustre.

Aquamirabilis.—A medical water (meaning literally, wonderful water), distilled from aromatics. It used to be credited with the possession of many virtues.

Aquarium.—The name aquarium is now applied generally to a tank, cistern, or vessel, commonly made in part or wholly of glass, to contain aquatic plants or animals. It had been known from the earliest times that animals living in water might be kept for exhibition by the daily supply of fresh water, but the discoveries of modern chemistry pointed out how animals might be kept living in only limited quantities of water which never demand renewing. The possibility of accomplishing this depends on the absolute balance in nature which exists between the animal and vegetable kingdoms. The one set of these beings are for ever engaged in giving off what the other requires, and taking up what the other rejects. The aquarium, therefore, must contain both plants and animals, and it will succeed just in proportion to the careful balance maintained between them. The water of the aquarium must be frequently aërated, and this may be done by



SMALL AQUALIUM.

taking up portions of it and letting them fall in again from a height. The fresh-water aquarium frequently has a fountain attached, but even where this is the case the presence of both plants and animals is advantageous to the health of both. Artificial sea-water may be made for aquaria by mixing with a quantity of spring water, table salt, Epsom salts, and a small allowance of chloride of magnesium and chloride of potassium. More than twenty years ago, aquaria as now in use became extremely common; from 1854 to 1860 there was quite a mania for them. From a small glass vessel in a drawing-room they increased in size, until buildings are now erected to contain a number of crystal tanks for the purpose of exhibition. These public aquaria bid fair to take a high place as popular places of resort. It is a hopeful sign of a growing interest in scientific research. Amongst these large aquaria are those of Brighton, the Crystal Palace, Naples, Hamburg, &c.

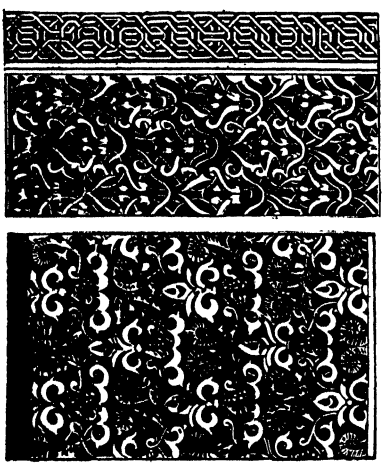
Aquatint.—A method of etching on copper, by which a soft and beautiful result is obtained, resembling a fine drawing in Indian ink. It is effected by the use of powdered asphaltum, or lac resin, sifted upon the plate, which should be previously greased. It should then be heated over a chafing-dish, and when cool, the lights in the subject to be engraved should be covered with turpentine varnish, coloured with lamp-black, by means of a fine camel's or badger's-hair brush. A mixture of

aqua fortis and water is then poured upon it, having placed a rim of wax round the edge of the plate to prevent the running over of the fluid. After remaining on the plate for five or six minutes, the surface may be dried, and the artist may again have recourse to his pencil or brush. The dark shades are produced by continual repetitions of the above process. This is an inexpensive way of engraving.

Aqua Vitæ (literally, water of life) is a common term applied to ardent spirits. In olden time, when distilled spirits were used for medicinal purposes, they were regarded as a cure for all disorders, and were believed to have the power of prolonging life, hence the origin of the Latin name. It answers now-a-days to the *Whisky* of Scotland, the *Usquebaugh* of Ireland, the *Geneva* of Holland, and the *Eau-de-Vie* of France. In England, when the term is used, French brandy is understood to be referred to.

Aqueous Humour.—A transparent fluid, very small in quantity, occupying part of the front of the eye. In the midst of it is the iris, or coloured curtain, the centre of which is called the pupil. (*See* EYE.)

Arabesque Patterns, &c.—This term is used to designate a certain style of painting on flat surfaces, employed in works of architecture. The art originated with the Egyptians, whose custom it was to enrich the flat surfaces of their monuments with hieroglyphics. The art was copied by the Moors, Saracens, and Arabs, who introduced it into Spain. During the Spanish wars, in the reign of Louis XIV.,



ARABESQUE PATTERNS.

the French learnt the art; and the interior of many French buildings were profusely ornamented in this style. From them the name Arabesque sprung, Arabesque meaning after the manner of the Arabians. These patterns are of a fanciful and whimsical nature. The Egyptians represented animals; but the religious code of their imitators prohibited this; plants, trees, foliage, fruits, and flowers, in fanciful combinations, were substituted, the mode of adornment being the same. The term arabesque should, strictly speaking, be applied only to painted, and not to sculptured, ornaments.

Arabic, Gum, or Gum Acacia, is a vegetable product obtained from the branches or trunks of trees in the form of a mucilage, which dries and hardens when exposed to the air. This particular gum is obtained from the *Acacia Arabica*, which grows in Arabia and on the banks of the Nile. It is used in medicine as a demulcent, but its chief value is as a cement. It is also applied to textile fabrics to impart stiffness and gloss, and for this purpose it is largely used in calico printing. It is often adulterated with flour or with gum Senegal and other inferior gums.

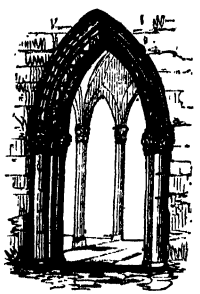
Arabic Numerals.—The common figures, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, are so called, not because the Arabs invented them, but because the knowledge of them in Europe is chiefly due to that people. With some variations they were used in Asia, from Syria to the farthest limits of India, long before they were known in the West. It is not easy to say when they first began to be employed in Europe, but it is quite certain that no genuine document or monument is dated with their assistance until the mediæval period. Not until after the invention of printing did they become at all general. They are supposed to have originated in India, but some of them have undergone marked alterations since their adoption in the Western world.

Araucaria.—This is a particularly hardy shrub, partaking much of the character of a tree. Its stiff radiating branches give it a peculiar appearance, contrasting it greatly with other trees in the shrubbery. It is much more hardy when exposed than when protected by other trees, &c. It bears the snow on its branches with impunity, but a severe frost will not unfrequently cause its leaves to shrivel up and turn brown; it also requires great care in moving it from one place to another. In the country from whence it comes, Chili, it bears very large cones, many of them containing several hundred seeds, and is an important article of food to the natives. Cones are not unfrequently formed in this country. It requires no special earth, but readily establishes itself in general ground.

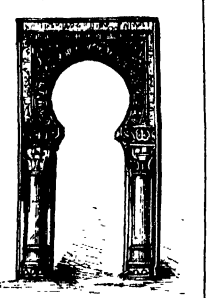
Arbitration.—When two or more persons, instead of going to litigation, agree to refer their dispute or difference to some other party, the process is called arbitration, the party to whom the matter is referred a referee or arbitrator, and his decision the award. All matters in dispute between private persons may be so referred. Future possible differences may also be referred. Cases pending in the law courts are also often compulsorily referred under statute, in particular matters of account when they cannot be conveniently tried in the ordinary way; and provision is now made by the Judicature Acts for referring any cause or matter proper, in the opinion of the court or a judge, to be so referred.

Arcade.—An arcade is a series of arches either open or closed with the wall from which they project, and supported on columns as in a cloister or vaulted avenue, or decorating the walls of churches within or without. They are stronger than colonnades, though less imposing in effect, and are both more solid and less expensive. They may be decorated with columns, pilasters, niches, and various kinds of apertures.

Arch.—The earliest known use of arches has been traced to the ancient Roman builders, the oldest of which we have any correct date being those of the *cloacæ* at Rome. The theory of the arch has employed some of the greatest mathematicians of modern times, who have differed considerably in the various solutions they have given of the problems connected with it. The arch has exercised considerable influence in the rise and progress of architecture, and Gothic has been traced to its gradual encroachment upon the leading principle of classical architecture, whereby vertical took the place of horizontal lines, and became dominant. The application of arches springing from columns, when once introduced as a prominent feature in architecture of the Christian period, never seems to have been abandoned. The Anglo-Saxon arches were rude, low, and semi-



POINTED ARCH.



HORSE-SHOE ARCH.

circular; as were also the earliest examples of the Norman arch. In time, the latter became enriched with mouldings and carvings, being often doubly or trebly recessed. The form of the arch also began to vary considerably; and in the middle of the thirteenth century we find the pointed arch assuming an important position, originating what is known as the Early English style of Gothic architecture. Examples of the earliest adoption of the pointed arch will be found in the circular portion of the Temple Church, in Fleet Street, and in the choir of Canterbury Cathedral. The various forms of arches are the semicircular, the segmental, the elliptic, the stilted, the horse-shoe, the equilateral, the lancet, drop, segmental-pointed, trefoil, cinquefoil, multifoil, ogee, four-centred, straight, depressed, rampant, flat, triangular, and shouldered. In all styles of Gothic architecture the simple pointed arch will be found. The lancet is common in the Early English, may sometimes be recognised in the Decorated, and is found but rarely in the Perpendicular. The drop arch and the equilateral abound in the Early English, the Decorated, and in the oldest specimens of the Perpendicular. Plain and pointed segmental arches may be found in the windows only of the Decorated and Perpendicular styles. The ogee arch, which came in with the Decorated, was used also in the Perpendicular, being very commonly seen in niches, tombs, and small doorways. The four-centred arch belongs to the Early Perpendicular, and retained its position until classic architecture was revived. It was general in this country only. The shouldered arches are rarely met with, but when found are usually of Early English date, and are most commonly used for doorways. In geometry the arch is a part of any curved line, as of a circle or ellipsis. In masonry it is a part of a building above a hollow and concave to its area; and in mining it is a piece of ground left unworked. There are twenty-two distinct forms of the arch in Christian architecture. It is used in large intercolumniations of extensive buildings, in porticoes, halls, ceilings, courts, cloisters, theatres, and amphitheatres, in the foundation of houses, in gates and windows, and as buttresses and counterforts to support walls built deep into the earth. Arches may be rock-worked, or rustic, or provided with a properly moulded archivolt which sometimes springs from columns, an impost, or plat-band. The keystone is sometimes carved in the form of a console or human head. When the piers are decorated with disengaged columns, the entablature must break round over the columns, and the columns stand on a pedestal or plinth, so that they may remain dry, and be preserved from accidental damage. The height of an arch to the under side of its crown should not go beyond twice its width, nor be much beneath it. The piers should be not less than one-third the breadth of the arch, nor exceed two-thirds, and the angle piers should in width exceed the others by at least one-fourth.

Archery.—The requisites for this pastime are bow, arrows, brace, belt, glove, quiver, target, and stand. There are two kinds of bows, the self and the backed bow. The self-bow is made of one single piece, or of two dovetailed at the handle. Yew is considered the best wood, and that brought from Italy is better than English yew, which is too full of knots for the purpose. Bows made of lance, washaba, and several other woods used, are liable to jar and to break. A self-bow made of yew has the qualities of steadiness and absence of vibration, and these help to ensure straightness of shot. The backed bow is made of two or more strips of the same or different woods glued and compressed together. This style of bow was adopted by the English in the sixteenth century from those used by the Turks and Persians. Yew with yew may be said to be the best, but many other woods are put together, a tough one with one more elastic—thus yew and hickory. Backed bows are stronger and do not require the same delicate handling as self-bows. Ladies' bows weigh from twenty-four to thirty pounds, and are about five feet in length. Fifty pounds is quite heavy enough for the use of a man. It is an error to suppose that the strength of a bow ensures straightness of shot; it is rather attained by the perfect command of the weapon possessed by the

archer. It is also an error to imagine that strength alone is needed to brace the bow. Bows often break from being drawn in bad style, and also from being damp. To prevent the former, acquire the knack; to prevent the latter, rub the wood occasionally with a piece of waxed flannel. Bows cost from one guinea to ten, according to the wood and the perfection of finish. The best bow-strings come from Belgium. They are made of hemp, strongly twisted. When the string is frayed from use it should be rubbed with beeswax. Arrows made of lime are best for heavy bows, those of deal for lighter weapons. The length of arrows is usually proportioned to that of the bow; if it measured five feet, the arrows would be twenty-four inches. Short arrows do not fly as steadily as longer ones. Arrows should be cleaned with an oiled flannel both before and after use. Sand-paper is sometimes used for this purpose, but it is apt to wear away the wood. It will be noticed that each arrow has three feathers, and that one of them differs from the other two: this should always be placed uppermost on the string. When the feathers are wet they should be held to a fire. Arrows cost from 6d. to 5s. apiece. The brace, or shield, is made of strong polished leather, oval in form; it is fastened on the bow arm by a buckle or elastic. The belt is buckled round the waist, and on its right side is suspended a pouch for holding arrows. The pouch is easily made of cardboard rolled tube-shape, a round sewed on for the bottom, and the whole covered with dark silk. On the left side of the belt hangs a green worsted tassel, used for wiping arrow-heads when taken out of the ground. Every archer has his own fancy with regard to the glove. Some prefer one kind, some make their own; but of whatever kind, it should not be tight nor loose, and it should be made of leather which is thick and yet soft. If finger-tips only are worn they should be joined by straps to a band which fastens round the waist. Targets are made of straw firmly bound together with tarred string, covered with strong canvas; the general measurement is four feet in diameter, and the price is about £1 10s. The points scored for the different circlets painted on the front are as follows: nine for gold, seven for red, five for blue, three for black, one for white. Archers never shoot more than three arrows in succession. Stands for targets are made of three pieces of wood or iron, fastened by hinges at the top, from which triangle the target is suspended. The quiver is made of wood or tin. One should be chosen which affords a separate cell for each arrow.

Arches, Court of (*Curia de Arcubus*).—A court of ecclesiastial jurisdiction, formerly held in the Church of St. Mary-le-Bow, the steeple of which is raised upon pillars built archwise like so many bent bows, and from that circumstance it takes its name. This court had for a long period, and until recently, been held in Doctors' Commons; but the jurisdiction has become annexed to, and is now discharged by, the judge of the Court of Admiralty at Westminster.

The Court of Arches is the Court of Appeal of the Archbishop of Canterbury. The judge, formerly termed the "Dean of the Arches," hears all appeals from bishops, deans, chapters, archdeacons, &c. From his decision an appeal, till recently, lay to the Privy Council; but by the Judicature Acts it now lies to the Court of Appeal thereby constituted. The court has original jurisdiction over the thirteen peculiar parishes in London of the Archbishop of Canterbury; but upon receiving letters of request from any bishop, the court may assume original jurisdiction in any ecclesiastical question arising elsewhere.

Archimedean Screw.—This is a machine for raising water, said to have been invented by Archimedes when in Egypt (B.C. 203), to drain and irrigate the land. In its simplest form it resembles a screw in appearance, and consists of a pipe coiled spirally round a solid revolving cylinder. The screw is placed in an inclined position, so that its lower end may dip below the surface of the water, and the whole is then revolved by means of a handle at the upper end. The lower bend of the coil when immersed will be filled with water, and at the first revolution the mouth of the tube being raised above the surface of the water enclosed, having no possible means of escape, will flow within the tube, occupying the second bend. Another revolution takes place, and this same water is forced into the third bend, by the inroad of another body of water which has now occupied the second, and so on until the water is forced out at the upper end of the spiral tube. Of course more complicated machines, capable of a far greater amount of work, have since been invented, but they all depend on the same principle.

Archimedes, Principle of.—One of the most valuable principles in the whole science of hydrostatics, and so called on account of the popular belief that it was discovered by Archimedes, the philosopher of Syracuse. It may be stated as follows:—Any solid body immersed in a fluid displaces exactly its own bulk of fluid, and it will be pressed upwards by a force equal to the weight of the fluid displaced; or, a fluid sustains as much of the weight of a body immersed in it as is equal to the weight of the fluid displaced by it. From this law it follows that a body immersed in water will sink or swim, according as its own weight is greater or less than an equal bulk of water. From this law, too, we know that when a body is weighed in a fluid, as may be done by means of the hydrostatic balance (*see* HYDROSTATIC BALANCE), its weight is diminished by the weight of the fluid displaced. Similarly the weight of a body in air is less than its true weight, *i.e.*, its weight in a vacuum, by the weight of the air it displaces; the difference between the true weight and the weight in air of a body being at the rate of 31 grains for every 100 cubic inches in its volume.

Of course, when bodies lighter than water are wholly immersed in it, they displace a bulk of water heavier than themselves, so that unless pressed down they will rise to the surface, only so much of their bulk being submerged as may

displace an amount of water equal in weight to themselves.

Architectural Cement.—This is a useful cement, and owes its name to its fitness for architectural models in paper. Strong rice-water, size, and paper pulped in boiling water are mixed together. Whiting is then added till it is of a proper consistence.

Architecture, Orders of.—Building may be divided into five kinds, according to its varying purpose—namely, Civil, Sacred, Military, Domestic, and Monumental. Originating in the necessity for protection against heat, wet, and cold, it was gradually elevated in its artistic character by religion; in its constructive character by war, and the desire for permanence in the construction of monuments; and in its civil characteristics by the rise of cities. The first materials used would be earth and timber; and these probably gave place to stone when strength to resist the attacks of human foes, or those of time, became the chief requirement. The natural love of ornament came into play when all the purposes of utility had been provided for; and what could up to this point be only called building now became Architecture. Its power to impress the mind with sublime ideas was soon afterwards discovered; and from this point upwards artistic progress was certain, however slow or frequently interrupted. Architecture has two principal broad divisions—classical and Gothic. The different varieties of the first are known as orders, those of the second as styles. The classical orders are—Tuscan, Doric, Ionic, Corinthian, and Composite. Of these, three—the Doric, Ionic, and Corinthian—are Greek, the rest Roman.

The Tuscan Order is a Roman variation of the Doric, in which the column—which, with base, shaft, capital, and entablature, constitutes an order—is usually in height six times the diameter of the lower portion of the shaft, and the entablature simple and devoid of ornament. The capital has a square abacus, or uppermost member, with a small fillet projecting on the upper edge, and beneath it an ovolo, and fillet above the plain part at the bottom, between the mouldings and the top of the shaft, called a neck. The base consists of a square plinth and a large torus, or round moulding, and the shaft of the column is never fluted.

The Doric Order, which after the Roman plan is placed second, although it is the oldest, has a column, the shaft of which has twenty flutings, separated only by the sharp edges, and not as in other orders by a fillet (a narrow flat space or band). The flutings are less than a semicircle in depth. The moulding below the abacus is an ovolo. The architrave (*which see*) of the entablature is surmounted with a plain fillet, called the tænia; the frieze, or middle division, is ornamented with flat projections, in each of which three channels are cut, and called triglyphs, with spaces between known as metopes. Small drops are placed under the triglyphs and below the tænia of the architrave, and these are called guttæ. A broad fillet, called the capital of the triglyphs, runs along the top of the frieze. The soffit or subordinate part of the cornice has broad and shallow blocks called mutules, one being over each metope and triglyph, with, on the under surface, several rows of guttæ. In pure Grecian Doric there is no base to the column, and its height rises to about four to six and a half diameters. The capital has a square plain abacus, and the ovolo is in section little if at all curved, except at the top, where it is quirked under the abacus. A few plain fillets and small channels appear under the ovolo, which is above a deep, narrow channel in the shaft, and the flutings come up to the fillets. In Roman Doric the shaft has a base, and is in height seven diameters; triglyphs at the angles are placed over the centre of the columns, and the metopes are exact squares. The mutules are sometimes omitted, and a row of dentils appear under the cornice.

The Ionic Order is mainly distinguished by the four spiral projections, or volutes, which ornament its capital. The principal moulding is an ovolo, or echinus, generally carved under the volutes. In some of the Greek specimens, below the echinus is a necking richly ornamented with leaves and flowers. The shaft varies in height from eight and a quarter to about nine and a half diameters, and is either plain or fluted with twenty-four flutes separated by narrow fillets. The bases are principally those of the Attic variety. The members of the entablature are sometimes plain and sometimes enriched.

The Corinthian Order is the richest and highest in ornamental and general effect of the three orders used by the Greeks. Its great distinctive feature is the capital. Rickman says:—"The capital is the great distinction of this order; its height is more than a diameter, and consists of an astragal, fillet, and apophyges, all of which are measured with the shaft; then a bell-and-horned abacus. The bell is set round with two rows of leaves, eight in each row, and a third row of leaves supports eight small open volutes, four of which are under the four horns of the abacus, and the other four, which are sometimes interwoven, are under the central recessed part of the abacus, and have over them a flower or other ornament. These volutes spring out of small twisted husks, placed between the leaves of the second row, and which are called caulicoles. The abacus consists of an ovolo, fillet, and cavetto, like the modern Ionic. There are various modes of indenting the leaves, which are called from these variations, acanthus, olive, &c. The column, including the base of half a diameter and the capital, is about ten diameters high."

The Composite Order is composed of the Ionic and the Corinthian, having the proportions and general character of the latter, and a capital in which the Ionic volutes and echinus are substituted for the Corinthian caulicoli and scrolls. Order in Gothic architecture is applied to the divisions of the arch.

Specimens of the Tuscan order may be found in the Palladio, Scamozzi, Selio, and Vignola; of the Doric in the Temple of Theseus, the Parthenon at Athens, the Temple of Apollo at Delos, the Propylæum at Athens, the Baths of Diocletian, and the Temple at Corinth; of the Ionic in the Temple on the Ilissus, in that of Minerva Polias at Athens, and in the Theatre

of Marcellus. The Corinthian style exists in the Temple of Jupiter Olympus at Athens, the Temple of Jupiter Stator at Rome, in the Portico of the Pantheon, and the Arch of Constantine. Of the Composite, well-known examples exist in the Arch of Titus, the Baths of Diocletian, and the Arch of Septimius Severus.

Architecture, Styles of (Gothic, &c.) —No one, we suppose, ever really believed that the Goths and other barbarians of the fourth and fifth centuries really invented the style of architecture with which their name has been associated. This term, usually applied to the mediæval styles of architecture, was originally used as a term of reproach to the styles of Christian architecture which succeeded the Pagan, Roman, and Greek, but was afterwards adopted to define more strictly the pointed-arch style of the thirteenth century. Even in our own times we have architects who think with those who christened Gothic architecture, and with Sir Christopher Wren, the builder of St. Paul's, that outside the five orders of Greece and Rome, all architecture is rude and barbarous. The peculiar characteristics of Gothic architecture have been poetically traced to the holy groves of the ancient heathens, and the huts made with intertwining boughs, or timber-built houses. But if such things had originated it, we should, of course, have traced the resemblance in the earlier specimens of Gothic architecture, in which they were altogether absent. Hundreds of years after the old Pagan temples had been abandoned, this style of architecture acquired the features which gave rise to such fanciful ideas, while the mere fact of vaulted roofs shows them to have been based upon the idea of a stone rather than that of a timber edifice. The old timber-built guild-houses of the fifteenth century in no way resemble the churches of the mediæval period. The Gothic style has been traced by Mr. Evelyn and others, who denounced it stoutly as "licentious and fantastical," to the Arabs of Spain; but there is singularly little resemblance between Moorish and Gothic architecture. Moorish arches are of the horse-shoe shape, the columns low and single, never standing in groups, the roofs flat, and the general effect that of horizontal lines; while in the thirteenth-century Christian churches we see pointed arches, tall pillars, composed each of several columns, large windows, steep roofs, and high gables. The three chief varieties of style in Gothic architecture are well illustrated in the east end of Canterbury Cathedral, belonging to the latter part of the twelfth century; York Minster, belonging to the fourteenth century; and the Lady Chapel of Westminster Abbey, which was erected by Henry VII. at the beginning of the sixteenth century.

Architrave. — The architrave, or chief beam of a building, is in classical architecture the lowest division of the entablature, and rests immediately on the abacus of the capital. It is also the ornamental moulding of the exterior curve of an arch. Architrave doors are those which have an architrave on the jambs and over the doors. Architrave windows usually have an ogee raised out of the solid timbers, with a roll over it.

Ardent Spirits.—Under the general term spirits are included all those inflammable and intoxicating beverages which are obtained by distillation from fermented liquor. Spirit also may be obtained by fermentation and distillation from vegetable or saccharine juices. The distinctive characteristics of distilled spirits originate in the various substances which, by being fermented, have given rise to the vapour which, when collected and cooled, becomes a liquid, and is distilled. The chief varieties of spirit in common use are brandy, whisky, gin, and rum, each one of which will be noticed in its proper place. The characteristic ingredient of all spirits is alcohol. Common spirits contain 50 or 52 per cent. of alcohol; in other words, they are half alcohol, half water. Some idea of the amount of spirits consumed yearly in Great Britain may be gained from the following figures, which show the total Customs and Excise duties paid on spirits in 1876 :—

England . . .	£13,206,641
Scotland . . .	4,041,419
Ireland	3,328,752
Total . . .	£20,576,812

The value of these spirits is £43,067,022. They are estimated to contain 21,000,000 gallons of absolute alcohol. The duty payable on imported spirits is 10s. 5d. per gallon. (*See* Alcohol.)

Areca Nut is the seed within the fruit of the *Catechu Palm*. It is about the size of a nutmeg, roundish, conical, flattened at the base, hard, horny, inodorous, externally reddish brown, internally brown with whitish veins. They are composed of tannic, gallic acid, gluten, red insoluble matter, fixed oil, gum, oxalate of lime, lignine, &c. Mixed with charcoal it is used as a tooth powder, with very questionable advantage. With lime and the leaves of the *Piper Betel*, the areca nuts form the celebrated masticatory of the East, called betel.

Areometer, or Hydrometer, an instrument used to determine the specific gravity of any liquid or solid. By specific gravity is meant the ratio of the weight of any volume of a substance to the weight of an equal bulk or volume of a certain standard substance; this standard for solids and liquids, with which the areometer deals, is distilled water at a temperature of 60° Fahrenheit. (*See* Specific Gravity.) The specific gravities of different liquids vary very greatly from one another, and the true specific gravity of any liquid being known, it is possible by means of the areometer to detect whether any samples of the same are adulterated or not, and if so, to what extent. The areometer is constructed on the principle that if a substance be weighed in a fluid, it loses as much of its weight as is equal to the weight of the fluid it displaces (*see* Archimedes, Principle of); and if the same substance be weighed in two fluids, the weights which it loses in each will give the relative weights of those fluids to one another. There are many kinds of areometers, but

perhaps the most common consists of a glass ball containing mercury, and with a stem on which is marked a scale of equal parts or degrees. When immersed, in any fluid, this stem sinks to a certain depth, indicated on the graduated scale; the true depth to which it should sink in any given liquid being known, it is, of course, easy to detect the slightest deviation, whether caused by adulteration or otherwise.

Argand Burner (*see* ARGAND LAMP).—The principle of the Argand lamp has been applied by Dr. Frankland to gas-burners, the air being made to pass through the gas in the same way as Argand forced it through the wick of his lamp. The result is to give an increased light, and to effect at the same time a considerable saving.



ARGAND BURNER.

Argand Lamp.—This lamp is thus called from its inventor, M. Argand, who first introduced it in 1789. Previous to that date oil-lamps, although used for lighting from the earliest ages, were always more or less objectionable on account of their smoke, and the disagreeable smell they threw off. The peculiarity of Argand's invention was the making of the wick in the form of a ring, through which the air could pass into the interior of the flame. By this means perfect combustion is secured, and the smoke and dirt thrown off by the old-fashioned lamp with its solid bundle of fibres is avoided. An accident led M. Argand's brother to discover that a glass tube placed over the flame created a draught which steadied the flame and yielded the greatest quantity of light. When used for chemical purposes, this chimney is now made of copper instead of glass.

Argent (Heraldic).—The metal silver is thus designated by heralds. Argent is represented by the shield being left perfectly plain.

Argentan Lace.—Many persons would not perhaps detect any difference between this lace and Alençon lace, but there is a marked distinction quickly discerned when the two are side by side. The floral designs seen in Argentan lace are larger, coarser, and bolder, both in pattern and workmanship, than those fabricated by the Alençon lace-workers. This lace bears more resemblance to the Venetian point than does that of Alençon. There is no record of its commencement, but it seems to have risen into repute about the same period as its sister lace of Alençon, and like it was also known by the name of Point de France. Point d'Argentan was greatly in favour during the period when Louis XV. and Louis XVI. were the reigning kings. During the Revolution this far-famed fabric ceased to be made, and the art has never been revived. At the present time the women of Argentan (which place is situated in Normandy) employ their needles in working other embroidery.

Argentine (Metal).—The old term, now obsolete, for German silver. (*See* GERMAN SILVER.)

Aristocracy.—The aristocracy of Great Britain are the upper privileged classes, whose titles and rank distinguish them from the mass of the people, but who nevertheless are separated from royalty. Our hereditary aristocracy comprises dukes, marquises, earls, viscounts, and barons, with their wives and families. By some, baronets are also reckoned with the aristocracy; but it is best to limit the term to what is known as the peerage. (*See* PEERAGE.)

Arithmetic.—The science that treats of numbers, or that branch of mathematics which considers the powers and properties of numbers, and teaches how to calculate correctly, and with expedition. Arithmetic may be divided into two branches—theoretical and practical, the former being the science of the properties of numbers, considered in an abstract sense; the latter applying the knowledge gained by the former to actual cases of calculation. Arithmetic consists chiefly in the four great operations of Addition, Subtraction, Multiplication, and Division; and although, for the facilitation of commercial and scientific calculations, many useful rules have been contrived, these will be found, after all, but applications of the four primary rules. (*See* DECIMALS, FRACTIONS, PROPORTION, PRACTICE.) Very little is known as to the origin and invention of arithmetic; history has recorded neither the date nor the name of the inventor, yet in all probability it must have existed coevally with commerce. In consequence of their rude methods of notation, the science of arithmetic made but small advance among the ancient Greeks and Romans, and it was not until the introduction of the decimal system and the Arabic numerals into Europe about the eleventh century that any great progress can be traced. (*See* NUMERALS.) Decimal Fractions were invented in the sixteenth, and Logarithms, embodying the last great advance in the science, in the seventeenth century. (*See* LOGARITHMS.)

Arm-chair.—A chair, particularly the arm-chair, which is more generally used to rest and support the body, to be properly fitted for its purpose, should have a broad, moderately low seat inclined rearward, with a back conforming to the natural curvature of its occupier's spine, and should not be what it commonly is, a chair with a seat sloping forward, and a back hollowed below and protruding above, so as to furnish support to but two points exactly beneath the shoulder-blades. A well-made arm-chair will afford both rest and support, and will neither thrust the shoulders forward into a position preventing the proper inflation of the lungs, nor keep the sitter in a round-shouldered position, nor cause the lower part of the body to be continually sliding forward, nor throw the entire weight of the body on certain sets of muscles, producing, as has been remarked, "a kind of paralysis in the parts that bear the weight, and a plethora of blood in the parts exempt, the result being that the sitter rises weary and exhausted from the seat that should have afforded him rest." Dr. Holbrook, who has very emphatically denounced the ordinary chairs as "mostly made for deformed people," says, "persons with square shoulders are made deformed and uneasy by sitting in them;" and adds, "If we were to place the bearings of our

watches, printing-presses, and engines so as to cause great friction where there should be none, very soon our machinery would wear out, besides it would require so much more power to accomplish results. Although the human body is more accommodating than machinery, yet the same rule is applicable in degrees, and hence the importance of these considerations in connection with certain articles of furniture."

Arm, Fracture of. — This may occur either in the upper arm, where there is one bone, or in the lower, where there are two, and at any point of these. In the upper arm, perhaps, the bone is most commonly broken in the middle. In the lower, the bone that generally gives way is the outer one of the two, the radius, about an inch from the wrist. This latter accident is far from uncommon, and is generally caused by falls on the hand, especially in older people. It gives rise to a peculiar deformity of the wrist, like the letter S placed horizontally. The occurrence of fracture is known by deformity, by undue mobility, and by a grating noise at the seat of fracture. Till medical advice can be obtained, the arm should be gently straightened and put upon a pillow. Tapes or bandages tied round the pillow will steady the limb. Supposing a doctor to be out of reach, the arm must be gently straightened, put into ordinary form and shape, and then splints of thin wood, such as hat-boxes are made of, or pasteboard, steeped in boiling water, with padding of cotton wool next the arm, must be applied and secured with a bandage. Of course no unprofessional person will undertake this responsibility where a surgeon can be procured. Care must be taken not to be rough, and not to put the bandages on tight, especially at first.

Armenian Cement. — This valuable cement, which is used by jewellers and others on account of its great tenacity, is made as follows:—Take isinglass, soaked in water and dissolved in spirit, two ounces; dissolve in this ten grains of very pale gum ammoniac (in tears) by rubbing them together; add six large tears of gum mastic dissolved in the least possible quantity of rectified spirit. It is to be kept in a phial well stopped, and when used, this phial is set in boiling water.

Armoire (Chest).—Anciently what we now term the sideboard was a mere chest, which in process of time, increased in size and consequence, and modified in shape, was known under the name armoire. The upper part contained drawers for holding napkins and small articles of plate (the largest ones being displayed on the top), while the lower part served as a stand for the large metal or earthenware flagons used for wine, beer, or water. They varied widely in form, were very elaborately adorned with carvings, some of which, in existing specimens, displaying remarkable powers of invention, taste, and fancy, are constantly seen in ancient drawings. (*See* BUFFET.)

Armorial Bearings.—The shield and its devices are comprehended in this expression—namely, the crest, helmet, and motto, which are borne on the shields of those gentlemen who are entitled to bear arms. The supporters of the shield are by some included in this term, but correctly speaking it does not apply to them; they with but a few exceptions appertain solely to peers of the realm. There is a tax levied on armorial bearings. Those persons who have them painted or marked upon their carriages have to pay a tax of £2 2s per annum. If used otherwise, as, for example, upon letter paper, plate, &c., a tax of £1 1s. is imposed. (*See* ASSESSED TAXES.) It is generally supposed that coats of arms originated amongst the crusaders, whose custom it was to exhibit devices on their shields, in order to distinguish friend from foe. Some persons are of opinion that the idea was of earlier date, and arose out of the custom common amongst the early Britons of painting various devices on their bodies. So far as research can be made, it appears that in the twelfth century, devices and mottoes were hereditary, and that none but the nobility bore them. In the thirteenth century the custom became more prevalent in this and other nations.

Arms, Quartering and Emblazoning of.—The field (that is, the entire surface) of a shield is divided into four divisions of equal size; this is effected by one vertical line cutting one horizontal line. In each of these divisions is placed one of the coats of arms. When there are two to be quartered, then the most important of the two is placed in the first and fourth divisions, the one of lesser importance in the second and third divisions. Should there be three, the first appears again in the fourth division. When there are four to quarter, one is placed in each, precedence being given to seniority. When more than four, the field of the shield is divided into the requisite number of divisions, and the same principle is observed with regard to arrangement and repetition as that above set forth. The quartering of the Royal Arms of England is in this wise:—In the first and fourth divisions those of England appear; the second is occupied by those of Scotland; and those of Ireland are placed in the third division.



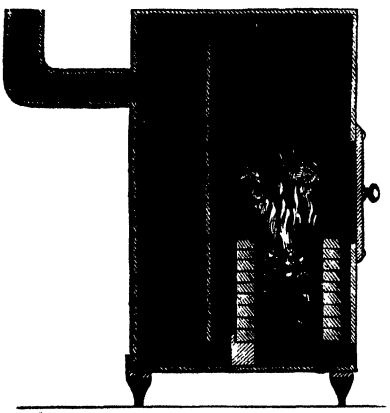
QUARTERING OF TWO COATS OF ARMS.

There are five colours used by heralds beside gold and silver; each colour has its heraldic name. Red is known as gules; blue is called azure; black, sable; green, vert; purple, purpure. Each colour is expressed by signs, devised, it is said, by an Italian name Petrasancta, who lived in the sixteenth century. Gules (*i.e.*, red) is represented by perpendicular lines; azure (*i.e.*, blue) by horizontal lines; sable (*i.e.*, black) is expressed by perpendicular and horizontal lines crossing each other; vert (*i.e.*, green) by diagonal lines from right to left; purpure (*i.e.*, purple) is signified by diagonal lines from left to right.

Arnica.—A preparation of the root of the *Arnica montana*, a European plant. It is rarely employed as an internal medicine, being chiefly used in combination with spirit as a lotion for bruises and sprains. But even in this capacity

its powers are open to question, as whatever success has resulted from its use has probably been due to the spirit; and, indeed, its too free application has at times been known to induce erysipelas. It should certainly never be used where the skin is broken. As an internal remedy its value is very doubtful.

Arnott's Stove.—Dr. Arnott, a Scotchman, who took great interest in warming and ventilating houses, and published several works on the subject, was the original inventor of this stove, the main principle of which was to extend the heating surface beyond that usually provided in close stoves. The doctor did not patent his invention, and the Arnott stove was speedily



ARNOTT'S STOVE.

adopted by more than one manufacturing ironmonger. At the present day there are many varieties of it, all more or less constructed on the original principle, but differing only in slight modifications. The improvements adopted during his own life were not regarded favourably by the inventor. The stove, by an ingeniously contrived valve, is self-regulating, the passage of air being contracted or expanded according to the force of the draught.

Aroma.—The scent which characterises all substances, and which constitutes their usual fragrance. This word is more especially applied to the vegetable kingdom, to plants and the substances derived from them, and their infusions and essences.

Aromatic Confection is made from nutmegs, cinnamon, hay saffron, cloves, prepared chalk, and white sugar. The whole is reduced to a very fine powder, and mixed with water to the consistence of a confection. There are many varieties of the mixture, and it is usually sold in two forms—the one a powder, and the other mixed up ready for use. It is a stimulant cordial useful for acidity of the stomach, heartburn, and diarrhœa, or English cholera. The best quality is of a very bright colour.

Aromatic Herbs, To Preserve.—Aromatic herbs are characterised by their agreeable odour or aroma and pungent flavour. They possess stimulating and anti-septic qualities, and have been used from time immemorial for their medicinal and disinfectant qualities. They are at their best when plucked fresh, the flavour and fragrance being then so much finer than when they are dried. The best time to gather them is just before they begin to flower in the height of the season; they are then full of juice, and in the greatest perfection. They should be gathered on a dry day, and carefully cleansed from all impurities. The best method of drying them is by artificial heat, rather than the old-fashioned one of laying them in the sun. The common practice is to tie them in paper bags, and hang them up till wanted; but it is much better to pick off the leaves and reduce them to powder, which should be carefully kept in stoppered bottles. Their essences are frequently extracted for seasoning. (See "Cassell's Dictionary of Cookery.") The best time for gathering the different herbs is as follows:—

BASIL. The middle of August.
BURNET. June, July, and August.
CHERVIL. May, June, and July.
FENNEL. May, June, and July.
KNOTTED MARJORAM. July.
MINT. The latter end of June and July.
PARSLEY. May, June, and July.
SAGE. August and September.
SAVORY, SUMMER. The latter end of July and August.
SAVORY, WINTER. End of July and August.
TARRAGON. June, July, and August.
THYME. End of July and August.
THYME, LEMON. End of July and August.
THYME, ORANGE. June and July.

Aromatic Mixture is made from ground ginger, cardamom-seeds, bruised cinnamon, mace, orange-peel, and pepper, infused in good whisky. The decoction is bottled and allowed to stand for some time. Two or three tea-spoonfuls in wine or water are a good remedy for indigestion.

Aromatic Plants comprise what is called the herbal series, such as lavender, peppermint, rosemary, thyme, marjoram, patchouly, wintergreen, and the well-known rose-geranium, which is highly prized by perfumers as yielding a powerful aroma similar to attar of roses. The fragrance of these is usually extracted and made available for use by the process of distillation.

Aromatic Scents.—This term includes all fragrant substances in the state in which they come to us by nature as simple perfumes or aromatics. Chemically speaking, however, these odorous principles are compound bodies, some of them of so complex a character as to have defied the analysis of scientific men, who find it impossible to inform us why some odours harmonise when blended, producing a compound odour fuller and richer than either of its constituents separately, while others seem mutually antagonistic, and produce the contrary effect. The principal source of our aromatic scents is the vegetable kingdom. From it we derive the aromatic

gums, balsams, and resins, the leaves, flowers, fruits, roots of plants, or woods of trees, which form the groundwork of perfumery. A few powerful scents, such as musk, ambergris, civet, and spermaceti, are obtained from animals. (These will be found under their separate headings.) The south of France furnishes us with the largest supply of fragrant materials; the rose, violet, jasmine, and orange are cultivated on an extensive scale for the purpose. Italy produces bergamot, orange, lemon, and other essences derived from the citrine family. From Turkey we obtain the famous attar of rose (*see* ATTAR); and from India, cassia, cloves, sandal-wood, patchouly, and several sorts of aromatic grasses. England excels in the production of lavender and peppermint; and China sends the indispensable musk (*see* MUSK), the basis of numberless perfumes. There are four processes in general use for extracting the fragrance—*i.e.*, distillation (*see* AROMATIC WATERS), expression, maceration, and absorption, or, as the French term it, *enfleurage*. (*See* ESSENTIAL OILS, PERFUMES.)

Aromatic Spices.—These are the product of tropical climates only, as none of our native English plants which come to maturity in the open air of this climate possess sufficient flavour to be counted among the spices. They are nine in number—cinnamon, cassia, cloves, nutmegs, mace, ginger, cardamoms, peppers, and allspice. (*See* CINNAMON, &c.)

Aromatic Tincture is used as a stimulant and restorative in cases of debility, faintness, and flatulency. It is composed of cardamom-seeds, white ginger, cinnamon, and pepper, bruised, and then infused in spirits, being kept in a warm dry place a fortnight before using.

Aromatic Vinegar.—For the making of this there are various recipes; the one subjoined is exceedingly simple, and may safely be recommended:—

Oil of cloves	15 grains
Oil of cinnamon	10 „
Oil of English lavender .	5 „
Camphor	1 ounce
Glacial acetic acid . . .	½ pint

Aromatic vinegar is a nasal stimulant useful for reviving and refreshing those who suffer from faintness, languor, or nervous headaches.

Aromatic Waters are divided into two kinds: the first are known both in trade and commerce under the French name *eaux* (*see* EAUX), and are solutions of the various fragrant essential oils in spirit, such as Eau de Cologne, Eau de Lavande, &c.; the second are distilled waters largely impregnated with the odorous principles of the flowers by the names of which they are called, or their essential oils. The best authorities on the subject recommend the employment of salted or pickled flowers or herbs, &c., for distillation, the odour being superior, and the product being free from the rawness of that made from fresh flowers. The method of preserving them consists in carefully mixing them with one-fourth their weight of good dry salt, and pressing the mixture as tightly as possible into casks or jars. In this state they will remain good two or even three years, in a cool cellar. The flowers or herbs must be recently gathered, and *quite dry*; while the salt should be exposed for some hours to the heat of an oven. The "still" of the manufacturing perfumer is generally of copper, the "worm" and "head" of solid tin. The vegetable matter is put into the still, with so many gallons of pure water, half of which quantity is usually drawn off. The only simple distilled aromatic waters retained at present by the London and Edinburgh Colleges for the purposes of medicine are those prepared from orange-peel, sweet fennel, rose-leaves, peppermint, pennyroyal, dill, caraway, spearmint, lemon-peel, cinnamon, cassia, pimento, and cherry laurel. The other waters distilled by chemists, both in England and elsewhere, are acacia-flower, aniseed, balm, bitter almond, camphor, cascarilla, clove, elder-flower, lettuce, mint, peach, thyme, Portugal sage, origanum, and Vanilla water. Distilled waters are chiefly used as perfumes or as vehicles, some in domestic medicine. Some may only be taken in safety a few drops at a time, as they are poisonous; of this description we may specify bitter almond, cherry laurel, lettuce, and peach water; and they should be used with caution even in articles of the toilet. Simple aromatic or carminative waters, such as dill, caraway, pennyroyal, peppermint, and spearmint, may be taken a wine-glassful at a time.

Aromatics.—These are obtained from the animal and vegetable kingdoms, and consist of a volatile oil which has a perceptible effect on the organs of taste and smell. Aromatics are used in medicines and perfumery. Their efficacy consists in their warmth and pungency—qualities which are of special service to elderly people, to those who live in warm climates, and to those who are of phlegmatic temperaments, for these said qualities generate warmth, assist the digestive organs, and help the stomach to retain much that it would otherwise reject when in a weak state. Their odoriferous qualities are also employed for remedial purposes (*see* AROMATIC VINEGAR), and their fragrant scents afford universal pleasure. (*See* AMBERGRIS, AMBRETTE, LAVENDER, MUSK, ROSES, VIOLETS.)

Arrack is a spirituous liquor distilled from the cocoa and other palms, and is imported chiefly from the East Indies. There it is extensively used, more so, it is said, than either wine, brandy, whisky, or beer, but it is not popular amongst Europeans. It is almost without colour, and resembles Hollands in appearance. The collection of it from the cocoa-nut palm is a work requiring care, skill, and time. In its natural state it is called toddy or palm wine. In this country it is chiefly used to make punch. An imitation of it is made from rum, rectified spirit, and essence of pine-apple. When old it is wholesome enough, but the commoner kinds have a nauseous flavour, are very heating, and are apt to disagree with the stomach.

Arragonite, or Aragonite.—This is one of the manifold forms in which lime is found. Its colours are white, yellow, grey, &c., and it occurs in masses, crystals, or stalactites. It has a fibrous or radiated structure, and a silky or pearly lustre; hence it is also called "satin

spar," and, like alabaster, is used for making small ornamental articles. Carbonate of lime is the chief element in its composition.

Arraignment.—The calling of a prisoner to the bar of the court for trial of the matters charged against him in the indictment or otherwise.

Arrangement of Rooms. — Comfort and cheerfulness should be the prevailing feature in every room; this does not necessarily mean luxuriousness and costliness of furniture. Each room should have its distinctive mark expressed in its arrangements. A drawing-room should combine comfort and elegance; a dining-room, warmth, plainness, and substantiality; a library or study, quietness and comfort; a nursery should be light and bright; bedrooms should be neat and comfortable, and not over-crowded with furniture.

Arras.—Very beautiful tapestry was made at Arras, a town in Flanders, in the fifteenth century. The name of the place became so closely associated with the work, that after a time tapestry was not unfrequently called arras. In Italy historical tapestry is called *arazzi*. (*See* TAPESTRY.)

Arrears (from a French word, *arrière*, signifying "behind").—By the term arrears is understood moneys which have periodically accrued due for rents, dividends, &c., but which remain unpaid. By 3 & 4 Wm. IV. c. 27, six years' arrears only can be recovered out of the land, in respect of which the same have accrued; but an action of covenant may, nevertheless, be sustained for twenty years' arrears.

Arrest.—This word is derived from the French *arrêter*, to stop. It means the confinement of a man's person under process of law. Arrests may be either in civil or criminal cases. In civil cases in the superior courts, arrest was effected by means of the writs of capias or attachment—the former more usual, the latter more particularly applicable to cases of contempt. Arrest was either on mesne (*i.e.*, intermediate) or final process. The former was, with some exceptions, abolished by 1 & 2 Vict. c. 110. Arrest on final process for debt has now also been abolished (with certain exceptions specified in the Act) by 32 & 33 Vict. c. 62. The judges of the county courts still retain considerable power, exercised on proof of a defendant's means of payment, of enforcing their judgments by way of arrest. For criminal arrest, *see* CONSTABLE.

Arrowroot is a species of starch obtained from the roots of a variety of plants cultivated chiefly in the West Indies. The principal one is the *Maranta arundinacea*. The roots are dug up when a year old, and reduced to a pulp, from which, by means of a sieve, the starch is extracted. It contains a large amount of farina, and when pure is an agreeable and nutritious food for invalids and children. There are a great many varieties, amongst which may be mentioned tous-les-mois, galanga, &c. Arrowroot is adulterated with potato starch and sago. The name is said to have had its origin in the



THE ARROWROOT PLANT.

use by the Indians of the fresh roots for the cure of wounds caused by poisoned arrows.

Arrows. (*See* ARCHERY.)

Arsenic.—A metal which, when pure, is of a dark steel colour, but it is most commonly found in combination with other metals, as iron and cobalt. Though long known, it was not carefully examined till the year 1733. Being brittle it is easily powdered, and when exposed to the air it becomes dull and black. When greatly heated it yields a vapour having the smell of garlic, and readily condenses into brilliant crystals. Metallic arsenic has no effect upon the human system. The medical agents which, taken in undue quantities, become deadly poison are the white oxide and its compounds, the arsenite of potash and of soda, chiefly the last two; but the first, though mistrusted as a dangerous drug, is known to possess valuable curative properties. Arsenic is largely employed in intermittent fevers, periodic rheumatism, and as a nerve tonic. It is also applied in cancer both externally and internally.

Arsenical Poisoning.—The effects produced upon the system from the absorption of arsenic by the stomach, or the inhalation of it through the lungs. From the smallness of the dose necessary to produce fatal results (three or even two grains being sufficient to cause death), and the fact that vomiting does not expel all the poison, enough remaining to do deadly injury, it follows that murder by repeated doses of this agent is very difficult of detection. Many cases are recorded of poisoning by means of extremely small quantities of arsenic, in which its action did not prove fatal for weeks, during which time the sufferer was vainly treated for ordinary inflammation of the bowels. The best remedies in case of an overdose are lime-water in large quantities, then an emetic, and afterwards plenty of oil (castor-oil, if possible) or milk. Arsenic is much used as colouring matter in paper-staining, and many cases of slow poisoning have been traced to its presence in the bright green paper on our walls. (*See* WALL-PAPERS.)

Arsenical Soap.—A compound of arsenic, carbonate of potash, lime, and camphor, worked up with common soap and water into a paste; used by naturalists for anointing the skins of animals and birds to preserve them from the depredations of insects that would otherwise eat them away. Also a compound of arsenite of potash, tar, and soap, used as a sheep-wash; its use, however, for this purpose is not desirable, on account of its poisonous nature.

Arsenious Acid is more commonly known as white arsenic, that being its commercial name. It is a crystalline white powder, and is highly poisonous, though sometimes used in small quantities as a medicine, and even in some countries taken for other than medicinal purposes. In cases of poisoning by it the stomach-pump should be resorted to immediately; or, if this be not at hand, a violent emetic should be administered. The best antidotes are calcined magnesia, or the hydrated sesquioxide of iron, but they need to be given in large doses. Its presence is very easily detected, even when only small quantities have been used; and hence it is less liable to be administered out of malice, but it is not unfrequently taken by mistake for some other article of similar appearance. Many of the accidents arising from its use occur through arsenical compounds being sold for the destruction of insects. There are legal restrictions as to the sale of this poison in shops.

Arsenious acid is extensively used in the arts in the preparation of compounds used in dyeing and calico-printing; and in the manufacture of pigments, such as Scheele's green and Schweinfurth green. It is also used in glass-making, to destroy the colour communicated to the glass by iron oxide; and in the manufacture of lead shot, the presence of arsenic not only causing the shot to be somewhat harder, but, what is of most importance, causing the liquid drops of metal to take a nearly spherical form as they fall from the colander into the well of water.

There are large factories in Germany exclusively for the preparation of this acid. A good deal is also made in Cornwall from the arsenical pyrites, commonly called mispickel.

Arson (from the Latin word *ardere*, to burn).—The unlawfully setting fire to property. By the ancient common law there were two degrees of this offence:—1. Felony, where one wilfully burned another's house. 2. Misdemeanour, where he wilfully burnt his own house, intending also to burn another. Arson is now made a capital felony, and the 24 & 25 Vict. c. 97, regulates the punishments awarded to the several descriptions of this crime, as well as to malicious damage to property generally.

Art Needlework.—It is said that whatever speaks in precepts and rules is art, and that art always proposes to itself a given end. This being so, art needlework must set before itself designs to be executed, and must follow certain codes of rules and instructions. These will slightly vary with the nature of the work undertaken, but the main principles will remain unchanged. Thus the design for the border of a curtain or cover should agree with that devised for the centre; if the one be a Grecian pattern, then the other should show the same characteristics; or if the one is of a floral character, the other should carry out the same idea. The colours chosen for the execution of the designs should be selected with taste and judgment. When the design is mediæval, the colours should be soft and quiet, and accord with that particular style; when Oriental, they should be bright and intense. The peculiarities of each style, in fact, should be studied and carried out in design and colouring.

Art Unions.—Public drawings or lotteries, sanctioned and approved by the State, in which paintings or other works of art take the place of money-prizes. Art unions have for their principal object the advancement of the fine arts, and were originally intended to induce, and at the same time enable, the public of the day to fill the places of the great patrons of painting and sculpture in former times. The mode of procedure of the more important art unions in this country—all of which are founded on a common basis, with rules duly sanctioned by Act of Parliament—may be briefly described as follows:—Each member subscribes a certain fixed sum (generally a guinea) to the fund, and receives a ticket entitling him to a chance in the prize-drawing of the year. As a rule, every subscriber receives in return for his guinea a copy of an engraving from some well-known painting, specially prepared for the art union, and in addition has a chance of gaining one of the prizes in the lottery; in some cases only those who are unsuccessful in the drawing are presented with the engraving. Those who are fortunate enough to draw prizes sometimes receive certain previously-specified pictures, and under other rules are allowed to choose from the art union exhibition (which is a principal feature of the institution) a painting or paintings, or other works of art to the value of the allotted prize. Art unions have done much for the cause of art during the last half-century, and stepped in to fill a gap when utter stagnation in the field of painting seemed imminent. Before a select committee of the House of Commons on art unions in 1845, a witness stated that prior to the establishment of these institutions in Dublin, "in four years, during the exhibition of the works of the Royal Hibernian Academy, thirty shillings only were expended on the patronage of art." The evidence of the past and the present both unite in urging us to extend to art unions our cordial support.

Arteries (from two Greek words meaning "to contain air").—Certain tubes distributed throughout the body for the conveyance of blood from the heart. The vessels obtained their name from a belief entertained by the ancients that they contained air. The largest arteries are found in the region of the heart, passing from which they gradually diminish in size as they approach their termination. They differ from the other tubes called veins in that they are more elastic and do not contain valves except at their origin.

Artesian Wells.—These wells are named after Artois, in France, where they were

common before the principle on which they depend was applied to well-sinking in other parts. They consist of bores, carried usually to a great depth, so as to pierce through the superficial strata until an underground reservoir is reached, the water in which shall then rise through the bore to the surface. This plan can only be adopted in those localities known by geologists as basins where the outcrop of the strata is at a higher level than the site of the well, and where there are unbroken beds of an impermeable character to retain the water which has filtered down between them. As soon as the boring has pierced the upper bed, the pent-up waters below will rise in the well to a height corresponding to the source of supply. The London and Paris basins are such localities, and in both these districts the artesian system has been successfully carried out. There is always a certain risk about putting down the first artesian well in any district, for though the geological formation may appear to warrant it, experiments alone will prove whether there may not be some fault in the strata which will allow the escape of the water from the bottom of the basin. If the first one in any district yields an abundant supply, others may be sunk in the neighbourhood; but each new well will reduce the supply of those previously sunk within the same geological basin.

Arthritis.—Inflammation in a joint. It is of two kinds, acute and chronic, the latter condition usually arising from gout or other constitutional causes.

Artichoke.—The artichoke is a native of Asia, but grows wild in the south of Europe, and is cultivated in England. There are two distinct kinds—the globe artichoke and the



THE ARTICHOKE.

Jerusalem artichoke. (*See* ARTICHOKE, JERUSALEM.) The globe artichoke is a thistle-like plant, which grows on a stem from two to three feet high. The head of the flower only is eaten, and is regarded as a great dainty. It is sometimes boiled, but is quite as frequently taken raw. It is not easy to grow in this country, and requires great care in cultivation. It was brought here about the time of Charles II.

Artichoke, Jerusalem. — This well-known plant is a native of Brazil, and is a very favourite garden vegetable. It is very prolific and cheap, the price being little more than that of potatoes. It differs from the globe artichoke, in that the roots only are eaten, whereas in the globe it is the flower that is edible. The stems grow to a great height, and are used as fodder for cattle. The Jerusalem artichoke is a perennial plant of the sunflower family. The name Jerusalem is a corruption of the Italian *girasole* (sunflower). The roots have a sweet but somewhat watery taste, and form the basis of the well-known Palestine soup. It is a totally different plant to the globe artichoke, and is only called artichoke at all from a supposed similarity in flavour.

Artificial.—All products of art are "artificial," as distinguished from "natural." The mode of life adopted in a highly-civilised country is called "artificial," and the same term is applied to a variety of things which are simulated or feigned, and not genuine or natural. As used of imitations, the word denotes many manufactured copies of what is natural, as artificial flowers, gems, limbs, waters, &c., the most important of which are treated of in this work under their respective headings.

Artificial Feathers.—The majority of feathers which are worn for personal adornment may be styled artificial, as they are not exactly like those worn by the birds who have supplied them. Feathers are dyed, and are joined together to make them longer, or fastened on to one another to make them look thicker and handsomer; their filaments are prepared and curled, when Nature has made them sufficiently flexible; in fact, the making-up of feathers is quite a trade in itself. Ostrich feathers are those which find most favour in England. These, in their natural state, are of a light-brown colour. The feather trimmings are made of small pieces of ostrich feathers stitched to one another, or of the plumage of cocks, peacocks, pheasants, &c., stitched on to bands of stiff muslin.

Artificial Flowers.—These imitations of nature are made in wax, paper, cambric, silk, crape, and also of feathers; each material has its peculiar excellence for the purpose it serves. Wax can be moulded into excellent resemblances, especially of such flowers as the camellia and dahlia, but its brittleness obliges the constructions to be kept with care under glass. Paper is of more service in this respect, and consequently is more generally used, and besides this, the manipulation of paper is easier and less troublesome than that of wax. Cambric, silk, and crape are the fabrics used for those flowers required for personal adornment. French flowers of this class are considered superior to those made by English hands. Feathers can be arranged to represent flowers. The Mexicans and South Americans are particularly clever in these imitations. It is necessary to observe a few rules when making artificial flowers. Procure two natural flowers;

keep one as a copy, and pull the other carefully to pieces; trace the outline of the various parts on thin cardboard, cut them out, and lay them on the material to be used. Great nicety is required; the leaves and the petals should be picked up and put together in the daintiest manner. For the construction of paper flowers but few implements are requisite—a couple of ball tools with which to mould petals, a pin tool with which to line and indent them, a pair of pincers with which to hold them, and a pair of small, sharp scissors with which to cut them.

Artificial Fruit.—These imitations are made of wax. The process is more tedious than that necessary for the construction of flowers, for separate moulds have to be made for each kind of fruit. Plaster of Paris is the best material with which to form the moulds, because it mixes readily with water, and hardens quickly. Put fine, damp sand into a small basin, and lay down the fruit—say an orange—which is going to be copied; let half rest below and half remain above the surface of the sand. Prepare the plaster. When ready for it, stir some quickly in a basin of water, and then pour it upon the fruit, and in a few minutes this will be sufficiently hard to remove. Raise the basin with one hand, and let the mould fall gently into the other. Put the half-mould, with the fruit resting in it, into an empty basin (the fruit uppermost), and pour over it freshly-prepared plaster. When the mould is quite hard, it is ready for further operations. In a tin saucepan with a spout melt some wax slowly; a lump about half the size of the model will fill the mould once. The wax must not be allowed to boil, or its colour will be spoilt. Put the two half-moulds into hot water for some five or ten minutes; take them out, and gently absorb the moisture with a soft handkerchief. This operation needs speed and delicacy of touch, for if the moulds are not sufficiently hot, the wax will stiffen too quickly, and so will lie in ridges instead of being smooth; and if the moulds are handled roughly, they are easily spoilt. Pour into the hollow of each mould as much wax as will fill the spaces; the wax should not be very hot, or it will cling too determinedly to the mould, and not be willing to leave it. Join the two halves together—exactly and firmly—and then turn them over and over, and hold them in every conceivable position: this treatment will ensure the wax being of equal thickness in every part. When the mould is quite cold, gently separate the halves, and turn out the waxen model. It is well to make several specimens of the same fruit, as they are easily damaged, and also the moulds are liable to be injured when put away for further use. In order to colour the wax, stir some powder, the colour required, into the wax when it is fluid; unless the stirring is continued while the wax is poured into the mould, the colouring-matter is liable to settle on the side of the mould. Very beautiful artificial fruits are brought from Jamaica.

Artificial Fuel.—Of late years artificial fuel has been largely manufactured. The necessity for it has arisen not only from the increased price of coal, but also from the desirability of providing a heating substance which could be stowed away in a small space. The greater number of these fuels are of one character; they consist of the dust of coal mixed with some kind of cement, and pressed into moulds or blocks, under a very heavy pressure. The process of manufacture varies; sometimes the coal-dust is mixed with sawdust or sand, marl or clay. Very often it is bound together with some bituminous substance, such as coal or gas-tar, resin or pitch. The pressure is accomplished by means of hydraulic machinery. Some of this artificial fuel is preferred to real coal, and is said not only to require less space, but to burn longer. Peat is compressed in the same way, to form a dark-brown substance, resembling the brown coal of Germany.

Artificial Gems.—Under this head may be included several imitations of real gems. By one set of processes the actual gems themselves are produced, among them being the diamond, ruby, sapphire, spinel ruby, &c. A second class comprises imitations which for the most part consist of coloured quartz. A third sort embraces all those imitations which are commonly known as paste, the basis of all of which is a kind of glass, coloured, cut, and polished so as to resemble the original. Here, too, may be mentioned what are called doublets, which are of two kinds: in one a plate of the real stone is attached to "paste" or "strass," or a piece of crystal; in the other the upper part is usually of quartz, between which and the under part of paste some colouring matter is introduced. In some cases a precious stone is imitated by setting uncoloured paste or quartz in jewellery with some coloured "foil" at the back of it.

Artificial Limbs.—Mechanical arrangements adapted to supply the place of an arm, hand, leg, or foot, which may have been lost either by accident or surgical operation. Some of these appliances are so marvellously natural in appearance that the loss of the limb is scarcely observable, while the system of springs and joints with which they are provided, enabling the wearer to perform all ordinary movements, renders them most valuable substitutes for real limbs.

Artificial Pearls.—Artificial pearls are usually little hollow globes of glass coated internally with a substance which resembles the peculiar lustre of the native pearl. They are lighter and more brittle than real pearls, but sometimes the resemblance is wonderfully exact. One sort of artificial pearl is solid, is made of fish-scales, and is at once more costly and less easily broken than false pearls of glass. The imitation of pearls is effected in other ways, but the above are said to be the most commonly met with.

Artificial Stone.—This is manufactured for both useful and ornamental purposes. One kind is employed as paving-stone, and another for mouldings, balustrades, mantelpieces, &c. Some sorts are very beautiful and durable, and are cheap substitutes for more costly materials. Among the imitations of marble are some which

equal in appearance the finest known. The production of artificial malachite has been effected most successfully, and is said to be carried on on an extensive scale. In ordinary cases the process consists in the mixture of the ingredients in due proportion, and with some tenacious substance. The composition is cast in moulds, and subjected to immense pressure, after which it is often polished. Some of these compounds are very friable, will not endure the weather, and are only used for common work in-doors, or as substitutes for inferior materials. Bath brick may be called an artificial stone, and so may much of what is termed hearth-stone. (*See* BATH BRICK.)

Artificial Teeth.—Mechanical appliances to supply the place of natural teeth which may have been lost by decay or extraction. A wax impression of the mouth is first taken, and from this a plaster model is prepared, upon which a gold or vulcanite frame is fitted to hold the necessary number of teeth. Considering the number of ailments and diseases resulting from indigestion, any invention which will afford perfect means of mastication must be of great importance, to say nothing of the improvement in the personal appearance.

Arts Degrees.—Titles or degrees conferred on persons by universities in Great Britain and other countries, and consisting of the Bachelor of Arts (abbreviated B.A. and A.B.), and the higher degree of Master of Arts (abbreviated M.A. and A.M.). (*See* BACHELOR, MASTER.) The possession of a degree in Arts from a genuine university (*see* UNIVERSITY) marks the holder in public estimation in this country as one who has received a liberal education, *i.e.*, as competent to speak and write his own language correctly, and possessing a fair knowledge of at least history, classics, and mathematics. The art degrees of some universities, however, denote far more than this, and guarantee in the holder acquaintance with modern languages, literature, and many branches of science. Degrees in arts are believed to date back from the incorporation of the older universities in the Middle Ages, when the term "Faculty of Arts" (*see* FACULTY) denoted the association of those students who devoted themselves to science and philosophy, as apart from theology, medicine, and law. In Great Britain there is one authority for degrees in arts and other faculties apart from the universities, and which dates from the Reformation, when the power of conferring degrees held by the Pope was vested by 25 Hen. VIII. c. 21, in the Archbishop of Canterbury: these are generally known as Lambeth degrees. Masters and Bachelors of Arts of Oxford, Cambridge, London, Durham, Dublin, and the American and British Colonial Universities use the abbreviations M.A. and B.A., while those of the Scotch universities take the initials A.M. and A.B., the abbreviated form of the Latin *Artium Magister, Artium Baccalaureus.* Graduates in arts of a university—a graduate is one who has attained to a degree—are entitled to wear distinctive hoods and gowns, differing according to the university to which they belong. (*See* GOWNS, HOODS.)

Asbestos, otherwise called Amianthus, is one of the hornblendic group of minerals, consisting of the silicates of magnesia and lime, with a little oxide of iron. It is fibrous, of a silky lustre, white, or slightly tinged with green. On account of its fibres being very fine, easily separable, and elastic, it can be woven into cloth; and being indestructible at an ordinary red heat, it can be applied to a variety of useful purposes. It is very abundant in Corsica, where it is used instead of straw in packing goods, and in Baltimore, where it is manufactured into a coarse paper on account of its being cheaper than other half-stuff. This paper consists of about one-third asbestos, and, if delicately handled, will hold together after it has been burnt. It is much used now in gas-stoves. The ancients are said to have sometimes burned their dead in garments made of asbestos cloth, so that their ashes might be preserved unmixed with those of the funeral pile.

Ascarides.—These are small thread worms of about a quarter of an inch in length, inhabiting the lower bowel in the immediate vicinity of the outlet. Their presence gives rise to intolerable itching in the fundament, irregular appetite, offensive breath, picking of the nose, and disturbed sleep. The treatment should consist of injection into the bowel of infusion of quassia, or strong solution of salt and water, aided by aperient medicine.

Asceticism.—An ascetic is properly one who practises extreme self-denial in regard to the comforts and luxuries of life. Moderate self-denial is a virtue; but asceticism is so often combined with superstition, and calculated to diminish happiness and injure health, that it might fairly rank among the vices. Asceticism is sometimes used as a term of reproach of one whose temper and manners are rigid, austere, and unsociable.

Ascites.—A form of dropsy, the seat of which is the abdomen. (*See* DROPSY.)

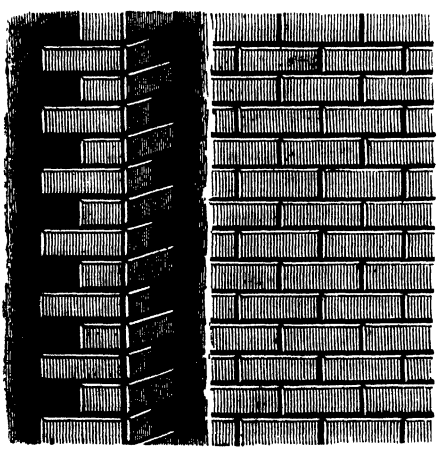
Ash Timber.—The value of ash timber is so well known that we need say little about it. There is scarcely a farm instrument, from a rake-handle upwards, in which good tough white ash does not play its useful part. This timber possesses the uncommon property of being almost uniformly good, whether young or old. Its ashes afford excellent potash, the bark is useful in dyeing and tanning, and its leaves not being unwholesome, have been used for the adulteration of tea, and are eaten with avidity by horses, sheep, and goats. The ash when young requires constant cultivation, for want of which it may be stinted in its growth, and remain dwarfish for many years. It grows fastest when sheltered by other plants. The leaves fall early and appear late, for which reason the ash is unfit for use where protection or ornament is the purpose it is intended to serve.

Ashes are the remains of burnt substances such as coal, wood, &c. The ashes of plants contain potash, silica, and lime. Sea-plants contain soda instead of potash. Animal ashes consist of phosphate of lime. Coal-ashes vary in character, according to the beds from

which the coal has been obtained. Some coal yields scarcely any ash at all; other kinds are reducible in the first instance to cinders, which may be burnt again. Volcanic ashes produce the finest kind of pumice-stone, and peat and turf-ashes yield clay and sand. Bone-ashes are a very valuable artificial manure. In countries where wood is plentiful, burnt-wood ashes form an important article of commerce; they are used in soap-boiling, bleaching, dyeing, &c. In old times it was customary to burn the bodies of the dead; and in many countries this is still practised. Attempts have recently been made to introduce cremation into England, but the movement is not popular. A sign of mourning in the East is to cover the head with sackcloth and ashes. Ash Wednesday—the first day of Lent—was so called from the Roman Catholic practice of strewing ashes on the head as a sign of penitence.

Ashes, Economical Uses of.—Beyond the special purposes for which ashes are used (*see* ASHES), they may be utilised in a variety of ways. They form the groundwork of the best kind of nest for a sitting hen, and are of the greatest service as a dust-bath for poultry. When mixed with coal-dust and a little water, they will, if left undisturbed, keep a fire alight for a long time. Carefully sifted, they are of great service to the gardeners for scattering over young peas and other vegetables, and keeping off the slugs. The ashes of plants, especially of some kinds of ferns, are sometimes mixed with water and made into balls, and used as a substitute for soap, in washing and cleaning paint.

Ashlar Work.—Ashlar is a term applied to the hewn stone used in the facings of walls, to distinguish it from what is rough or unhewn, as it comes from the quarry. Its names differ



ASHLAR WORK.

according to the way in which it is worked. When the marks of the tools are removed, the stone is called "plane ashlar;" if figured, "tooled ashlar," or "random tooled," or "chiselled," or "bousted," or "pointed." If the stones project from the joints it is then called "rusticated." "Clene hewen," or finely worked ashlar, is frequently mentioned in very old building contracts.

Ashpan is a useful article for securing a tidy hearth, although it is more general in certain localities than in others. In Yorkshire it is known as the "Tidy Betty"—a name sufficiently explanatory of its use and character. The ashpan attached to locomotive engines is usually an iron box, open to the front only, and attached to the fire-box.

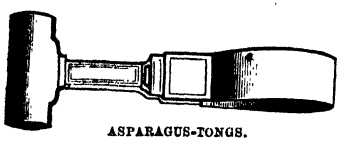
Ashpits, especially in large towns, are too frequently the fruitful source of disease. In crowded localities, impurities of all kinds are recklessly thrown together into these receptacles for refuse, and proper care is not taken to have them regularly and systematically cleared. Ashpits contain decaying vegetable matter, bad meat, &c., which produce offensive smells, and throw off poisonous vapours which generate fever. According to the sanitary regulations now enforced in most large towns, the authorities are bound (when called upon) to see that an overflowing ashpit is emptied promptly. A note, addressed to the Inspector of Nuisances, calling attention to its condition, is all that is required. If a little common sense were exercised as to what is allowed to be thrown into the ashpit, and what is to be kept out, the danger of the spread of epidemics would be very materially lessened. All animal and vegetable matter should be burnt instead of being cast into the heap.

Asiatic Cholera.—An epidemic disease, the most fatal known in medicine, due to direct contact with the germ of cholera poison. Its name is derived from the Greek, and signifies a bowel flux. Its presence is marked by a rapid lowering of animal heat, vomiting, and violent purging. It is supposed to have been imported from India in 1831, the year of its first appearance in England. It also re-appeared in 1848 and 1853, and at intervals since then. Foul air, impure water, poor living, and crowded dwellings are conditions which encourage the spread of this disease. Although to a certain degree contagious, a person in health is in little danger of taking it, as it requires a predisposed condition of the recipient, as much as a seed requires suitable soil for development. All kinds of remedies have been tried, some, such as castor-oil, with considerable success; but there is no absolute specific for this malady. Unripe fruit, shell-fish, high game, &c., should be avoided, as also the use of purgatives, or anything calculated to produce looseness of the bowels.

Asparagus.—This plant is a native of Europe, and grows freely in certain parts of Great Britain. It is a favourite vegetable, possessing a peculiar flavour, and is largely cultivated both in England and on the Continent. It can be forced to a very unusual size, and as it realises in such a state a very high price, much attention is given by gardeners to its culture. In some districts as much as a hundred acres in one place are employed for the growth of asparagus for the London markets. Some of the largest beds are in the immediate neighbourhood of London. Asparagus Island,

at Kynance Cove, in Cornwall, is so called from the abundance in which the plant grows there in a wild state. The tops and roots were formerly used as remedies for dropsy and other complaints. Asparagus is still retained in the French, though it has been excluded from the British, Pharmacopœia. As an article of food it is wholesome and nutritious, and in spite of the fashion which has led to the production of abnormally large specimens, the young green stalks, when naturally grown (not forced), possess the fullest flavour.

Asparagus-tongs.—A useful contrivance which is of great service at a dinner-table where this vegetable makes its appearance.



ASPARAGUS-TONGS.

Most people have experienced a drawback in the enjoyment of asparagus from the difficulty of conveying it elegantly from the dish to the plate. Asparagus-tongs render the operation easy.

Aspect of Dwellings.—In erecting a new house, or in buying an old one, two of the most important points to be considered are those of aspect and exposure. By aspect is meant the relation of the building to the sun's rays; by exposure, its relation to the prevailing winds. As to the position of a house in regard to the sun at different times of the year, if it stands with each front north and south, the north front will have comparatively little sun, except during summer-time, and if the position be north-east and south-west respectively, the bitter cold winds of winter will be severely felt, whilst from the fact that the rainy quarter of the wind for the greater portion of the year is south-west, the front or back of the house will be continually exposed to its influence. Consequently, frontages to the south-east and north-west are to be preferred in all cases, when possible, as such a position ensures on both sides the greatest average of sun, heat, and light, and protection from the north-east winds of winter, or the south-west of the rainy season. An aspect to the east has the sun only in the morning; one to the west only in the evening.

It is evident that a room having a south-western aspect must be warmer than others, both in winter and in summer, for the simple reason that that aspect is most exposed to the influence of the sun's rays. On the other hand, rooms having a north-easterly aspect must necessarily be the coolest, because, except during the earliest part of midsummer mornings, say from sunrise to four o'clock, the sun's rays cannot reach them. This being the case, it is in the power of those who have the requisite resources to construct a house so that warm rooms can be provided for winter use, and cool for alleviating the heat of summer. It is by no means an uncommon thing to find a large dinner-party assembled in the heat of summer in a room that has been exposed to the sun's rays during the afternoon. Frequently, in such cases, owing to the number of persons present, the heat of the viands, lights, &c., the temperature rises above 80°—a circumstance prejudicial to health, enjoyment, and the vivacity of social intercourse, that might have been avoided had the dining-room been placed in a northern aspect. An eastern aspect is the most agreeable for a bedroom, because it receives the first rays of the sun; a western aspect, with an evening sun, heats it, and renders the air oppressive. With respect to the views from the house, with an aspect due south the objects opposite are all in shade in the middle of the day; and the contrary is the case with one in the north; but in the morning and evening in both cases, they are partly in light and partly in shade.

Thomas Fuller, speaking of the choice of situations for a new structure, says:—"Chiefly choose a wholesome air, for air is a dish one feeds on every minute, and therefore it need be good." And as to light, he continues:—"Light (God's eldest daughter!) is a principal beauty in a building, yet it shines not alike from all parts of heaven. An east window welcomes the beams of the sun before they are of strength to do any harm, and is offensive to none but a sluggard. A south window in summer is a chimney with a fire in it, and needs the screen of a curtain. In a west window, in summer-time, towards night, the sun grows low and even familiar, with more light than delight. A north window is best for butteries and cellars, where the beer will not be sour for the sun's smiling on it. Thorough lights are best for rooms of entertainment, and windows on one side for dormitories."

Aspen.—The aspen tree, for elegance and beauty of form, when grown in a favourable soil,



ASPEN TREE.

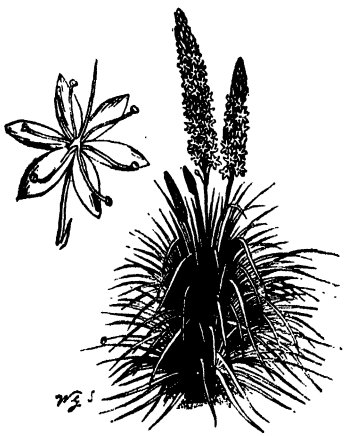
is inferior to few of its tribe, presenting the appearance of a tall and, in proportion to its height, rather a slender tree. The foliage is of a fine rich green, and the under surface of the leaves being of a brighter colour than the upper, a sparkling effect is produced

when they are shaken by the wind, and from the slender way in which the leaves depend from the branch, makes them tremulous in the slightest breeze. It is indigenous to Britain, being found throughout England in moist woods and damp situations. It is also a native of Asia Minor and the whole of the Caucasian range. The wood is light, white, and rather tender, but well adapted for casks, milk-pails, &c., and cuts easily with the chisel, and is much used for carving in wood.

The bark contains a considerable per-centage of tannin, and is useful to tanners, &c., and was a favourite food of the beaver when that animal abounded in Europe; it is also useful as a medicine. Like the acacia-tree, it does not send its roots deep into the ground, and likes the same sort of soil.

Asphalt.—This is a bituminous substance found in many places. It is black, very fusible and inflammable, burning with a smoky flame. Asphalt is found in small quantities amongst the limestone of Derbyshire. It is generally said that masses of asphalt float on the surface of the Dead Sea (which has been called in consequence the Asphaltic Lake); but according to modern observers the quantity found at present is but small. Asphalt is now-a-days much used as a paving material. It also makes a very good material for the floors of cellars and outhouses. For purposes of this nature it is heated in portable boilers, into which at a certain stage of the preparation there is poured a quantity of thoroughly-dried sand, gravel, or powdered limestone, which is mixed well with the liquid asphalt. The mixture is then spread on the spot prepared for it, and, when cool, forms a hard flooring. Asphalt makes an excellent waterproof lining for cisterns. Wooden houses are sometimes preserved by a coating of asphalt, applied externally, and ground-flooring placed in damp situations is all the better for the spaces between the planks being filled up with asphalt. It forms excellent walks in gardens, especially where damp prevails.

Asphodel.—Under this name go some



ASPHODEL.

handsome hardy perennial plants, with fleshy finger-like roots, and upright undivided annual stems covered with long leaves; they are among the most highly developed of the monocotyledonous plants of the northern countries. The yellow asphodel and the white asphodel have long been known in this country as garden flowers. Both species flower about the time when spring passes into summer.

Asphyxia (from two Greek words meaning "no pulse").—Literally, a cessation of the action of the heart, but now commonly applied to a suspension, or loss of the power of respiration, as in cases of drowning or hanging, resulting in such an altered condition of the blood as to render it incapable of supporting life, death being produced by suffocation. (*See* DROWNING, &c.)

Aspic is described by Soyer as a "savoury" jelly extracted from the succulence of meat. The origin of the name is somewhat doubtful. By some it has been thought to contain a reference to the asp, arising from Cleopatra's question, "Have I the aspic in my lips?" and the Dictionary of the French Academy says that aspic is so called because it is cold as a snake. The fact appears to be that the word has lost its original meaning, which in old French was *espic*, and in English *spike*, or "lavender spike." The latter was used by the Romans in their sauces, but it has long since dropped out as a seasoning ingredient, although the name has been retained. As at present used, aspic is made from calves' feet, veal, ham, onions, carrots, and savoury herbs, flavoured with sherry, or tarragon vinegar. It is generally served with cold poultry, game, fish, &c., and is much used for the decoration of ornamental dishes at large banquets.

Ass.—A well-known and useful domestic animal, whose qualities are too frequently undervalued from being contrasted with those of the horse, without considering the different nature of the treatment which these two quadrupeds receive—the care and attention bestowed upon developing the form and cultivating the spirit of the one, and the neglect and ill-usage that too often fall to the lot of the other. As to the origin of the domestic ass, a good deal of uncertainty prevails: several wild races have been described, but some of them, perhaps, like the wild horses of America, are descendants of animals escaped from domestication. In all likelihood the ass is a native of Central Asia, where it is met with in a perfectly wild state in Tartary, Mesopotamia, Persia, &c. In eastern countries the ass is a much finer animal than is usually seen in Europe. In this country it is chiefly employed by the poor. It costs scarcely the twentieth part of the price of a horse, and it may be kept at one-fourth the expense, delighting in the coarse herbage which other animals reject, and satisfied with comparatively short commons. Proverbially we speak of "the stupid ass," but perhaps we ought rather to speak of the philosophic ass: it is probably quite equal in intelligence to the horse. The obstinacy ascribed to the ass appears to be generally the result of ill-treatment. The leather known as shagreen is manufactured by a peculiar

process from the skin of the ass, which also makes good leather for shoes and the best material for drums. The bones of the ass are remarkably solid: the ancients used to employ them for making flutes. The Roman peasants found the flesh of the ass palatable, and the celebrated Mæcenas having tasted it, introduced it to the tables of the rich and great, but the fashion of eating it lasted no longer than his life. Galen compares the flesh of the ass to that of the stag.

Assafœtida.—A gum-resin obtained from *Narthex Assafœtida*, an umbelliferous plant that grows wild in Persia and Afghanistan. It has a most disagreeable smell, and hence its name. It is used in medicine as a stimulant and antispasmodic.

Assam Tea. (*See* TEA, ASSAM.)

Assault and Battery.—An attempt to do an unlawful corporeal hurt to another, as by striking at or menacing him in a threatening manner; and a battery is a personal injury done in an angry, revengeful, or insolent manner. An assault and battery consists of a combination of the two offences. At common law it is only a misdemeanour; but by Statute 24 & 25 Vict. c. 100, certain aggravated assaults are made felonies, and others, though remaining misdemeanours in legal estimation, are visited with severer punishment. An action lies against the offender at the suit of the injured party, and the magistrates have also a summary jurisdiction over this offence.

Assay of Plate.—The ascertaining the proportions of pure gold or silver and the alloy therein. The Goldsmiths' Company of London is by various charters and statutes assay-master of all England. All gold and silver plate must be conformable to the standard fineness, to be notified by the stamp of the Company's arms, and a variable mark to denote the year when made, with the maker's initials. To imitate this is felony, and to sell without it is a misdemeanour involving the forfeiture of the article. Jeweller's work, as watch-chains, bracelets, fancy gold-work, &c., where the Company's mark could not be affixed without injury to the workmanship, are exempt from the above rule.

Assay of Weights and Measures.—The examination of the same by the proper authorities, as the Clerk of the Market, &c.

Asses' Milk. (*See* MILK, ASSES'.)

Asses' Milk, Artificial, is one of the numerous compounds which have been invented as substitutes for natural milk, and is a popular remedy in consumption and debility. A cupful three or four times a day is usually taken, with a spoonful of rum added. Artificial asses' milk is made from cows' milk, ground rice, and the whites of eggs boiled and mixed with syrup of Tolu. Hartshorn shavings are also sometimes used.

Assessed Taxes, &c.—The several duties levied on houses, servants, carriages, horses, and other articles of domestic use and enjoyment. The following is an epitome of them:—

Duties on Houses.—For every inhabited dwelling-house which, with the offices, yards, and gardens therewith occupied and charged, shall be worth the rent of £20 or upwards per annum—

If occupied by any person in trade who shall expose to sale, or sell, any goods, wares, or merchandise, in any shop or warehouse being part of the same dwelling-house, and in front, and on the ground or basement storey thereof; or if occupied by any person duly licensed by the laws in force to sell therein by retail, beer, ale, wine, or other liquors, although the room or rooms thereof in which any such liquors shall be exposed to sale, sold, drunk, or consumed, shall not be such shop or warehouse as aforesaid; or if occupied by any person as an hotel, inn, or coffee-house, although not so licensed as aforesaid; or if a farmhouse occupied by a tenant or farm-servant, and *bona fide* used for the purposes of husbandry only: there shall be charged for every 20s. of such annual value the sum of . 6d.

And where any such dwelling-house shall not be occupied and used for any such purpose and in manner aforesaid, there shall be charged for every 20s. of such annual value thereof the sum of . . . . . 9d.

Exemption.—Any tenement or part of a tenement occupied for purposes of trade only, or as warehouse, shop, or counting-house, although a servant or other person may dwell therein for protection thereof.

Excise Duties.—The 32 & 33 Vict. c. 14, repealed the assessed tax duties on male servants, carriages, horses, hair powder, armorial bearings, and horse-dealers; and also certain excise duties on licenses to let horses, hackney carriage licenses, and weekly duties, and stage carriage licenses, and mileage duties, and granted the new duties of excise following:—

Duty on Male Servants.—For every male servant . . . . . 15s.

This duty extends to all male servants by whatever name called, including gardeners, gamekeepers, &c.

Exemptions.—Officers of the army and navy in respect of servants being actually soldiers or sailors.

Servants wholly employed by hotel-keepers in their business.

Licensed retailers of exciseable liquors and licensed keepers of refreshment houses employing one servant only.

Drivers of stage and hackney carriages.

Persons employed by horse-dealers and livery stable keepers, entering their premises under sect. 28 of 32 & 33 Vict. c. 14, except servants employed to drive carriages with horses let to hire for periods exceeding 28 days.

Persons occasionally or partially employed, and persons engaged to serve for a portion only of each day, and not residing in employer's house.

Duties on Carriages.—For every carriage, if such carriage shall have four or more wheels, and shall be of the weight of four cwt. or upwards . . . . . £2 2s.

If such carriage shall have less than four wheels, or having four or more wheels shall be of a less weight than four cwt. . 15s.

Exemptions.—Waggons, vans, carts, &c., used for purposes of trade or husbandry only (though used for conveying owner and family to place of Divine worship on Sunday), with Christian and surname and place of abode of owner painted legibly thereon.

Duties on Horses.—Repealed by 37 Vict. c. 16, s. 11.

Armorial Bearings Duty.—If such armorial bearings shall be painted, marked, or affixed on or to any carriage . . . £2 2s.

If not so painted, marked, or affixed, but otherwise worn or used . . . £1 1s.

Horse-dealers Duty.—Repealed by 37 Vict. c. 16, s. 11.

Regulations as to Licenses.—Every person employing a male servant, keeping any carriage, wearing or using any armorial bearings, must fill up and sign a declaration in the prescribed form, stating particulars required by Act, and shall pay the duties to which he shall by such declaration appear to be liable before the expiration of January in each year, or before the expiration of 21 days from commencing to employ any servant, or keeping any carriage, &c., or wearing armorial bearings; and licenses are to be granted for all duties paid.

Declarations need not be made, nor licenses taken out, by members of the royal family, sheriffs, mayors, &c., serving annual office, for servants, carriages, arms, &c., used for purposes of office.

Representative peers of Ireland, not residing in Great Britain, except during session of Parliament and forty days before and after.

Persons keeping servants, carriages, &c., described under *Exemptions*, except as to militia and volunteer officers.

Persons keeping stage or hackney carriage for any armorial bearings painted thereon.

Duties on Dogs.—The 30 Vict. c. 5, repeals the assessed tax duties on dogs, and imposes in lieu thereof an excise duty of 5s. per annum.

Game Duty.—On a gamekeeper acting under a deputation duly registered with Clerk of the Peace—

If assessed as a servant to his employer . £2
If not so assessed £3

On every other person using dog, gun, net, or engine for the taking or killing of game:

If certificate be taken out after 5th April and before 1st November—

To expire on 5th April following . . £3
To expire on 31st Oct. in same year . £2

If certificate be taken out on or after 1st of November—

To expire on 5th April following . . £2

In case of any person omitting to take out the proper certificate, the surveyor of taxes will bring him into charge, and the assessment must be double in every case.

License to deal in game . . . £2

The penalty for selling game (not being duly licensed) is £5, and this penalty is also incurred by the buyer of game from an unlicensed person.

Guns.—The 33 & 34 Vict. c. 57, imposes a license duty of 10s. on every person who shall use or carry a gun. License to expire on 31st March in every year.

Railways.—For and in respect of all passengers conveyed for hire upon any railway in Great Britain, a duty of 5 per cent.

Exemptions.—Receipts from the conveyance of passengers, at fares not exceeding 1d. per mile by cheap trains, under 7 & 8 Vict. c. 85.

Assessment.—The ascertainment of the amount to be paid by any person for damages, taxes, or otherwise; when this is fixed a person is said to be assessed to such an amount.

Assessor.—A person qualified in some particular art, science, or industry, who is called in to assist the court, or judge, &c. (carrying on a trial or investigation concerning any matter in which questions of his particular speciality may arise), with his assistance and advice—for instance, an expert in handwriting to prove the similarity or dissimilarity of certain documents with each other; a medical man to explain the probable disease which certain symptoms point to, &c. &c.

An authority who fixes the amount of debt, tax, or damage to be paid by parties liable thereto, as the assessors of the income-tax, &c.

Assets. (*See* ADMINISTRATION.)

Assignment.—The instrument by which chattels, real and personal of every description, are transferred from one person to, and vested in another.

Assize (from the Latin word *assideo*, to sit together).—This word signifies the court-place or time where the judges of the superior courts at Westminster hold sittings for the trial of questions of fact, arising out of actions in the said courts to be tried before juries. These assizes are held at the several towns comprised in the circuits (as they are termed) of the country, and they usually take place in the spring and summer of each year.

Assize of Bread. (*See* BREAD, ASSIZE OF.)

Assurance is synonymous with "Insurance," and the latter word being more frequently used, we shall under such title describe its meaning. (*See* INSURANCE.)

Asthenia. (*See* STRENGTH, LOSS OF.)

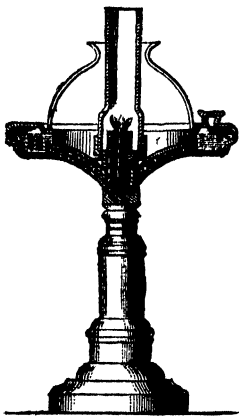
Asthma.—A nervous disease, the paroxysms of which are either preceded by headache and sleeplessness, or they may occur suddenly. The sufferer generally wakes in the early morning with a feeling of oppression of the chest as if about to be suffocated, experiences great difficulty of breathing for a few hours, when the attack suddenly abates, and is succeeded by sleep. Asthmatic symptoms are frequently the result of an overloading of the stomach, in which case they are speedily removed by an emetic. Besides the variety described above, known as spasmodic (the spasms of which are mainly attributable to a forcible contraction of the muscular fibres of the bronchial tubes), there are also other kinds, such as bronchial asthma, so called from its relationship to bronchitis, with copious expectoration for its characteristic; hysterical asthma, which is only another name for excessive breathing, such as would be produced by violent exertion; and that peculiar form of disease which is termed

hay asthma (hay fever). For treatment, *see* ANTI-ASTHMATICS.

Asthmatic. (*See* ASTHMA.)

Astragalus (from a Greek word meaning a "die").—The ankle bone, which is indebted for the name to the fact that similar bones of animals were used by the ancients as dice.

Astrakhan.—This is the fleece of a particular kind of sheep which is found in the province of Astrakhan, situated on the Caspian Sea. The fleeces which are considered the best—namely, those which have a soft and curly appearance—are furnished by the lambs. It is a common custom to kill the mothers in order to obtain the skin of the unborn lamb, as its fleece is found to be in a greater state of perfection before birth. Strips of real astrakhan a few inches in depth cost from 15s. a yard. Imitation astrakhan trimmings are sold for 3s. and 4s. per yard.



THE ASTRAL LAMP.

Astral Lamp.—This lamp was the invention of a Frenchman named Bordier-Marcet, with the idea of reducing the oil-vessel to as small a height as possible, by making it very flat. The principle of the Astral lamp was realised by Argand, whose invention has superseded that of M. Bordier-Marcet. (*See* ARGAND LAMP.)

Astringent Lotions.—When employed locally to arrest bleeding, they are called styptics. They are also applied to brace up the mucous membrane, and to check discharges.

Astringents.—Medicines given to alter the composition and character of the blood, and increase its disposition to coagulate, in order to arrest bleeding from any organ or surface; or to lessen the undue secretions throughout the body, as in cases of excessive sweating. Turpentine, creosote, and alum are the mineral astringents mostly used; but tannic, gallic, and other vegetable acids possess similar properties.

Asylums.—Institutions or refuges for the reception of persons suffering from poverty, infirmity, or disease of body or mind. It has been noticed as one of the greatest contrasts between ancient and modern civilisation, as regarded from the humanitarian point of view, that previously to the spread of Christianity over the civilised world, no provision was made by society for sheltering those of its members who through age, privation, or disease had become alike more sensitive to, and more defenceless against, the harsh usage of the outer world. (*See* LUNATIC ASYLUMS.)

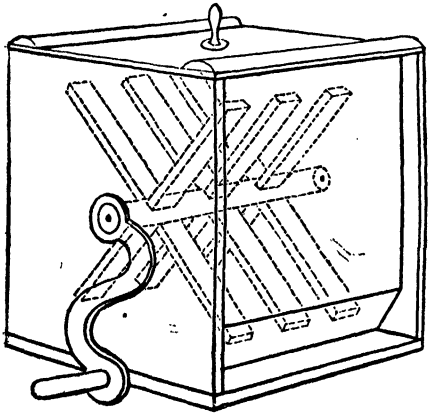
Athletic Exercises.—All those exercises which tend to develop the muscles or elasticity of the body, such as running, jumping, throwing the hammer, &c. All nations, especially the more hardy ones, have from the very earliest days of their history been fond of athletic exercises of some description or other, and our own country most certainly forms no exception to the general rule. Of late years especially, these exercises have increased greatly in popular favour and estimation, and if we are to believe the opinion of those who have carefully studied the history of the ancients, we far excel the old Greeks and Romans, at any rate in running, both as regards speed and endurance. At the present time athletic meetings or contests, in which the youth of the land take part, are being held in some part or other of this country all the year round, and these meetings very much resemble those public games which were the pride and glory of ancient Greece. The earliest known and the most historic of these meetings of the Greeks were the Olympian games, the first establishment of which has been assigned by the poets to the mythical ages. These were followed by the Pythian, Nemean, Isthmian, and other meetings, all imitations of the Olympian. The exercises at these sports seem to have consisted of short and long running races, wrestling, dart and discus throwing (the discus much resembled the quoit of our day), jumping, boxing, chariot-racing, and the pankration—this latter being a combination of boxing and wrestling, in which the use of almost every sort of physical violence was permitted to the competitors. At these games the usual prizes to the victors were plain crowns of wild olive or laurel, a distinction coveted far beyond any money prize; indeed, it is said that to have won at Olympia was to be provided for for life, so ample were the rewards awaiting the wearer of the laurel crown when he returned to his native place, which he was considered to have highly honoured by his success at the national games. From the earliest days in the history of our own country athletic exercises, and that which resulted from them, *i.e.*, public trials of strength and skill, have been popular, and were represented in the Middle Ages by the tournament for the rich, and tilting at the ring, running, jumping, wrestling, quarterstaff, &c., for the lower classes. The athletic exercises of our own day are very numerous, and full descriptions of many of them will be found under their respective headings. (*See* BOXING, CRICKET, FENCING, FOOTBALL, GOLF, GYMNASIUM, ROWING, &c. &c.) The practice of running and walking has developed very largely of late years, especially in point of endurance, many instances of long-distance running having been afforded that would entirely cast in the shade the performances of the proverbial red Indian. Modern races vary from 100 yards, called a sprint (the Greek sprint was 125 yards), to almost any number of miles. At athletic sports or meetings running forms the backbone of the entertainment, but it is generally supported by long and high jumping, hurdle-racing, leaping with the pole, putting the weight (generally 16 lbs.), and hammer-throwing.

It would, perhaps, be difficult to over-esti-

mate the value of national sports and exercises to a country as a whole; it will, we think, always be found that those nations in which the love of exercise is most deeply rooted are the bravest, hardiest, and most self-reliant in time of danger. And as with the nation, so with the individual. Of course it must be understood that we are not here speaking of such cruel national sports as bull-baiting, the pastime of the Spanish grandees; bull-baiting, and all such "sports," cannot by any possibility be classed with athletic exercises—they are but spectacles. Neither would we advocate the excessive practice of athletics amongst the youth of a country, to the exclusion of the more serious work of life; there should be moderation in all things, but as was proved by the Greeks of old, there is no reason why development of muscle should not proceed co-equally with development of mind, and thus that most desirable of all earthly blessings be attained—*mens sana in corpore sano*, a sound mind in a sound body.

Atmosphere.—A term often applied to air, but in strictness signifying a film of gas surrounding a ball, and more especially applicable to the gaseous or vaporous substance enwrapping most of the planets. The pressure of our earth's atmosphere at the sea level is fourteen or fifteen pounds to the square inch, but it decreases in proportion to the height above that level, owing to which fact we are able to determine, by means of the barometer (an instrument for measuring the pressure of the air) the height of mountains and other elevations. The term atmosphere is also used as a measure of the compression or exhaustion of gases or vapour; *e.g.*, when by means of the air-pump the pressure of the contents of an air-vessel is raised from fifteen to thirty pounds on the square inch, a pressure of two atmospheres is said to be obtained. Our atmosphere is supposed to envelop our earth to the height of forty-five miles. It is composed of oxygen and nitrogen in the proportions of one to four.

Atmospheric Churn.—A rotary churn



ATMOSPHERIC CHURN.

worked by turning a handle, and so contrived that at each revolution air is introduced into the fluid, the agitation of which is materially promoted. (*See* CHURNING.)

Atonic (from two Greek words meaning "want of tone").—Weakness, either local or general, the result of want of proper nutrition.

Atrophy (from two Greek words meaning "no nourishment").—A wasting disease that is produced by bad nutrition, affecting any or all of the organs of the body.

Atropia.—A preparation usually obtained from the root of belladonna, or deadly nightshade, employed to dilate the pupil of the eye by causing contraction of the iris.

Attachment (*Attachiamentum*).—A writ of attachment is a judicial proceeding in constant use in the Court of Chancery (now the Chancery Division of the High Court of Justice), to enforce the appearance of a party duly served with subpœna from the court. An attachment may also issue for a contempt of court in refusing to comply with its process or otherwise.

Attachment, Foreign.—The attaching or seizing by a creditor of goods or money of his debtors in a third party's hands in satisfaction of his debt. The Mayor's Court of the City of London has an extensive and peculiar jurisdiction of this character, as have also the cities of Bristol, Exeter, and Lancaster.

Attachment of Debts.—When a creditor has obtained a judgment against his debtor, he may put in force a certain process, under which debts owing to the latter may be made answerable to the creditor's claim. This process is called "attaching." See Statute 17 & 18 Vict. c. 125, s. 60, for details of the necessary procedure to obtain an attachment. The Statute 33 & 34 Vict. c. 30, prohibits the attachment of wages.

Attaint, Attainder.—The taint or corruption of blood formerly attached to a criminal who was capitally condemned. He was "attaint," and considered no longer worthy of credit or reputation; he was also dead in law, and incapable of performing manly functions. He used also to incur a forfeiture of all honours and dignities. But by the Forfeiture for Felony Abolition Act, 1870, no conviction for treason, or felony, or *felo de se*, is to cause any attainder or corruption of blood, or any forfeiture or escheat.

Attar or Otto of Roses.—This beautiful perfume is distilled from the petals of the musk and damask rose, the varieties used being *Rosa centifolia*, *Rosa sempervirens*, and *Rosa moschata*. The district south of the Balkan, in Bulgaria, is the chief seat of their cultivation and of the manufacture. In the district of Kezanlik, which contains some forty-eight villages, there is a resident agent for collecting the attar for the firm of Messrs. Pappozoglu, of Constantinople. A sandy, stony ground, impregnated with oxide of iron, produces the best oil. Rose gardens are planted in hedgerows, on sloping ground exposed to the sun. Young shoots torn off with some portion of the root from the parent bush are laid almost horizontally in trenches, about a foot deep, and five feet apart, covered with earth and manure, and carefully trodden

down. The shoots will appear at the end of six months, when they should be earthed up; and at the end of the year they will be more than a foot high. At the end of the second year flowers appear; in the third they become a source of profit; and in five they are in full bearing, about six feet in height, and last for fifteen years, when they cease to flower; the blossoms resembling in appearance our common dog-rose. No pruning is needful, except to remove dead branches. Very severe cold kills them. Harvest commences in May, and lasts twenty days. An English acre produces from 4,000 lbs. to 6,000 lbs. of blossoms in average years, and 34½ lbs. produce about 1½ drachms of oil, which may be considered worth four shillings. A large staff is kept, so as to pick all the blossoms of a heavy crop before the morning dew is off them, when they must be immediately distilled; and unless a large number of alembics be ready for them, a great portion of the crop may be wasted, in the event of a rapid blossoming, of which it is difficult to form any correct calculation beforehand. The alembic consists of a convex copper boiler, narrowed to the neck, which carries the condensing tube through a vessel containing cold water, until it meets the receiver. When full the boilers contain about 240 lbs. of water, but only three-fourths of that amount is poured in, to which 25 lbs. of blossoms are added. Distillation goes on until the turbid-looking rose-water which is produced equals in weight the amount of blossoms in the boiler—25 lbs. The boiler is then removed and cleansed, and the process repeated with fresh flowers. The fluid on being again distilled, an oleaginous yellowish liquid appears floating on the surface, which is the attar. With a funnel-shaped spoon having a small aperture at the bottom—to allow of the escape of the water—it is skimmed off. The yield of the attar varies much, but it takes 4,000 lbs. of rose-blossoms to make 1 lb. of oil. The best quality fluctuates in price from 15s. 4d. to 16s. 10d. per ounce. They test the purity of the different qualities of these oils, by putting the essence into flasks, which are afterwards immersed in water at a temperature of 63° or 68° Fahr., when, if the quality be good, it will congeal; the inferior will not do so at a temperature over 52° Fahr. The plant is cultivated by the farmers in every village of the Kezanlik district, which lies in the centre of a plain standing at an elevation of about 1,300 feet above the sea; sheltered on the north by the great Balkan range, which attain in some parts 4,400 feet, and rise perpendicularly from the plain, which is richly wooded.

Attar is also obtained in the East Indies by stratifying gingelly seeds in alternate layers with rose-petals for some days, and repeating the arrangement for the same length of time with fresh rose-petals, till the seeds become saturated, when the oil is expressed and distilled along with the water. In the neighbourhood of Mecca the rose-leaves are macerated in salt and water for two or three days, and then distilled; the water being taken in separate receivers at different parts of the process.

Attention to Little Things.—The habit of attending to what are known as "little things" is one of the most useful that can be cultivated. It has been often said that life is half made up of trifles, and it is precisely in diligently attending to these that half the well-being of life is comprised. With regard to ourselves, our families, our friends, our business, our whole round of relations in fact, the claims of little things are incessant. One of the best lessons we can learn, therefore, is this, and it is at the same time one of the best which can be instilled into the minds of children. As so many trivial incidents may have momentous issues, and as the sum of them is so great every day, the topic is one which fully deserves the prominence we have given to it.

Attestation.—Witnessing to a fact. In legal signification it is generally applied to the execution of deeds, and a memorandum of attestation of such execution is usually endorsed in the fold of the deed, and subscribed by the attesting witness; and although this is not absolutely necessary, it is in all cases advisable. (*See* EVIDENCE, EXECUTION.)

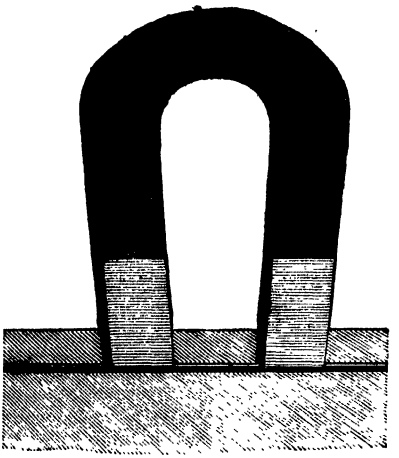
Attic.—The word attic, applied to a house, means its upper storey; when applied to architecture, it suggests a low order used over a principal order, never with columns, but with antæ or small pilasters. Attics should not be less than one-quarter, or more than one-third, of the order they surmount. They are frequently decorated with short, small pilasters, the breadth of which ought to equal the upper diameter of the column underneath them. Their projection usually does not exceed one-quarter of their breadth. The base of a column of upper and lower torus, with a scotia and fillets between them, is called the attic base.

Attorney.—One put in the place or stead of another to do certain acts for him. Up to a recent period this was the proper designation of the legal practitioners in the Courts of Common Law; but by the Judicature Acts the term is wholly abolished in a professional sense, and that of solicitor substituted. (*See* POWER of ATTORNEY, SOLICITOR.)

Attraction, Capillary.—If a narrow glass tube, open at both ends, be dipped into water and partly withdrawn again, it will be found that the water rises inside the tube to a higher level than that of the water on the outside, and that on both the outer and inner sides of the tube the surface of the water curves upwards towards the wet glass. If the tube be altogether withdrawn from the water, it will be found that a portion of the water will still remain inside the tube. These effects are due to capillary attraction. This phenomenon will be seen in the case of any liquid capable of wetting the glass; but the extent of the rise varies with the nature of the liquid and of the temperature. If a still narrower tube be used, the rise of the liquid inside the tube will be found to be greater; and this will be in inverse proportion to the diameter of the tube. It is upon this principle that an article like sponge retains so much of the water in which it has been immersed; that blotting-paper will take up a spot of ink; that the melted tallow rises

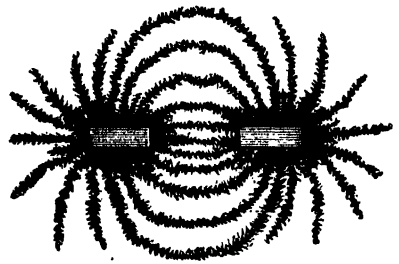
in the wick of a candle, and the oil in that of a lamp. In the animal and vegetable economy, capillary attraction exercises a most important influence in aiding the taking up of the fluids, which constitute so large a portion of both plants and animals.

Attraction, Magnetic.—The loadstone, a magnetic oxide of iron, was known by the ancients to possess the property of attracting iron. It has, however, been found since that artificial magnets can be made that shall possess the same property as the natural loadstone. They are made of iron or steel, preferably the



A MAGNET.

latter; for though steel is not so readily magnetised as iron, it permanently retains its character as a magnet, which the iron does not. Magnetic attraction is easily exhibited by bringing the end of a magnet near to iron-filings; before actual contact takes place they will be seen to move, and then to fly up to the end of the magnet. This shows that the attraction is totally distinct in its nature from simple adhesion. That the attraction of the magnet extends through a considerable space, may be better illustrated by altering the form of the experiment. Let a bar-magnet be laid upon a



MAGNETIC ATTRACTION.

table, and a piece of cardboard placed horizontally upon it, and the iron-filings be dropped gently upon the card; they will then be found not to lie exactly as they fell, but to arrange themselves in thick groups over the portions of the cardboard immediately overlying the two ends of the bar, and thinning off in a kind of fringe from these two centres. If, again, the magnet beneath the card be changed in its position, the iron-filings upon the upper side will re-arrange themselves accordingly. The two ends or poles of a magnet have opposite kinds of magnetism, often distinguished as north and south, as the earth itself is a great magnet, having its opposite magnetic poles in the arctic and antarctic regions respectively; and it is a law that poles of the same name repel, and poles of contrary name attract one another. It follows that a small magnet freely suspended on a pivot, as the needle in a mariner's compass is, will always be attracted towards the same pole, unless influenced by the proximity of any body sufficient to disturb its proper action.

Auburn.—This name is used to denote a peculiar colour, which may be best described as that of brown with a shade of red passed through it. Most probably the word auburn was originally *albran*, for the latter word is the French name for a young wild drake, and this peculiar reddish-brown is observable in the plumage of these birds.

Aubusson Carpets.—These beautiful French carpets are hand-made, and therefore they are costly; the price averages about forty-five shillings per square yard. They resemble tapestry, and have not a raised pile like Brussels carpet. The designs are of a floral character, and usually one large design occupies the whole carpet, which is not made in breadths, but in one piece, like a Turkey carpet. Aubusson carpets are light, bright, and delicate in colour, unique and handsome in appearance, but are not durable.

Auction, Auctioneer.—An auction is the offering of property of any and every description to public sale, as opposed to a sale by private contract. The persons usually employed in this business are termed auctioneers, and they must be licensed for the purpose, and carry on their business under certain regulations. These, as regards real estate, are defined by Statute 30 & 31 Vict. c. 48, and are shortly as follows:—

1. No puffer is to be employed, otherwise the sale is void.
2. The conditions of sale are to state whether or not the sale is without reserve; also
3. Whether or not a right to bid is reserved; and
4. The practice of opening the biddings is abolished.

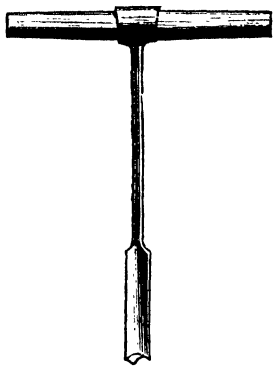
Auction, Mock or Dutch.—The word auction is of Roman origin. It was originally applied to the mode in which the ancient Roman soldiers disposed of spoil won in battle at the doors of their tents, and is derived from the distinctive appellation *auctio*, an increase. Auction sales existed amongst all the great old-world commercial nations in one or another form. According to Seneca, the ancient Romans announced these sales by putting up the *tabella* or placard in some place of public resort, and the places where they took place was signified

by a spear set up at the doorways just previous to their commencement—a custom which had doubtless been preserved from the earliest times of such sales. When the biddings commenced they were communicated to the auctioneer by the public crier, to avoid unnecessary clamour and confusion, through which disputes might arise, the crier announcing the advance, and those who were willing to give it holding up a finger. When only one finger remained upheld, the article on sale was knocked down. Strict silence was enforced, and a duly licensed money-broker recorded the price, received the money, and gave the purchaser an order to receive the goods. In Holland, when the highest bid has been made, and bidding ceases, the auctioneer lights one of a number of pieces of candle all of the same length, and if by the time that has burnt out no further advance is made, Mynheer, the last bidder, is the accepted purchaser. A similar system of "sale by candle" was formerly practised in England, the pieces of candle being always exactly one inch in length. Selling by auction was not, however, common in this country until the commencement of the last century. A very curious relic of old customs used to exist until quite recently, and may still exist, at a place called Eiffel, in France. On the morning of St. Matthew's Day the whole of the maiden population are assembled, and one by one put up to auction; the highest bidder is entitled to be the maiden's sweetheart for a year. What is for some reason called a *Dutch auction*, or auction of reduction, is that which is seen in connection with a class of itinerant auctioneers commonly known as "Cheap Jacks." Cheap John, as, for politeness sake, we may call this auctioneer, says he will take so much for the article he puts up, and then comes gradually down to the lowest sum for which he will sell, when he "asks no more and takes no less," and failing to procure his price, puts the goods aside. Fish is sold in a similar way in Billingsgate Market. Mock auctions are those at which articles of inferior manufacture are put up, and bidders are employed by the auctioneers to prevent their being sold at too low a bidding. What is called "Knock Outs" are auction sales of this kind. When sale by auction was first practised in London, mock sales or "Knock Outs" became so common that in 1818 a select committee of the House of Commons was appointed to inquire into them with a view to their prevention. The earliest mention of an auction sale in this country is that of the disposal of Dr. Seaman's library in 1676. A preface attached to the catalogue of this sale, still in existence, states that though the sale of books by auction was not usual in England, it had been practised in other countries to the advantage of both buyers and sellers. It has been asserted that the first of such sales was that of the property of Governor Yule, on his return to India, in 1700.

Audit, Auditor.—By an audit is understood an examination of accounts by a properly appointed officer, and the verification of same by production of vouchers and other documents proving the correctness of the several items of receipt and expenditure therein contained. Auditors are most important officers, and in most companies the Board of Directors and the general body of the shareholders have a separate voice in their appointment.

Auditing Accounts. (*See* ACCOUNTS.)

Auger.—The auger is extensively used for boring holes in wood. This tool is made in various forms to serve varied uses. The oldest form of auger is that having a long iron shaft, having at the top, and at right angles to it, a large cross handle by which the workman can hold it with both hands. Into the other end of the shaft is welded a semi-cylindrical piece of steel from three to six inches in length, the extremity of which is furnished with a sharp tooth, and a cutting edge, which is a small portion of a spiral, and so inclined as to cut like a chisel, the edge operating upon a radical line proceeding from the centre of the hole. Being twisted by the handle with sufficient pressure, the instrument acts by cutting out spiral-shaped pieces of the wood, which are received in the semi-cylinder, which has usually one of its longitudinal edges slightly sharpened to preserve the sides of the perforator clean. The

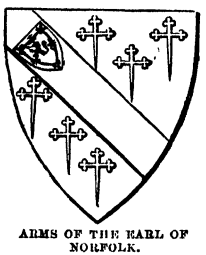


AUGER.

other portion of the shaft is made smaller than the lower, or steel part, to facilitate the escape of the chips and enable the instrument to pass the bore freely. Sometimes the extremity is provided with a conical screw instead of the above. By this kind of auger the wood is pierced more truly and easily, and with less pressure, or none. Another kind of auger is that which is chiefly used by shipwrights. In this, that portion of the steel above described as of a semi-cylindrical shape is made entirely of the spiral form. The advantage gained by this change is that in its use there is no liability of the chips clogging the tool as they pass freely through the spiral channels, and are discharged externally as the perforation is continued. Another variety of auger is found in those introduced or invented by Dr. Church, of Birmingham, the principle of which consists in the formation of the instrument of a helical figure, by winding a bar of steel in what Mr. Church called a "mixtilinear-trapezoid" shape round a cylindrical mandril, for the formation of a circular hole throughout its entire length, for the insertion of a movable central guide-pin, the upper half of which is screwed into

the shank of the auger, the lower or working part being furnished with a wood screw for the purpose of drawing the auger into the wood as it turns, while the cutting edge on the helical part clears away the wood. Its increased rapidity and the facility of its operation soon rendered augers of this kind popular. Augers are also made for forming holes of a square form and other shapes by means of mortice chisels.

Augmentation (Heraldic). — This term signifies an honourable addition to a coat of arms, the addition being complete in itself, and conveying a distinct signification of its own.

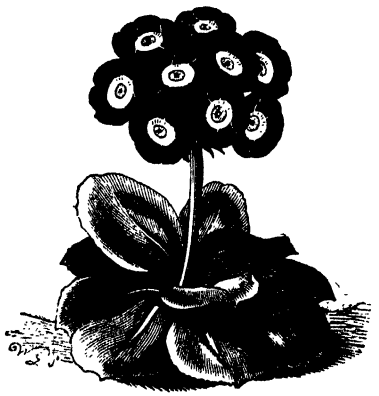


ARMS OF THE EARL OF NORFOLK.

Thus the Royal Shield of Scotland was conferred as a mark of merit upon the Earl of Norfolk, for his victory at Flodden Field, by Henry VIII., and the union device of the United Kingdom was added as an augmentation of honour to the arms of the famous Duke of Wellington. In bygone days these augmentations were sometimes granted as a mark of grace or favour merely. Among several instances is that of the arms of the Confessor being granted by Richard II. to the Hollands and Thomas Morley.

Aural Surgery.—A branch of surgery exclusively dealing with unhealthy conditions of the ear, such as deafness, inflammation, and ear-ache. In the case of obstructing accumulations of wax, often causing deafness, the simple treatment is by syringing. The ear should be prepared two or three days previously, by dropping into it a weak solution of bicarbonate of soda, in order to loosen the wax, which by the action of the soda is converted into a soft soap.

Auricula.—The *Primula auricula* is a well-known flower of great beauty, and in general estimation. It is not less remarkable for the



THE AURICULA.

great variety of its colours than for its peculiar brightness. Its smooth broad leaf, of an oblong shape and glossy green, sets off its many-petalled flowers. The scent which it diffuses is not powerful, but sweet and agreeable, like that of the wild primrose. It is called an Alpine or mountain plant because it not only grows among mountains, but thrives best in open and airy situations.

In places where damp and fogs prevail it is difficult to keep it healthy or to obtain fine blossoms, and whoever attempts to grow auriculas in such places should shelter them from the cold and frosts of winter.

They are divided into two classes, plain or self-coloured, and painted or variegated. They are distinguished from each other by the colour on the edges of the blossoms, which are green, grey, and white.

The flowers are covered with a whitish powder, which gives them a pleasing and curious effect, and this powder is not confined to the blossoms alone, but is scattered over the leaves. To raise auriculas from seed, sow in light rich soil any time during summer—but the spring is best—plunge the pots of seed in a gentle heated hot-bed, covering them over with a piece of glass until the plants are well up, and then remove the glass to give them air. When large enough, plant them in a frame some four or five inches apart, where they must remain during winter, or sheltered from frost. The soil best suited is thoroughly rotted horse-manure, leaf or turf mould, yellow loam and sand; manure-water may occasionally be given to promote growth. The auricula grows about six inches high.

Auricular.—Something which concerns the ear, or the sense of hearing. Thus certain nerves belonging to the ear are called "auricular nerves;" and a confession made in the hearing of a priest is styled "auricular confession."

Aurist (from the Latin *auris*, an ear).—A surgeon who makes a special study of the organs of hearing, and the affections or diseases to which they are subject.

Auscultation (from the Latin *auscultо*, to listen).—The method of observing, by the application of the ear, the action of an organ, with a view of ascertaining whether it is diseased or not. An instrument called a stethoscope is sometimes used to collect and convey the sound to the ear. By this process obscure diseases of both the heart and lungs are often detected.

Australian Foods.—The contrast between the comparative scarcity and the high price of meat in England, and its abundance in Australia, suggested the desirability of discovering some method by which the beef and mutton of the colonies could be rendered serviceable for the population of the mother-country. Several methods were tried for preserving the meat, but the only one that was successful was that in which the meat was put into a tin, and then the atmospheric air was expelled, and the germs of decay destroyed by heat. Unfortunately, the meat thus preserved is stringy, and slightly insipid; but this is the only method which has yet been discovered which has at all answered the purpose intended.

In Australia, the preserving of meat for home consumption has become a very important trade. Its progress is of course dependent on the price of sheep and oxen. A few years ago meat was very cheap; the best joints could be bought for 1½d. to 2½d. per lb., and at one time, when, owing to the long-continued drought, food was scarce, thousands of sheep were boiled down simply for the tallow, and the meat was buried or turned into manure. Since the meat was preserved, however, its price has been from 3d. to 5d.

The first satisfactory shipments of Australian meat were made in 1866, but the value of the whole during the year was under £400. From that time the trade has grown rapidly. In 1867 it was £18,820, and since then it has almost doubled itself each year. The estimate which is put upon Australian meat will depend to a very great extent upon the way in which it is served. It is already cooked, indeed, it is almost too much cooked, when purchased, therefore any additional cooking will tend to destroy the flavour. It is best when eaten just as it is, being merely turned out of the tins and trimmed neatly, the grease being entirely removed. Then, if accompanied by salad or pickle, or some savoury relish, Australian meat is excellent. It is also very good if the tin containing it is put into a stewpan of boiling water, and the meat is served as soon as it is hot. If, however, it is cooked a second time it is neither nourishing nor palatable.

Australian Parrakeets. — There are many parrakeets common to Australia, the principal of them being the following:—

The Parrakeet Cockatoo, a bird that cannot boast of very brilliant plumage, but which is worthy of notice for the curious crest with which its head is adorned, and for the grace



PARRAKEET.

and elegance of its form. With the exception of the head, on which a little crimson and yellow are seen, the plumage of the parrakeet cockatoo is simply tinted with brown, grey, and white.

The Yellow-bellied Parrakeet, whose colouring is magnificent. The forehead is rich crimson, and the back is a peculiar mottled green, each feather being of a deep black-green edged with the same colour, but of a much lighter shade. The throat and the middle of the wings are blue, the breast and abdomen are bright golden-yellow, and the under tail-coverts are marked with a few red dashes. The two middle feathers of the tail are green, and the remainder are blue, dark at the base, but becoming lighter towards the tip. In captivity the yellow-bellied parrakeet is a hardy bird, and is well adapted for a caged life.

The Rose-bill Parrakeet, commonly known to dealers as the rosella parrakeet. This is a most lovely bird, the head, sides of the face, back of the neck, and the breast being a glowing scarlet. It is of a hardy constitution, bears confinement well, and is coming much into fashion as an inhabitant of the aviary.

The Ground Parrakeet, a remarkably pretty and interesting bird. It derives its name from its ground-loving habits. The general colour of its plumage is dark green above, mottled with yellow, and variegated with a multitude of semi-lunar markings. The under surface is yellow.

The Grass or Zebra Parrakeet. This bird has been imported into this country in such numbers to people our aviaries, that not long ago specimens could be purchased at a cheaper rate in England than in New South Wales. The general colour of this pretty bird is a dark mottled green, variegated with other colours. From its peculiar mottling it is sometimes called the shell or scallop parrot. The voice of the grass parrakeet is quite unlike the rough screeching sound in which parrots seem to delight, and is a gentle soft warbling kind of song, which seems to be contained within the body, and is not poured out with that decision which is usually found in birds that can sing, however small their efforts may be. It is a great mistake to confine these lively little birds in a small cage, as their wild habits are peculiarly lively and active, and require much space. The difference between a grass parrakeet when in a little cage, and after it has been removed into a large house, where it has plenty of space to move about, is really wonderful.

The Blue-banded Grass Parrakeet, closely allied to the preceding bird. Its colour is green with a slight brown shade.

Australian Wines. — Of late years a great effort has been made to extend the culture of the vine, and to improve the manufacture of wine in Australia. The attempt has not been so pecuniarily successful as it was once expected to be, owing partly to ignorance and partly to want of skill. The first wines sent over to England were ill-made, and deficient both in body and flavour, and this gave rise to a prejudice against them. Now, however, things are different. The colonists, after years of labour and much bitter disappointment, have gained wisdom from experience, and as a result their wines are excellent, and have a good market. They are not adulterated; in most cases they are not brandied; they are

clean and wholesome—indeed, it may fairly be said that they are the genuine juice of the grape. The best of them is a wine called "Cwarra," which somewhat resembles a Rhenish wine.

Austrian Blankets.—These blankets are coloured ones, usually a soft grey, striped with a variety of bright colours. They are used on beds in the place of eider-down quilts, and also for carriage and railway-rugs. Their prices vary from twelve to forty shillings, according to the quality of the wool. They are made at Witney, near Oxford, and at Heckmondwike, in Yorkshire.

Austrian Wines.—The best-known wines of Austria are those of Steinberg and Vöslauer, near Vienna. There are three varieties—red, white, and sparkling—all of which are both excellent and economical. The red Vöslauer wine is about the same price as Bordeaux, but with a fuller body and a better flavour. The white Vöslauer is good, bright, and sound. The sparkling Vöslauer is very little inferior to champagne. The Hungarian wines are remarkable for their keeping properties, and some of them have attained great excellence. The best known is Tokay, which is very rich and luscious, and is much sought on account of its rarity and exquisite delicacy. Next to Tokay in celebrity is Menos wine, which is a red wine, rich and highly flavoured. Another red wine, Carlowitz, is rapidly growing in popularity. It has rather a rough taste, and is a capital dinner wine, not altogether unlike Burgundy. Of white wines, the Oldenburg and the Somlau are distinguished by their flavour, delicacy, and soundness. The dry Muscat, Szamarodi, and Erlauer are also useful and wholesome wines.

Author.—This title is a most comprehensive one, and must be understood to embrace all those who write that others may read, whether their work remain in manuscript, or attain to the dignity of print. It is, however, popularly used of one who has adopted literature more or less as a profession, and whose writings are published, *i.e.*, issued in print to the general public. Unlike the other professions, that of authorship imposes no regular course of training or education on those aspiring to enter it; granted that a man can write his own language correctly, and that he has some natural talent for composition, he is prepared to enter the lists as the writer of a certain class of work. Indeed, even this low standard of acquirements does not, at the present day, appear to be absolutely necessary, for amongst writers in the field of fiction there are many, especially women, who seem altogether unable to write grammatically, amply atoning for this fault, however, in the eyes of their readers by their power of concocting a sensational plot, and inventing an interesting situation. For all high classes of authorship, however, the possession of great natural attainments becomes imperative, and, in addition, the writer must be a person who has received a liberal education, has read extensively, and has acquired a varied fund of information, which may be to him as a never-failing well, from which he may draw largely in the course of his work. For *original* works, such as poems, novels, plays, &c., the possession of a vivid imagination and a bright fancy is a *sine quâ non*.

The whole body of authors may be subdivided into a number of different classes, such as writers of original works, compilers, translators, and journalists. Under the head of original works must be included not only those already mentioned (*see* NOVELS, PLAYS, POEMS), but books on religion, such as sermons and commentaries, educational and scientific books and treatises, histories, biographies, books for children, &c.

Compilers are those who are engaged in collecting from multifarious sources, often unapproachable by the general public, stores of information, which they afterwards condense and prepare in a form suitable for popular use. Owing to the great demand that exists for works of reference of every description, this class of writers has increased largely of late years. They, and, indeed, all literary men, possess a valuable storehouse of information in the British Museum Reading-room, where reference may be made to any of the works contained in the grandest library of the world, and where the comfort and requirements of readers are most carefully studied. A ticket entitling the holder to daily admission to the reading-room (which is open from nine till dusk) may be obtained on application to the chief librarian, every such application being accompanied by a written recommendation from a clergyman, magistrate, or other responsible person.

Translators, as the term implies, are those who are employed in making translations of the works of foreign authors. They must, of course, have a thorough knowledge of foreign languages, so that none of the idiomatic phrases may lose their true purport, or be misinterpreted in the process of translation; and, in addition, they should be possessed of a fluent style, and some power of application, as it often happens that the work to be translated must be published with great speed, or a rival publisher may be first in the field, and altogether occupy the market.

Journalists are those writers who are connected with the newspaper press—leader writers, special correspondents, reporters, &c. A successful journalist must have a wide and comprehensive knowledge of men and affairs, and a ready pen, as his articles or reports must generally be written against time, often without any possibility of reference to authorities.

Full particulars as to the various means by which an author may issue his work to the public will be found in another place (*see* PUBLISHING); it may, however, be said that the periodical literature of the present day affords many opportunities to young authors of making a start in the profession, allowing them to some extent to gauge their own merits, and the probability of ultimate success, before taking any final and irrevocable steps. (*See* MAGAZINES.)

From a remunerative point of view the literary profession stands perhaps on a *par* with others of the same class, where success depends in a great measure upon individual talents and

industry. Great prizes are, indeed, to be drawn, and *many* blanks; what proportion the blanks bear to the prizes we should be afraid to say. Although the profession has vastly improved for the better since the times of Goldsmith and Johnson, although these are not the days of Grub Street penury and starvation, yet even now many and many a poor author, who depends entirely upon his pen for his living, drags out a bare subsistence in wretchedness and discomfort. The public are far better patrons than the old *régime* of nobles and men of wealth; but it should be always remembered that not every one who takes his pen in hand can catch the eye of the public, which resolutely refuses to pay for whatever does not please it. Never has there existed a greater mistake than that which is constantly being made, that when all other sources of livelihood fail, literature may be adopted. Successful authorship, even of the lowest class, demands a fair amount of talent, at any rate.

Authority signifies legal power or right to act or rule; warrant; control; credit; testimony; credibility; orthodox opinions and sayings; executive government, &c.

Autocracy (from two Greek words meaning "self-power").—Supreme and independent power and authority; the right of governing vested in a single person.

Autograph Albums.—In these albums are arranged the signatures of celebrated people. The custom of collecting autographs is not so general at the present time as it was fifty years ago. At that time they were more easy to obtain owing to the plan of "franking" letters which was then allowed. A letter was permitted to go free of postage if it bore the signature of a member of Parliament on the left-hand corner of the address. Consequently many autographs were written, and when the letter had passed through the post, it usually took its place in some autograph album. Large sums have been and are now paid for the autographs of famous men and women. One hundred pounds was given for that of Shakespeare, which is now to be seen in the British Museum. People who are particularly interested in studying different styles of handwriting frequently buy lithographed fac-similes. The word autograph is from two Greek words meaning "self-write."

Automaton and Automatic.—The word automaton is derived from two Greek words signifying "self-moved." Amongst the earliest examples of automata with which we are acquainted are those mentioned by ancient Greek writers, the real character of which we have not, however, sufficient evidence to show. Aristotle alludes to automata, and Plato mentions the walking statues of Dædalus. Homer makes mention of the tripods which advanced seemingly of their own accord to be made use of, and then retired. The Romans had androides at their shows, which appear to have been put into motion by the concealed action of quicksilver, and were made, in the way yet practised amongst the Chinese. Roger Bacon's speaking head, the pigeon capable of taking a short flight, which Archytus of Tarentum made four hundred years before Christ, the clock of Charlemagne, the machine which opened the door of its inventor, Albertus Magnus, when any one knocked thereat, with the eagle and the iron-fly of Regiomontanus, are amongst the earliest recorded examples of self-moving machines. In more recent times we have had Dr. Hook's flying chariot; the automata constructed by M. Camus for the amusement of Louis XIV., consisting of a lady in a carriage drawn with horses, who, when the latter came to the king and stopped, alighted, and presented a petition to his Majesty; the automaton actors mentioned in the "Memoirs of the Academy of Science" (1729), who went through a five-act piece in pantomime; and the flute-player of Vaucanson, exhibited by its inventor at Paris in 1738. Vaucanson was afterwards the inventor of a figure which played the flageolet and the tambourine, and a mechanical duck which had movable wings, with bones and viscera, and which not only imitated the sounds made by a real duck, but took food, and by means of chemical action in its stomach seemingly digested it. M. Mælsel exhibited at Vienna an automaton trumpeter, which played various tunes; and M. Le Droz, of La Chaux de Fonds, made several very curious pieces of automata, one being a clock, presented to the King of Spain, which consisted of a sheep that bleated like the natural animal, a dog watching a basket of fruit, which snarled and barked at those who attempted to remove it, and a variety of imitative human figures which did other wonderful things. He also constructed a figure which executed various portraits and mechanical drawings with much seeming skill and singular precision. Mr. Fabian invented a speaking machine, which he called Euphonia, and which consisted of a draped bust and waxen-faced head, which, acted upon by an arrangement like that of the key-board of a piano, articulated words. A small pair of bellows attached to the back part of the figure, and governed by the keys, conveyed the air to the arrangement of india-rubber and other organs, which emitted the sounds, and when the exhibitor wished to produce a word or sentence, he first divided it in his mind into the various distinct sounds by which it was expressed, and then pressing the requisite keys. In 1845, Mr. John Clark, of Bridgewater, after thirteen years of study and labour, completed a very remarkable automaton machine, which he called a Latin Versifier, concerning which there was at the time many jokes perpetrated. The idea of a machine being a poet was indeed at the first blush of the idea not a little startling. Specimens of Latin hexameters produced by this machine were printed in the *Athenæum* and other public journals of that time. The exrior of the machine by which these lines were composed was in form and size not unlike a small bureau bookcase, in the front of which was a small aperture at which the verses were made to appear one after the other as they were composed. Mr. Clark described his machine as neither more nor less than a practical illustration of the law of evolution. The letters in the machine being arranged alphabetically, were selected through the medium of

numbers rendered tangible because they were expressed by indentures on wheelwork, and to use the inventor's own words, "the instrument selects such as are requisite to form the verse conceived, the components of words suited to form hexameters being alone previously calculated, the harmonious combinations of which will be found to be practically interminable." At the time these words were published, Mr. A. J. Cooley pointed out that in an old pamphlet, then a century and a half old, its author had shown how from a given table millions of hexameter lines might be produced by accumulations of words, in reply to which it was shown that by Mr. Clark's machine the lines were built up not in words but in letters. An automaton letter-writer was exhibited in 1769, but this was afterwards discovered to be worked by a concealed confederate and a pentagraph. About 1819 a remarkably ingenious machine called the automaton chess-player was introduced to the British public, but this was afterwards shown to be managed by a cleverly-concealed lad. In 1871 another talking machine was exhibited in London. It was in the form of a man's head and body, and like its predecessor was worked from behind with a pair of bellows, which inflated some carefully-constructed lungs. The figure, which was constructed of wood and india-rubber, had a movable mouth and tongue, in imitation of the human organs, the movements of which regulated the sounds, and were governed from a key-board having fourteen keys, to represent the fourteen principal letters, others being formed out of them by closing or opening the wind-pipe more or less by regulating the pressure of air. In pronouncing many letters we make the same movements with the lips, as in *m*, *b*, *p*, and *d*, *n*, *t*. Inside the wind-pipe the inventor had placed an ivory plate covered with india-rubber, in the position it would occupy in a flageolet. The air when admitted to the wind-pipe caused this to vibrate and produce sounds which the movements of the lips and tongue transformed into letters, syllables, and sentences. This machine also laughed, sobbed, sighed, whispered, and spoke in various languages. The latest and most wonderful of automaton figures is, however, that which has been exhibited for some years past at the Egyptian Hall, the mysteries of which have so long baffled investigation.

Autonomy (from two Greek words meaning "self-law") signifies in regard to States self-government, as opposed to being tributary or subject to another State or kingdom. As applied to individuals, it means living according to one's own law.

Autopsy.—Ocular inspection or demonstration; the seeing a thing with one's own eyes. This is a word of Greek origin meaning literally "self-sight," and is now but rarely used.

Autumn Leaves, To Preserve.—Gather a collection of the brightest-tinted leaves that can be found, such as the red beech, the sumach oak, fern-leaves, &c. Those approaching scarlet and yellow will be the most effective. Smooth every leaf on the wrong side with a hot iron, holding it down for a minute or two. Any leaves that are not flat should be soaked in water, then oiled on the right side. Take a number of fine wire stems, and fix every leaf to a stem. Lay the leaf over the wire, which should extend the entire length of the leaf, to support it. The leaf is attached by its stalk to the artificial stem. Use for this the fine green-covered reel-wire necessary in wax-flower making. Afterwards cover the stems with green tissue paper, or brown Berlin wool, and join them together in sprays. The individual leaves on each spray must be of the same kind and colour. Afterwards mix and arrange the sprays according to taste. Vases and dinner-ornaments may be very prettily filled with leaves thus preserved.

Avadavat.—An East Indian bird, frequently kept by the natives in cages on account of its handsome plumage.

Aventurine, or Avanturine, is a vitreous variety of quartz, usually of a pearly-grey, brown, or reddish-brown colour, and contains minute particles of mica, which give it a sparkling appearance. It is not very transparent, and is not much used for jewellery. It is found in Europe and in Asia, and makes pretty cane-handles, snuff-boxes, and such-like. One sort of aventurine is more valuable, and owes its glittering appearance not to mica, but to small quartz crystals scattered through it, the colour being generally a greenish-white, but sometimes reddish-brown. Other substances are sold under the name, but while the effect is similar the composition is different, some being merely felspar, and of very little worth. The sunstone is a variety of aventurine: it is yellow, rare, and very beautiful.

Aventurine, Artificial.—This is a compound of ground glass, oxide of iron, and protoxide of copper in certain proportions, the ingredients being slowly fused together and afterwards gradually cooled. It is more beautiful than the real stone, and can be made in masses out of which splendid vases, &c., can be cut. Mr. Emanuel says the Emperor of Russia presented to Sir Roderick Murchison two large vases of this material.

Average.—A medium or proportion, as when goods or stocks are bought or sold at varying prices, the mean price of the whole is said to be their average price. This word has a special signification in shipping matters and denotes the contribution which merchants and other owners make towards the losses of those who have their goods submerged for the safety of the ship, or of the live and other goods therein. It is proportioned, *i.e.*, averaged, after the rate of each person's goods conveyed.

Aviary.—A place set apart for breeding and propagating birds. The name is also applied to a cage on a large scale, in which birds are kept for pleasure. The birds kept in aviaries are such as do not come under the description of poultry, such as gold and silver pheasants; partridges; quails; red, black, and wood grouse; turtle-doves and the rarer pigeons; Muscovy ducks; Canadian geese; bustards; gulls; curious varieties of the fowl; song-birds, &c. The arrangements connected with an aviary depend of course on the number and habits of its inmates, the climate suited to them, and

other circumstances. A large aviary requires an enclosure of some extent—perhaps an acre or two—and in this must be the various houses for the different kinds of birds; these may be small rustic structures, provided with the conveniences of roosting-places, nests, &c. (*See* BIRDS.)

Avoidance.—The act of avoiding or carrying off. It has also a special ecclesiastical signification, and denotes that a particular appointment or benefice is vacant by an avoidance of the same—that is, by the death or removal of the late incumbent.

Avoirdupois is the name of the system of weights and measures which in Great Britain and the United States is applied to all goods except precious metals and medicines. The pound avoirdupois contains sixteen ounces, while troy weight has only twelve. The following is the usual table:—

27$\frac{11}{32}$ grains . . .	1 drachm
16 drachms . . .	1 oz.
16 oz.	1 lb.
28 lbs.	1 quarter
4 quarters . . .	1 cwt.
20 cwt.	1 ton

Award. (*See* ARBITRATION.)

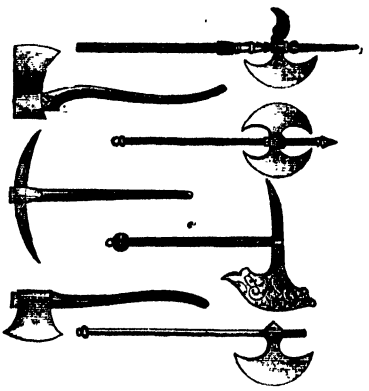
Awl.—A small steel piercing tool, with a wooden handle. Awls vary in form with the work for which they are required. The bradawl is a very simple implement indispensable where small holes have to be made in soft wood. Properly used, its edge should be applied across and not in a line with the fibres of the wood, so that it cuts a fair clean circular hole instead of merely forcing a passage by thrusting itself between the fibres. Bradawls are not fitted for cutting holes in hard wood, for which purpose gimlets are used. The cobbler's awl not being driven by the hammer or mallet, as bradawls usually are, is curved, so that a twist of the wrist when it is held in the hand at once puts it through the leather.



COBBLER'S AWL.

Awning.—Awnings are formed with canvas, used by way of roof over the deck of a vessel or small boat, or in other ways as a shelter from sun or rain, and are usually more or less of an ornamental character.

Axe.—Referring to the curious antique tools of flint used by our rude old forefathers, we perceive that the oldest of all tools, the axe, has undergone but little change in form. Formidable as a weapon, and extremely useful in felling and roughly shaping out timber, its changes have rather been those of material and use than otherwise. The ancients attributed its discovery to Dædalus, the Athenian, a prince who was famous for many other extremely ingenious inventions. Workmen vary in their opinions as to the qualities of this tool, its weight, edge, length and width of blade, form of shaft, &c. It should be sufficiently strong and heavy for occasional use as a small sledge-hammer; the blade should be about five inches in width, and the shaft, made of a young ash, should be straight, not too round, and sixteen inches clear of what is called the eye. The flat egg-shaped shaft gives the hand a firmer grip, and the curved shaft is weaker than the straight



ANCIENT AND MODERN AXES.

one. It is a dangerous tool for the unskilful to use, and every workman remembers the wounds his left hand bore before his right hand acquired its cunning in the use of his axe.

Axilla.—This word is a diminutive of axis, a little axis. (*See* AXIS.) In anatomy the axilla or ala is the cavity under the upper part of the arm, commonly known as the arm-pit. By the ancient laws criminals were to be hanged by the *axilla*, if they were under the age of puberty. In botany, the axilla or axil is the space comprehended between the upper side of a leaf and the stem of the plant from which it grows. (*See* LEAF, STEM.) Buds usually spring forth in the axils of leaves, and flowers or flower-stalks (peduncles) growing from the axils or base of the leaves are termed axillary. (*See* FLOWER, PEDUNCLE.)

Axis.—Speaking generally, an axis is a straight line passing directly through the centre of anything, and about which revolution might take place. In architecture, the axis of a pillar, column, &c., is an imaginary line through its centre. In mechanics, the axis is a line through the point about which a body moves; thus, the axis of a lever is the fulcrum, the axis of a balance is the line upon which it moves, the axis of a wheel is the line through its centre about which it rotates. The axis of rotation of a solid is the line about which it revolves when actually in motion. In geometry, the axis is that straight line in any plane figure about which it revolves to produce a solid; thus, a semicircle revolves about its diameter or base (the axis) and produces a sphere. The axis of a circle or sphere is any line drawn through the centre, and terminated on each side by the circumference. The axis of a cylinder is the line which joins the centre of the two bases. The axis of the earth is its shortest diameter—an imaginary line through the centre of the earth from north to south, about which it is supposed to rotate once every day. The magnetic axis of the earth is an imaginary line through its centre joining the north and south magnetic poles. (*See* TERRESTRIAL MAGNETISM.)

Axle.—The axle is part of one of the simple mechanical powers; the wheel and axle, a machine consisting of two cylinders with a common axis, the axle being the smaller, and the wheel the larger of the two. (*See* WHEEL.) The axle of a vehicle (often called its axle-tree) is the transverse bar upon whose ends the wheels are placed. Most wheels revolve on the spindles of their axles, but in some cases they are fastened to and rotate with their axles. As long as vehicles of any description have existed, axles or axletrees seem to have formed an important part of them. In the early ages, the rough carts and chariots had for axles small trees with the branches lopped off, but often left unbarked—hence the origin of the term axletree. The early forms of axles comprised the axletree simple, two spindles and their lynch-pins, and so indeed they have remained until modern times, when many improvements have been introduced.

Axminster Carpets.—There are two classes of these carpets, the real Axminster and the patent Axminster. The former are hand-made, and therefore expensive; they cost about two guineas per yard. They somewhat resemble Brussels in appearance; the distinction is that Brussels has loops on its surface, whereas the loops are cut in Axminster carpets, and thus a thick, soft pile is formed. Like Brussels, they are made in breadths. They are no longer made at Axminster, but at Wilton, near Salisbury, by which name they are beginning to be known. The patent Axminster carpets are machine-made, and therefore are comparatively inexpensive. The pile on these carpets is not so deep nor so thick as that on the real Axminster. They are manufactured principally at Glasgow and Dewsbury.

Axminster Rugs.—These expensive rugs are only made to match the patterns of the carpets which have been made by the same hands. Patent Axminster rugs are manufactured in great numbers and varieties of style and pattern. They can be bought for a sovereign and upwards, according to the size and quality.

Ayah.—The native women of India who act as nurses to European children are called ayahs, which is the Indian name for nurse. They are exceedingly patient with and untiring in their efforts to amuse their young charges. Kindness to the young and the sick is a valuable trait observable in the character of the native women of India; on the other hand, it has been alleged that children under their care are apt to become very helpless, and some have said, very untruthful.

Aylesbury Butter. (*See* BUTTER.)

Aylesbury Ducks.—Aylesbury, in Buckinghamshire, has long been celebrated for its ducks. They are reared there in countless numbers for the London Christmas Market. The most profitable and handsomest of all our English ducks is the fine white Aylesbury breed. They are also found to be the earliest in laying and sitting.

Azalea.—The azalea is an upright shrub of the Camellia tribe, and much grown, from the great variety and colour of its blossoms; it is now brought into a high state of cultivation, and in most gardens the flowers are large and showy, rising in large clusters from the terminal heads. They are largely cultivated as ornamental shrubs on account of the abundance of their flowers, and the fragrant smell of most of their species. These are grown from cuttings struck in peat, and removed from time to time to various sized pots as they may require; they must be kept from winter frosts, but an ordinary greenhouse will suffice, although a gentle heat in the spring will produce a greater abundance of flowers. A light rich soil is best suited for them, composed of old rotten stable manure, peat mould, yellow loam, and silver sand, the latter only added for draining purposes. After the blossoms have died away, the plants may be kept in the open air till the month of November, after which time they should be protected by glass.

Azote.—The old name for nitrogen (*which see*). It was called azote (from two Greek words meaning "absence of life") because this gas when unmixed is destructive of life, although it is the principal ingredient of atmospheric air.

Azotised.—A term applied to those organic substances in which nitrogen forms one of the elements.

Azure.—In the general sense azure signifies the hue of the sky when unclouded. According to painters it is blue of a greenish tint, prepared from *lapis lazuli*, called ultramarine; and also that bright blue colour produced from the *lapis armenius*, called Lambert's blue. Azure in heraldry is the blue colour in the armorial bearings of all persons below the rank of a baron. It is termed sapphire in the escutcheon of a nobleman, and Jupiter in that of a sovereign prince. To describe this colour in engraving, lines are drawn horizontally. A robe of azure was worn by the second order of Druids, the sacred bards, being emblematical of peace. The colour azure has been used by painters from the earliest days of art as the symbolic colour of our blessed Lord's mother. Light blue, or azure, signifies constancy, divine contemplation, piety, truth, and peace.



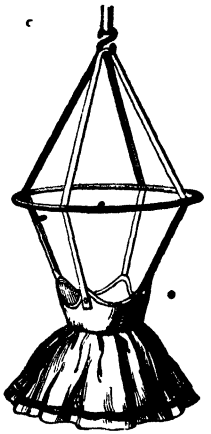
AZURE.

B

Baby. (*See* INFANT.)

Baby-jumpers are contrivances intended to assist children in learning to walk, but like most artificial aids of the kind, they frequently fail in their object, and sometimes do more harm than good. A baby-jumper is an apparatus constructed to bear the weight of the child, by means of straps which are fastened round its body and attached to something above its head. The design is to assist the child to feel its feet. The danger arising from their use is that the weight of the body being thrown upon the shoulders and chest mainly, malformation may

possibly be induced. When these jumpers are discarded, children who have been accustomed to their use are frequently much more nervous



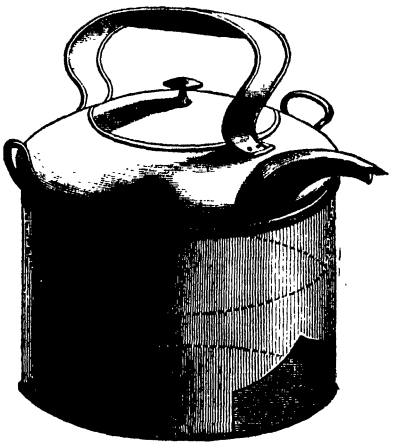
BABY-JUMPER.

in their first attempts to walk alone than are those upon whom they have never been tried.

Baby-linen.—The term baby-linen comprises every article worn by an infant. They consist of chemises, night-dresses, long flannels, flannel squares, head-flannels, large flannel square, robes, plain frocks, long petticoats, bibs, pilches, mackintosh pilches, flannel binders, diapers, woollen boots, hood, cloak. The chemises consist of lawn, at eighteen-pence a yard. Cambric would be equally suitable for those who can afford it. A yard and three-quarters will give sufficient material for half-a-dozen lawn chemises. The same number of night-dresses will be required, which would be made of long-cloth, at ninepence or tenpence. About two yards would be enough for one. The long flannels, of which there should be four, can be made out of as many yards of material, of the make called "Saxony." The binders are made of fine Welsh flannel, at three shillings a yard. To make four one yard will suffice. The width should be such as cover the infant's body, reaching to underneath the arms. They must have no hem, nor any binding, but be left with a raw edge, and should be sewn on; the hand being inserted underneath it, to preclude the possibility of scratching the child. The diapers can be obtained at eightpence a yard; two dozen of which are absolutely necessary, three preferable. The robe should be of fine nainsook, at from half-a-crown to three shillings a yard, according to the width. A full-dress robe is about a yard long in the skirt, and five and a half inches in the depth of the body. They can be purchased at fourteen or fifteen shillings ready-made; and they are very pretty in style. The long petticoats are made of fine, thin, soft long-cloth, at about ninepence or a shilling a yard. For half-a-dozen petticoats eleven yards will be enough. The frocks (long) should be of fine dimity or cambric muslin. Three yards of material will suffice to make one. There ought to be two breadths in each skirt of a yard and a quarter long; the body will be nearly a quarter of a yard deep, and the sleeves and band will cut into another quarter, widthwise. Thus, eighteen yards of dimity will be ample to make half-a-dozen frocks. (*See* CLOTHING FOR CHILDREN.)

Bachelor.—The term bachelor has been used at various periods to denote—(1) a person who cultivated certain portions of the church lands; (2) ecclesiastics of a lower dignity than the ordinary members of a brotherhood, or monk-probationers; (3) persons in the probationary stage of knighthood (*see* KNIGHTS BACHELORS); (4) those who have attained the first step in academical honours, the title having been first introduced in the University of Paris in the thirteenth century (*see* ARTS DEGREES); and finally in its more popular meaning, an unmarried man, as a probationer for matrimony.

Bachelor's Kettle, or Bachelor's Tea-kettle.—This is a very useful invention, and resembles an ordinary tea-kettle, somewhat flattened in the shape at the top. The lower portion drops into a cylindrical



BACHELOR'S KETTLE.

outer case open in front at the bottom, between which and the kettle a spirit-lamp or bundle of patent fuel is placed. By means of this contrivance water may be easily boiled in a few minutes. Another advantage of this kettle is a great economy in fuel, as by this means the unpleasant necessity in summer-time of keeping the fire in on purpose to obtain boiling water is obviated.

Back-pains, To Relieve.—Pains in the back are in most instances caused by either rheumatism, gravel, indigestion, or debility. They are also one of the most marked symptoms of incipient small-pox. When due to the first three causes they are best relieved by the warm hip or reclining bath, by a brisk aperient, and by rubbing the back well with a liniment composed of equal parts of soap liniment, compound camphor liniment, and laudanum. From fifteen to twenty grains of bicarbonate of potash in an ounce of cinnamon or peppermint water, taken three times a day for a short period, will

be found useful for adults. Children very rarely suffer from these pains, but, when they do, the most frequent cause is debility. For this condition, iron and quinine are the best remedies, and a plaster may, with advantage, be worn over the loins for three or four weeks. When small-pox is prevalent, severe pain in the back, especially if it is accompanied by nausea or vomiting, and perspiration, may be symptomatic of that disease. (*See* LUMBAGO, RHEUMATISM.)

Backgammon.—This is the modern name of a game for two people of considerable antiquity in England, where it was formerly known as "the tables." The words back-gammon have been ascribed to the Welsh tongue, in which they are said to signify little battle; but with greater plausibility they have been traced to the Saxon *bac* and *gamon*—that is, back-game; so denominated because the pastime consists in the two players bringing their men back from their antagonist's tables into their own, or because the pieces are sometimes taken up and obliged to go back—that is, re-enter at the table they came from.

The apparatus required for backgammon consists of a board or table, men or pieces, dice and dice-boxes. The introduction of dice into the game, and their constant use in determining moves, makes backgammon essentially a game of chance, so players of unequal talents are brought nearer a level than in other diversions in which skill is the sole or predominant element. The board consists of two parts, generally united by a hinge in the middle, by which they can be shut up as a box. Each table possesses twelve points, six at each end. Each player has fifteen men, one set of fifteen being black and the other white.

Strutt, in his "Sports and Pastimes," says, "At the commencement of the past century backgammon was a very favourite amusement, and pursued at leisure times by most persons of opulence, and especially by the clergy, which occasioned Dean Swift, when writing to a friend of his in the country, sarcastically to ask the following questions:—'In what esteem are you with the vicar of the parish? can you play with him at backgammon?'" It is at the present time practised to some extent as a fireside amusement of a decorous and yet exciting nature.

Bacon as Food.—Bacon is the flesh of swine, salted, dried, and often smoked also. The word is usually applied to the sides and belly of the animal. The process of converting pork into bacon varies in different countries, and even in different districts. The following is the plan most usually adopted:—The pig, after being killed, is hung up by the hind-legs, singed, scraped, opened, cleansed, and left for a few hours until it is firm and cool. It is then cut up, the head, the fore-feet, and the hind-feet are removed, it is divided in halves straight down the back, and the shoulder-blades are taken away. The meat is now well rubbed with bay-salt, and is left to drain if it is to be dry-salted, or placed in a tub and closely covered if it is to be wet-salted. After a few days it is rubbed again, this time with a mixture of salt and saltpetre, to which sugar is sometimes added. About a week after this it is generally ready for drying and for smoking. Bacon is used as food in most countries, but especially in England and America. It is largely imported into England from America, and from the colonies, and it is extensively prepared at home. Yorkshire, Hampshire, Berkshire, and Wiltshire are the counties most celebrated for it in England; Wigton, Dumfries, and Kirkcudbright in Scotland.

The working people in England esteem bacon more highly, and pay a higher price for it, than members of the same class in any other country. When bacon has been properly prepared from young and well-fed animals, it constitutes a wholesome and decidedly palatable food. As a rule, cured meats are less digestible than the same meat when fresh; but bacon is an exception to this. Its fat is certainly less likely to produce disorder of the stomach than the fat of fresh pork, besides which it contains only a small proportion of water, and is a very heat-giving food for cold and temperate climates. It also suffers less waste in cooking and is more satisfying than fresh meat. Bacon is especially suited to afford a relishing accompaniment to bread. The best way of cooking it, both to make it digestible and to preserve its peculiar flavour, is to cut it into rashers, and to toast these before the fire. Fried bacon is both strong and unwholesome. Boiled bacon should be cooked slowly and with plenty of water. Those who object to boiled bacon served cold may with advantage have it cut into slices, covered with bread-crumbs, and toasted in a Dutch oven. Indeed, it is most important, not only that bacon should be thoroughly cooked, but also that it should be purchased of a respectable dealer who may be trusted to offer for sale those animals only that have been properly fed. Pigs which are permitted to devour any food, foul or otherwise, that is within their reach, are liable to become trichinous, that is, to be infected by a thread-like spiral worm (*Trichina spiralis*), and when in this condition those who partake of the flesh, even though it has been thoroughly salted and smoked, may become victims to a painful and horrible disease named trichiniasis. (*See* TRICHINIASIS.) In addition, cured bacon which has been exposed to the air is liable to become rancid or rusty. As a preventive, the bacon ought to be kept in dry bran. It is also subject to the attacks of a small fly, the larvæ of which are known as jumpers. The presence of trichinæ can only be discovered by a powerful microscope. As far as anything else is concerned, however, it is easy to tell whether or not bacon is good. If so, it will have a thin rind, the fat will be firm and pinky white, the lean will be of a pleasing red, and will stick closely to the bone while raw; and, in addition, the bacon altogether will have an agreeable odour.

Bacon Beetle.—The popular name of the *Dermestes lardarius*, a small beetle which is best known in its larva or grub state, when it is apt to do serious mischief to bacon, hams, and other dried meats, and sometimes to cheese. The fully-formed beetle is about three-eighths of an inch in length, with short antennæ, and six

legs. The general colour is black, but the end of each wing-case is grey or ash-coloured, and dotted with black spots. This pest is most effectually put down by destroying the perfectly-developed beetles whenever they are discovered. Other varieties of *Dermestes* occur, and the most important of them to us are mentioned under that head.

Badger.—This animal, *Meles vulgaris* or *Ursus meles*, is a native of nearly every temperate climate in Europe, Asia, and America. It measures about two feet and a half from the snout to the end of the back. The body is thick, the legs short, and the fore-feet have claws. It is a solitary animal, residing in woody districts, and burrows deeply in the ground, making long passages. It is carnivorous, and when attacked, turns on its back and fights bravely. In winter it is very torpid. The flesh makes good hams; those of South America were considered so excellent that the sale was forbidden to all but the viceroy, who sent an annual present to Madrid for the royal table. It is a very cleanly animal, although it



THE BADGER.

has a bad odour. The female produces her young once a year, three or four at a time. It is easily tamed when young, and will follow its master about the house, and play with the dogs. It eats roots, plants, worms and insects, eggs, fruit, fish, flesh, &c.

Badger Skin.—The hair is long and rough on the back and sides, but shorter on the throat, breast, and stomach. It is of a dirty greyish colour, the legs, stomach, and a portion of the neck being blacker. There are clearly-defined stripes of white on the neck and head to the snout, from the shoulder. The coarse hair is used for brushes; the skin converted into dog-collars, and used for horse-trappings, &c. It is also used for pistol furniture. The American species is commonly called the "Ground Hog." The Cape Badger (*Hyrax Capensis*) produces the *Hyraceum*, proposed as a substitute for *Castoreum*; but Pereira considered it to be useless.

The skin of the badger is divided into "parchment," or that of the old animals; and "cub," or those of the young. The latter are the finest, but less in value compared to the former on account of their smaller sizes. The capture of the young is now prohibited. The musquash is a species of diminutive beaver, found principally in the vicinity of Hudson's Bay, and the fur is of inferior quality. The skins imported from South America come chiefly from La Plata.

Badges.—This word is in general used to anything worn as a distinctive mark or sign by the children of a school, the members of a society, the officers of a corporation, or the adherents of certain political and ecclesiastical parties. The national badge of England is formed of a red rose, a white rose, and a crown; that of Ireland is a harp and crown, or a shamrock and crown; that of Scotland is a thistle and crown; that of Ulster is a shield in gold, with a red hand upon it; and that of Wales is a winged red dragon on a green mount. Each of the great orders of knighthood has its badge. Badges occupy an important place in heraldry. The medals conferred on soldiers and sailors and others for deeds of daring and other noble actions are, properly speaking, badges.

Badminton (Game).—This game has been well called "Scientific Shuttlecock," since it is but the battledore and shuttlecock of childhood, rendered scientific by certain well-defined rules. On account of its greater popularity among ladies (lawn tennis, which it somewhat resembles, ousting it from favour with gentlemen) it has also been styled "Ladies' Rackets." Its more generally adopted title is said to have been derived from the fact that it originated at Badminton, the seat of the Duke of Beaufort. Badminton may be played either in-doors in the hall, or out-of-doors on the lawn, the latter place being, of



BADMINTON.

course, preferable in fine weather. The dimensions of the ground vary very much, according to the different opinions of the best authorities on the game, but they are unimportant as long as the true proportions are preserved. The ground is marked out as shown in the accompanying diagram, in the centre being an upright net, stretched from side to side of the ground. This net, which varies in height from four feet six inches to five feet, divides the

ground into two sides, each of which is further divided into two courts. These courts may be marked out by white cords, bands of white tape tacked down to the grass, or lines marked with chalk or whitewash. The implements used are the ordinary shuttlecocks, more or less loaded, and rackets slightly smaller than those used for lawn tennis. The game may be played by any number of persons forming equal sides, but it is much pleasanter when limited to four people. When the players are two or four in number, 21 forms the winning score, but when there are more than four, it is 29. With one or two exceptions, which we give below, the game is played exactly as at lawn tennis, and the rules for that game hold good. (*See* LAWN TENNIS.) In playing Badminton, all strokes are volleyed, *i.e.*, the shuttlecock is struck before it touches the ground. The "server" (equivalent to the "hand-in" at lawn tennis) must strike the shuttlecock *underhand*, the racket never being raised above the elbow; at all other times it may be struck either under or overhand. The service may be delivered from any part of the courts, provided of course that the shuttlecock be struck in a diagonal direction, *i.e.*, from left court to left court, and *vice versâ* (see ground plan).

Bagatelle.—A game played with ivory balls and striking cues or maces, upon a specially-constructed board or table. As a game of science and skill, bagatelle cannot for an instant be compared with billiards, which in some points it resembles (*see* BILLIARDS); still, as a game for the home, bagatelle possesses many advantages even over its more attractive rival, amongst these being the fact that in the majority of houses a bagatelle-table can be

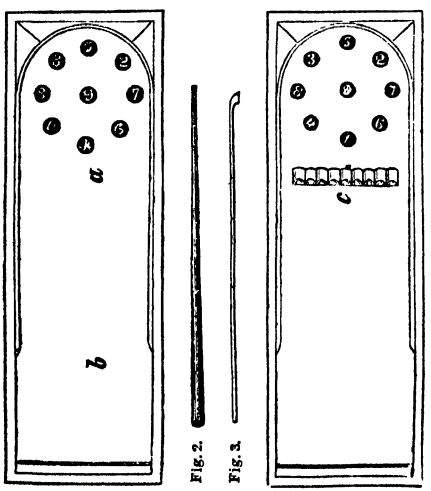


Fig. 1. Fig. 2. Fig. 3. Fig. 4.

BAGATELLE BOARDS.

accommodated when, on account of the greater space required, a billiard-table could not. Furthermore, the very fact that bagatelle is rather a game of chance than of skill, lends it an additional attraction where children and beginners are concerned, as it often happens that the worst player in a company may win the game. Bagatelle-tables are of many different sizes, varying from five to twelve feet in length, and from one and a half to three feet in width. The surface or bed of the table is of slate, covered with green cloth, and is square at one end and rounded at the other, being shut in on every side by india-rubber cushions. In this bed, and sunk level with the cloth, are nine holes or cups, marked respectively one to nine (see Fig. 1), and each of sufficient depth to admit exactly half of one of the balls. Along each side of the board are holes, from eighty to 100 in number, for scoring the games with pegs. Nine ivory balls, which should be all of equal size and weight, are used, *i.e.*, four white, four red, and one black. These balls are to be struck either with a cue (Fig. 2), or with a mace (Fig. 3), the latter being, perhaps, more easy to use. Several kinds of games are played on the bagatelle-board, those most usually known being the English (often called "La Bagatelle"), the cannon, Mississippi, and Sans Egal. The rules for each are as follows:—

The English Game.—This may be played by two or more players; where there are more than two they should be even in number, so that they may divide and make two equal sides. The black ball having been placed on a small white spot (marked *a* in Fig. 1) exactly in front of the first hole, one of the players places one of the other balls on another white spot at the other end of the board (*b*, Fig. 1). He then strikes this last ball up the board with either the cue or the mace, being careful in the first instance to hit the black ball, or there can be no score. The player then follows with the remaining seven balls, his object being to hole as many as possible; the numbers marked in all the holes filled up count to his score, and if he happen to hole the black ball, it counts double. The score having been marked, the black ball is replaced on its spot, and the second player commences. If there be several players, one on each side plays alternately. The actual object of the game may be either to see which player or side can first reach a certain fixed score, previously arranged upon, and generally once up and down the scoring-board; or a settled number of rounds may be played, that player or side winning whose score is the highest at the conclusion. It should be stated that when a fixed score decides the game, each side is entitled to an equal number of rounds with its opponent, so that no advantage remains with the one first playing. Any ball rebounding from the head of the table or the side cushions, and passing back beyond the centre line of the table, is considered dead and out of play, and as such must be at once removed. Similarly, all balls that are struck off the table, and all balls that are played up previously to the black ball being moved, must be removed from play. If there be more than two players, they may, if they prefer, all play against one another instead of taking sides.

The Cannon Game.—Here only three balls are required—a white, a red, and a black. The two players take a white or a red ball, as they may decide between themselves, and the black ball

is placed on its spot as in the ordinary game. One of the players then places his ball on a small spot between the five and the nine holes, and the other, placing his ball anywhere in baulk, plays to hit first the black ball and then his opponent's. Should he succeed, he makes what is called a cannon, and scores two, or any number previously decided upon. Sometimes the cannon game consists of cannons alone, and at other times the holes are also counted as in the ordinary or English game.

Mississippi.—This game is played with a bridge, in which are nine holes or arches, marked respectively 1 to 9 (see Fig. 4). This bridge is placed as far up the table towards the holes as possible. All the balls are played with, the black ball counting double or not, as may be decided upon by the players. The object of the game is, of course, to hole the balls, but an element of difficulty is introduced in the fact that a side cushion must be struck first, or otherwise the number scored is marked to the opponent.

Sans Egal.—This game is played by two persons only, who each take four balls—the one the white, the other the red—the black ball being placed on the usual spot. The first player strikes one of his balls to hit the black, and is followed by his opponent with one of his, and so on alternately. Each player counts towards his score all the balls of his own colour he is able to hole, and also the black ball if he hole it; but if he hole one of his adversary's balls, it is scored to his opponent. The player who is ahead in the first round generally takes the lead in the next. The game is generally 21 or 31, according to previous agreement.

Bagatelle-tables or boards should always be kept in a dry room, and where the temperature is fairly uniform. This rule is the more important when the bed of the board is of wood, which very easily warps, making the surface untrue, and preventing the balls from running evenly, and to the point to which they are struck.

Baggage.—The personal effects of a soldier in the army, and, strictly speaking, only what he can carry in his knapsack, are styled baggage. The exceptions relate to married soldiers and certain officers.

In ordinary parlance, the word is used of the clothing and other conveniences which a traveller carries with him on a journey. (*See* LUGGAGE.)

Bagging (Fabrics).—The materials in general use for this purpose are baize, flannel, black and white linen, brown holland, prints (calico), muslin, carpet (tapestry and Brussels), American cloth, gutta-percha, oil-silk paper, silk, twine, leather, piqué, black alpaca, and the strong woollen-corded material known as Russell cord, canvas, and sacking.

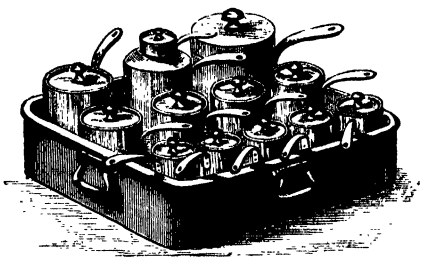
Bags for Linen, &c., are usually made of unbleached linen or brown holland. They should be one yard in length, with two breadths of linen in each bag, and a strong tape drawing-string at the top. Boot and shoe bags, bags to contain fur jackets and cloaks, are also made of these materials, and bags to hold side-saddles, for use in the harness-room. Clothes-pegs, tapes, string, and buttons should all be provided with holland bags, in every carefully-appointed household. Gold and silver plate is usually kept in baize bags, which are sometimes shaped to the articles they are intended to hold. Carpet bags for use in travelling are made of Brussels and tapestry carpet, American cloth, and leather. Woven felt and flannel are used for sand-bags, to prevent draughts at doors and windows, and for jelly-bags; the former can be purchased ready for use. One yard of flannel is required to make a jelly-bag, which is doubled like a half-handkerchief, and the sides sewn together, forming a point. The top should be hemmed, and has three or four loops of tape sewed to it, to hold it to a frame or chair. Sponge-bags are made from gutta-percha and oil-silk. Muslin bags are used to hold lavender-stalks and flowers, for scenting closets and drawers. Bags made from paper are used for dried herbs, hams, and to keep feathers in. Embroidered and braided bags, of piqué, crash, and brilliant, generally called "sachets," are used to hold brushes, combs, and night-dresses. Sportsman's game-bags are made of leather and twine-netting mixed, and coarse canvas and sacking are used for the heavier purposes of farm and household—*i.e.*, grain, oats, wheat, and flour-bags. Lastly, we must not forget the useful waterproof bags, which are sold for use on long voyages, in hot, damp climates, to prevent mildew and damp. During the late Arctic Expedition these bags were carried for sleeping in, and very successful they proved—the idea being taken from the Eskimo, who have always slept in bags of skins, with the fur turned inside for warmth. Lawyer's bags are made of a strong corded woollen material called Russell cord, or alpaca.

Bail (*Ballium*).—The freeing or setting at liberty one arrested or imprisoned upon civil or criminal process, under security taken for his appearance. Police magistrates have a considerable discretion in admitting persons charged with offences "to bail." The word is also used to indicate the people who act as security, and each bail must be ready to prove himself upon oath to be worth double the amount of the security. A man bailed is liable to be taken at any time by his bail, and given into custody and committed to prison. As a general rule no notice of bail is required, but justices may give orders to the prosecutor to have twenty-four or forty-eight hours' notice of bail.

Bailiff, Bailiwicks.—The word bailiff is variously applied, viz., to an officer whose business it is to execute arrests, to an under steward of a manor. Sheriffs are also called the king's bailiffs, and their respective counties their bailiwicks (a French term of territorial division). Persons in charge of castles, forests, and estates are also termed bailiffs, as the Bailiff of Dover Castle, &c. The chief magistrates of certain jurisdictions are also called bailiffs, as the Bailiff of Westminster, &c.

Bailment.—A delivery of goods in trust or agency, on contract that the same shall be truly executed on the part of the bailee, and the goods re-delivered as soon as the time for which they were in bail shall have elapsed, or the use been performed.

Bain Marie.—This is a hot-water bath in which various culinary preparations which are not to be served immediately may be kept hot until required. Sauces, stews, &c., which are allowed to remain simmering by the side of the fire after they are done enough, are liable to be either smoked, burnt, or rendered flavourless, whereas, if they were put into a Bain Marie, they would be simply kept hot and nothing more. The vessel, which is usually made either of copper or of block tin, should be half filled with boiling water, and then placed on a hot plate or by the side of the fire, in order to keep up the heat of the water, when the saucepan containing the preparation, closely covered,



BAIN MARIE PAN.

may be put into it. A basin or pan with boiling water may be converted into a Bain Marie when the vessel itself is not at hand. The name (Mary's Bath) originated as follows:—A Jewess of the name of Mary, who lived in the fourth century of the Christian era, and who was an alchemist, wished to discover some method by which she could retain the heat of the vessels in which she made her experiments at an equal temperature for a considerable time. She adopted the plan of plunging them into a bath of heated sand. Our modern hot-water bath is an imitation of the hot-sand bath. It should be remembered that a Bain Marie is not intended to cook anything—it is only to keep them hot. The water, after the saucepans are put into it, should not be allowed to rise beyond 212° Fahr.

Baize. — A course, woollen material, or species of flannel of an open texture, having a long nap. Sometimes it is fringed on one side, but not invariably so; this is dependent on the use for which it is designed. The Flemings first introduced it into this country, together with serges, &c. It is usually dyed green, but sometimes in other colours, and is used for a great variety of purposes, such as window-blinds, coverings for tables, and bags for musical and other instruments, linings, lawyers' and tradesmen's bags, &c. A considerable quantity is exported.

Baking is the process of cooking food by placing it in a closed oven. It is a most convenient and economical method of dressing certain dishes to which it is suited, amongst which may be mentioned pastry, cakes, and various puddings, hares, sucking pigs, legs and loins of pork, breasts or fillets of veal, geese, ducks, &c. Large pieces of beef and hams are also excellent when baked—that is, if they are put into a glazed earthen dish, with about a pint of water, and covered over with three or four folds of writing-paper. Gravy and stock may be advantageously baked in the oven if put into a jar with a closely-fitting lid. When a good oven does not constitute part of the kitchen arrangements, a very fair one for a bird or a small piece of meat may be made out of a common saucepan which has a closely-fitting lid. The food should be rubbed over with butter, and a little more butter be put into the pan with it; it should then be put over a slow fire, and be basted and turned occasionally. Many persons object to the flavour of baked meat. The peculiar taste which it certainly has arises from the fact that the fumes which arise cannot be carried off in a closed oven as they are when the meat is turning in the open air before a bright fire. Ordinary dishes require similar treatment when they are baked to that which is given them when boiled. A baking dish ought not to be less than an inch and a half deep, in order that the joint may be partially covered, and thus may not become dry and hard. When the oven is very hot, the meat or cake should be covered with a sheet of greased paper, in order to keep it from being burnt. The door of the oven should not be allowed to remain open when anything is being cooked. If the heat is found to be too great, the fire should be lessened.

Baking Powders are chiefly used as a substitute for yeast in making bread, and to save butter or lard in making cakes and pastry. A spoonful or two of the powder is mixed with the flour just before the cold water is added, and the preparation is baked as quickly as possible afterwards. Baking powders are generally made of tartaric acid and carbonate of soda, mixed with arrowroot, potato-flour, or ground rice. The ingredients should be dried perfectly before they are mixed, and afterwards should be passed through a sieve, and the powder should be kept closely covered from the air, and in a dry place. Excellent baking powder may be purchased at a trifling cost.

Balance of Trade.—A term used to denote the difference between the money-value of the exports and imports of any State, the old belief being that if the exports of a country exceeded the imports, the balance of trade was in favour of that country by the amount of the excess, and *vice versâ*. This view of the question, which involves the consideration of many very important subjects, has, however, been proved to be altogether fallacious, the arguments advanced in its favour erroneous, and the data on which it was supposed to rest unreliable.

Balances.—Instruments used to determine the weights of bodies. Balances of various kinds are in general use, such as the common balance, the bent lever balance, the Roman balance or steelyard, the Swedish or Danish balance. The common balance consists of a lever or beam, whose point of support or fulcrum is in the centre of its length; from each end of the beam are suspended, by means of chains, dishes or scales, one to contain weights, the other the substance to be weighed. It is of the utmost importance that the beam should move

easily round its point of support, and to determine this, the surface of contact is reduced as far as possible, by making the beam rest or balance on a knife edge, which serves as the axis of rotation. Since the arms of the beam are equal and the scales balance, it follows that any body placed in one of the pans will be balanced by an equal weight in the other. If the balance be *true*, the body and the weight will still balance when they are interchanged.

The bent lever balance consists, as is implied by its name, of a bent lever, one end of which bears an index, which moves over a graduated quadrant, while the other end sustains the scale-pan. A species of this balance is much used for weighing letters and postal packages.

The Roman balance, better known as the steelyard, consists of a long beam, divided into two very unequal arms, by the point of suspension which forms the fulcrum. The longer arm is graduated, and along it a weight may be moved; from the end of the shorter arm is suspended a scale-pan. It follows that the heavier the substance in the scale-pan, the further from the point of suspension must the weight on the long arm be moved to obtain equilibrium. The chair weighing-machines in present use are but modifications of the old steelyard.

The Danish balance is a species of steelyard, consisting of a straight bar having a heavy knob or weight at one end, and a scale-pan at the other. The point of suspension is movable, and forms the fulcrum, and the bar is so graduated that the weight of any body in the scale-pan is determined by the position of the point of suspension. (*See* WEIGHING MACHINES.)

Balances (in Commerce).—The differences between the debtor and creditor side of any account. (*See* BOOK-KEEPING.) All accounts, whether business or private, should be balanced periodically, such process not only serving for the detection of error, but also affording a ready means of ascertaining at any moment the exact amounts owing or owed, and the general state of the finances, either as regards the whole accounts in general, or any person in particular. Housekeeping accounts, private cash accounts, &c., should be balanced weekly, if possible, as in this way the relative weekly receipts and expenditure can be compared, and, if requisite, the necessary check may be put upon the expenditure before the finances are committed to any serious extent.

Balas, or Balais, Ruby.—A precious stone, a variety of spinel, used in jewellery. It is of a rose-pink colour, and is not seldom sold by error or fraud for the true ruby, to which it is much inferior in hardness and value. Its cost varies with the fashion of the time, and with the tint.

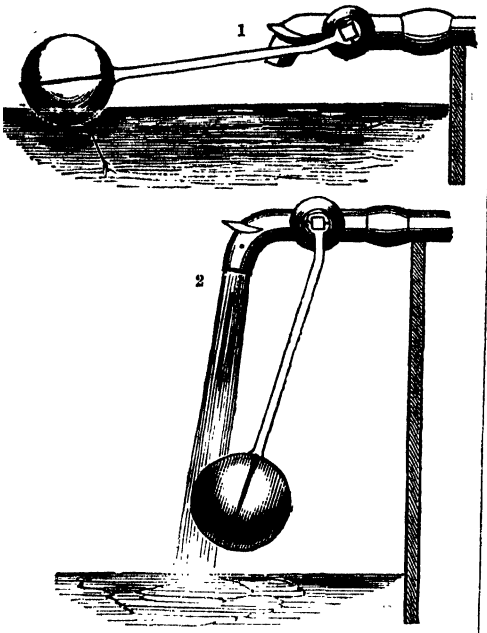
Balbriggan. (*See* HOSE.)

Balcony.—A projecting gallery placed before a window or row of windows, with a parapet, or balustrade, or ironwork in front. It is supported by consoles or brackets placed in the wall, or by pillars resting on the ground below. In the architecture of Greece and Rome, balconies were unknown. They are probably an Italian invention; at any rate, the earliest known examples are found in Italy, to the climate of which country they are well suited. Balconies are also very common in Spain, but they are comparatively rare in northern countries. When the balcony is protected by ironwork it is an important precaution not to place the bars at such a distance that a child coming into the balcony can get its head between; since cases have occurred where a child, having put out its head between the bars, could not by any means draw it back again, and a smith had to file or saw the bars through before the child could be extricated from this dangerous position. In the French theatre, the name *balcony* is given to certain places reserved at the two extremities of the first gallery, near the stage-boxes.

Baldness.—Baldness may be defined to be a general or partial falling off of the hair, which is either permanent or temporary. When permanent, it is generally caused by protracted sickness from organic disease, great mental anxiety, deep study, hereditary tendency, and advanced age. All these appear to exercise great influence in arresting the development of hair, by causing failure of nervous power, and ultimately complete cessation of the hair-producing function. It is manifest that for this condition little can be done. Bathing the head frequently with cold water, and vigorously rubbing afterwards with a rough towel, may do some good. When baldness is due to disease, the most frequent cause is a fungus, the *Microsporos Anthonini*, which can be effectually destroyed by washing the head daily with soft-soap and cold water, and using twice a week the following lotion:—Tincture of cantharides, one ounce; aromatic spirits of ammonia, half an ounce; rum, one pint; and water, ten ounces. The bald patches should be painted every other day with tincture of iodine, and in obstinate cases at intervals of a fortnight with acetum cantharides. Tincture of iron is useful when there is debility. This disease is contagious. Thinning of the hair is frequent in certain fevers, and other diseases, but it soon grows again. The lotion just mentioned will be found serviceable. The constant use of a tight-fitting cap or head-dress is said to produce baldness, and it has been frequently remarked also that those who cultivate the beard to a great extent do so at the expense of the hair of the head; and there is probably some truth in both these statements.

Ball-cock.—This form of cock is always employed in cisterns supplied by water companies. It is an excellent contrivance which allows water to enter a cistern freely, but shuts of itself when the cistern is full. The plug of the cock is kept in by a screw or rivet in the usual way. It has a copper rod attached to it, to the other end of which a globular ball of thin copper-plate is soldered. This ball is so light as to float upon the water of the cistern, and when it hangs down the cock is open and the water comes in; but as the water runs into the cistern, it raises the ball and shuts the cock,

thus stopping the supply to prevent it running over.



BALL-COCKS.
1. Showing Tap shut. 2. Showing Tap open.

Ball Dress.—Dresses for these occasions can scarcely be too handsome or too elaborate. For older ladies, velvet, satin, and silk are the most suitable materials, and lace, black or white, forms the most suitable trimming. For young ladies, tulle, net, grenadine, muslin, or any light fabric, are the most suitable for the purpose, and flowers, natural or artificial, are the prettiest ornaments. Simplicity and freshness should be the distinguishing mark of young maidens; a rumpled, tumbled, soiled dress will spoil the appearance of the prettiest. White is the colour usually chosen for the first season. The skirts of ball dresses are made with a train, and the bodices worn by older ladies are cut square or V-shaped, while those for younger ones are made low or three-quarters high. The shoes or boots should match the colour of the dress. The gloves should be of a pale shade either to match the dress, or of some tint which will agree with the trimmings. Dowagers and matrons can hardly display too large an amount of jewellery, but when much is worn it should be real and good of its kind. Young ladies should not attempt to exhibit all the contents of their jewel-cases; the fewer ornaments worn by them, the better they will look.

Ball-room Arrangements.—The principal objects for attainment are—a good floor, plenty of light, good music, and the musicians well out of the way; these are difficulties, one or other of which always arises. When the floor is actually rough and uneven, then a holland covering stretched tightly over it is indispensable; but if the boards are well laid and reasonably smooth, it can easily be made perfect by shredding wax off a wax candle up and down the floor, and then rubbing it well over with shoe-soles or dancing on it for a while. Beeswax and a brush are often resorted to, but that wax is apt to be soft and stick to the soles of the dancers. A room can be brilliantly lighted with gas, but it is not always available. Wax candles put in temporary sconces are often used, but wax candles shed wax drops on the dancers. Lamps are most satisfactory. The brackets to support them should be strongly fixed and placed high out of the reach of harm. The most comfortable plan, but at the same time expensive, is that of having a small wooden shed placed outside a window for the reception of the musicians and their instruments, for whether the room be long or square, the piano and its player are always in the way of the dancers. If they cannot be placed in an ante-room, then if possible have a dais or small platform for their accommodation. The door of the room should be taken off, and a muslin curtain fastened along the top of the doorstead, and left free on either side, so as to afford ready access and egress. There should be some decorations, but not obtrusive ones. Clusters of evergreens look heavy. Mirrors, muslin curtains, and flowers are the prettiest adornments that can be introduced. The fireplace looks well when completely filled in and hidden with ferns, the mantelpiece also when covered with moss and flowers. The hall and staircase should if possible be made available for promenades and resting-places for the dancers. (*See* BALLS, DANCING, MUSIC.)

Balloons (Toys).—Toy fire-balloons are easily made of tissue paper cut into gores and then pasted together in the shape of a balloon, no slit or hole being left by which any air might escape, except one at the mouth. A ring of thin wire is fastened to the mouth of the balloon, and across this wire two other wires are fastened in the shape of the letter X; these wires should be a little depressed where they cross each other. A piece of cotton wool dipped in spirits of wine is placed in the depressed centre of the crossed wires, a light is applied, and whenever the air inside becomes heated the balloon ascends.

Ballot.—This is properly voting by a little ball or ticket, so that the voter cannot be distinguished, and is the common mode of election in clubs. The practice of secret voting, wrongly called balloting, after a prolonged contest, was granted by the Legislature by the Ballot Act, the 35 & 36 Vict. c. 33. It is to be in force until the end of the year 1880, and no longer, unless Parliament shall otherwise determine. It applies to all Parliamentary and municipal elections, and also to elections under the Elementary Education Act, 33 & 34 Vict. c. 75. The vote by ballot was one of the five points advanced by the Chartists in 1839, as the "People's Charter." The four other points were universal suffrage, annual parliaments, payment of members, and the abolition of property qualification for members of Parliament. The last of these has also been accomplished.

Balls (Dancing).—Programmes of the dances should be made beforehand, and, as a rule, they should be adhered to, for much discontent and confusion arise among the guests if continual alterations are allowed. There are always some dancers who want to change and substitute; but the master of the ceremonies should give orders to the musicians not to give heed to those importunates, and not to obey any orders except his own. A quadrille is often chosen for the opening dance; a galop is more inspiriting, and it affords the opportunity for guests to join immediately on their arrival. The ordinary programme consists of quadrille, valse, lancers, galop, and polka mazurka. Some people prefer to have them in regular succession; others arrange a greater number of round dances. It is of great importance that the music should be good, for dancing will never be kept up with spirit and pleasure unless the musicians are accustomed to their work. The piano, violin, and cornet form a good band; the addition of the harp is an improvement. Bells and triangle have a pleasing effect with the piano alone, and can be managed by the pianoforte player without further assistance.

Balls, Games with.—The number of out-door and in-door sports in which balls of various kinds play a part is very great. The following are the principal of them, arranged in alphabetical order, but most of them will be described in their proper places:—

Bagatelle.—A game somewhat resembling billiards. As a scientific game, however, bagatelle can no more be compared to billiards than drafts to chess, or ninepins to cricket; yet in many respects it has great advantages over billiards, the first and chief being that in the majority of private houses bagatelle can be played and billiards cannot.

Balloon Ball.—At one time this game was played with an inflated bladder, but now an india-rubber ball is used instead. The object of the players is to toss the ball from hand to hand without allowing it to touch the ground. It is a very popular amusement in France.

Base Ball.—The national game of America. It is played with a hard ball, composed of yarn tightly wound round a piece of vulcanised rubber, and a round wooden bat not more than forty-two inches long. Nine players constitute a side.

Billiards.—A game played with cues and ivory balls on a level table covered with cloth. It can be played by two, three, or four persons, and in a great many different ways, but it is most commonly played by two, and the ordinary game is that called *Carambole.* The best billiard-tables, furnished with slate bed and india-rubber cushions, cost from £70 to £80.

Bowling.—Bowling must not be confounded with bowls, as the latter is played upon village greens, for the instruments with which the former is played are distinct in size and shape, and the object of the two amusements is also very different. Bowling, as played on the Newcastle Town Moor, and in the fields of Northumberland, consists simply in the capacity to bowl a small round heavy ball a certain distance within prescribed limits in a larger or smaller number of throws or rolls. The ball, or bowl, varies much in weight, according to the taste of the players—some balls weighing as much as three pounds, and others as little as three ounces.

Bowls.—A game played by several single players, and there may be two or three on a side as partners. Each player has two balls, and he who commences the game has also a smaller ball, called a jack, which he casts on the green, bowling it to any distance he pleases. The interest in the game consists mainly in driving your opponent's ball away from the jack, or the jack from the ball, and by bowling your own ball as near the jack as possible.

Cricket.—A well-known sport that may be truly called the national game of England. Of late years it has been introduced largely into Scotland and Ireland, and is rapidly becoming naturalised all over the world. It is said to be identical with the club ball of the fourteenth century. The present rules were laid down in 1774, by a committee of noblemen and gentlemen.

Croquet.—An out-door game, played on level ground with hoops, balls, and mallets. The object of croquet is to strike a wooden ball through a series of iron hoops set in the ground, according to some regular plan, with the mallet or hammer-headed stick, something in the same fashion as that in which golf is played.

Egg-hat, sometimes called Nineholes. (See *Nineholes.*)

Feeder.—This game is played with three bases, and by any number of players. One player takes the place of feeder, and remains so until he can put one of the others out by catching his ball as it leaves his bat, or by striking him with the ball while he is running from base to base.

Fives.—The game of fives is of great antiquity, and was common in this country as early as the fourteenth century under the name of "hand-tennis." It was also played in France, at a very early period, under the name of "palm-play."

Football is deservedly a favourite game at public schools. Simply described, football is played in the following manner:—A match is made between two sets of players of equal numbers; a large ball made of light materials—a blown bladder or an india-rubber ball, cased with leather, is the best—is placed before them, and the object of each party of players is to kick the ball across the goal of the other, and to prevent it from passing their own. The party across whose goal the ball is kicked loses the game. The game is commenced between two goals, which are generally about a hundred yards asunder.

Golf.—Golf is a game much practised in the northern parts of the kingdom—indeed, it is seldom seen out of Scotland. It answers to a rustic pastime of the Romans, which they played with a ball of leather stuffed with feathers, and the golf-ball is composed of the same materials to this day. The game is played with a bat, the handle of which is straight, and usually made of ash, about four feet and a half in length; the curvature is affixed to the bottom, faced with horn and

backed with lead. Of late india-rubber and gutta-percha balls have been much used by golfers. The game consists in driving the ball into certain holes made in the ground. He who achieves this the soonest or in the fewest number of strokes obtains the victory.

Hockey.—A fine exhilarating game, popular in every part of England. In all its general principles hockey bears a great resemblance to football, the game consisting in driving a ball through a goal. The ball, however, is of much smaller dimensions, even when a ball, and not a bung, is used; and it is impelled, not by the foot, but by certain sticks or clubs, called hockeys or hookeys, because the end with which the ball is struck is more or less hooked.

Hurling.—This is a very ancient game, played by any number of players divided into pairs.

Indian Ball Game.—Among many tribes of North American Indians this is a favourite game. It is played by two parties, each player having two bats, or rather net-sticks, with which he tries to throw the ball beyond certain bounds. Mr. Catlin, who sojourned for a long time among the aborigines of America, was present at many of these grand matches.

La Crosse.—The national game of Canada, as base-ball is of the United States.

Nineholes.—In this game a number of holes, according to the number of players, are dug near a wall, large enough for a ball to be bowled in without difficulty. Sometimes it is called egg-hat, from the players using their hats instead of digging holes; the ball in this case is tossed into the caps instead of being tossed into the holes.

Northern Spell, or Nurr and Spell.—Played with a trap and a ball, the ball being struck with a bat or bludgeon at the pleasure of the players, but the latter is most frequently used. As a pastime it possesses little variety, and does not yield by any means so much amusement to the bystanders as trap, bat, and ball.

Pall Mall.—This was a fashionable game in the days of the Stuarts. The object in Pall Mall, or Pale-maille, is (or was, for the game is now superseded by croquet) to drive a wooden ball through one or more arches, placed on the ground at a distance from each other, with a mallet-headed stick. It was sometimes played by persons on horseback.

Oallone.—An old Italian game, similar in character to rackets.

Polo, or Hockey on Horseback.—This game has been introduced into this country within the last few years from the East.

Rackets.—A game very frequently played in England. It is merely a modern variety of the old game of tennis.

Rounders.—This is an excellent game, and very popular in some of our English counties. It is played with a moderate-sized ball and a hand-bat—*i.e.*, a bat that can be held in one hand, and which is about two feet long, and smooth and round. Two parties play at the game, and there should not be less than five on a side. A game similar to rounders is popular in the United States: it is known as "ball game."

Skittles, Ninepins, Dutch-pins.—These are all modifications of the same game, the whole art in which consists in knocking down certain wooden pins placed in order on a frame, with a heavy round or cheese-shaped ball. The player who succeeds in knocking down the pins from a given distance in the fewest number of times wins the game.

Stool-ball.—An old English sport. It is seldom played now-a-days.

Stools.—A more extended form of stool-ball.

Sticks Up, Play Down.—A simple but very amusing game with a stick and ball for two players or more. The ball used in this game is a small hard one, just like that used in tennis and rackets.

Tennis is played in a court ninety-six or ninety-seven feet long by thirty-three or thirty-four feet wide, and surrounded by walls sufficiently high to prevent the balls from being lost. The players are either two in number, or four divided into two parties. The player or party "in" *serves* the ball against the head wall of the court, so as to rebound over a line drawn at a certain distance; it is returned by means of the racket by the player or party "out," who must make it rebound from the wall to the other side of the line; and the game is thus carried on till one player fails to strike the ball or cause it to rebound properly. If the player "in" fails, he changes places with the player "out;" if the latter fails, the former scores a point.

Trap, Bat, and Ball.—The game is thought by many to rank next to cricket. It is so called from the trap being used to elevate the ball when it is to be struck by the batsman. We can trace it to the commencement of the fourteenth century.

Troco, or Lawn Billiards.—A good out-door game, especially where the space for sports is confined. An iron ring which swings round is fixed into the ground, and the object of the game is for each player to urge his ball through the ring by means of a long cue, at the end of which is a ring or spoon.

Balm of Columbia.—This is a cosmetic which has a great reputation for stimulating the growth of the hair. The exact ingredients have not been made known to the world in general, the secret being held by the proprietor, but so much of its history is known, namely, that some fifty years ago, a certain Yorkshire hair-dresser went to America, and while there, discovered that the root of a particular tree or shrub possessed properties which were valuable for strengthening and stimulating the growth of the hair. Acting on this knowledge, he compounded a hair-wash to which he gave the above euphonious name.

Balm of Gilead.—*This is a* skin-cosmetic which is said to give a healthy glow to the complexion, and is obtained from a tree growing in Abyssinia. When fresh it is in a semi-fluid state, but it solidifies with age, and is both scarce and costly. It is held in such high reputation by the Turks and Egyptians, that they will not allow it to be made an article of trade. Its price in Constantinople averages a shilling per grain. It takes its name from a city in Judæa, to which place it was brought

from Abyssinia at a very early epoch, as the Biblical mention of it shows. It was held in high esteem among the nations of antiquity, and at the present period is greatly prized by the people of the East.

Balm (Plant).—This hardy plant is celebrated for its fragrant perfume, partaking much of the odour of the lemon, and also has an aromatic flavour, and is much cultivated for medicinal purposes, affording to the sickly patient a grateful beverage. It does not require any particular soil, but will grow on a poor or clayey, sandy earth. To propagate the plant, divide the roots, and any piece that has the smallest portion of the fibrous root will grow; or by cutting off the main stem, the divisions with roots can be planted where they are to grow, about ten inches apart. Pvt the slips in a shady moist place, and thin in September, and plant where to remain.

Balsam (Flower).—The balsam is a very showy annual, and will well repay those who wish to cultivate it by the richness and variety of its blossoms, forming a great addition to the flower-garden. There are many different sorts, but the one generally cultivated is the ordinary common balsam. The principal object in cultivating the annual is to obtain as large flowers as possible, and in order to do this care should



BALSAM.

be observed each year in selecting the seeds from the finest plants; and no old seed should be sown, as the plants would deteriorate and become less luxuriant in flowering.

To grow balsams successfully, after carefully examining the seed it should be sown in a moderately-heated hot-bed about the middle of March, and, when the plants are sufficiently matured, pricked out into small sixty-sized pots; the soil should be exceedingly fine and light. After growing to about three inches high, they should be again shifted with the earth to them into larger pots, and so on. If you require any fine specimens, do not let them be exposed to cold draughts or currents of air, and if you have a greenhouse, so much the better. The last potting mould may consist of old rotten cow-dung. When the plants have nearly arrived at maturity they may be placed in beds or lawns in the pots. The seed may be sown again in April for succession. When the plants are moved to any fresh place, water should be given, especially in dry weather. Keep the beds weeded.

Balsam, Friars'.—This popular remedy is the compound tincture of benzoin of the Pharmacopœia, and is composed of benzoin, storax, balsam of Tolu, aloes, and rectified spirit. It is seldom given internally, but as an external application in wounds and ulcers it is extensively employed by the working classes, and has a considerable reputation. It is also used in making court-plaster.

Balsam of Copaiba.—This is not a true balsam, but an oleo resin obtained from incisions in the trunk of the *Copaifera Multijuga*, growing in the valley of the Amazon. It is a transparent liquid of a light yellow colour, peculiar odour, and aromatic taste. Copaiba acts powerfully upon the mucous membranes, and is sometimes given in chronic bronchial cough and inflammation of the bladder. The dose of the balsam is from fifteen to sixty drops, and of the oil from five to twenty drops, floating in water, or rubbed up with yolk of egg. The oil is the most efficacious, but neither should be taken when there is feverishness. Copaiba sometimes produces a pimply eruption of the skin, attended with some irritation. It is powerfully diuretic, and therefore useful in simple dropsy, when there is no disease of the kidneys.

Balsam of Peru is a thick viscid dark-red treacly substance of fragrant odour and acrid taste, obtained by charring or making incisions in the trunk of the *Myrospermum Peruiferum*, a tree growing in the State of Salvador, in Central America. Made into an emulsion with yolk of egg, from ten to thirty drops may be advantageously given two or three times a day in cases of chronic bronchial cough, asthma, and rheumatism. It is also useful in leucorrhœa and other excessive discharges, and may be applied in the same form externally to bed-sores and indolent ulcers. The principal constituents of this balsam are volatile oil, cinnamon, acid, and resin.

Balsam of Tolu.—This balsam is obtained by making incisions in the bark of the *Myrospermum Toluiferum*, a tree growing in the mountains of Tolu, in New Granada. It is a reddish-yellow substance, of much the same odour and taste as balsam of Peru, not soluble in water, but very soluble in alcohol and ether. Thrown into the fire it burns readily, emitting an agreeable aromatic odour. In its most popular form, viz., that of syrup of Tolu, it is used medicinally in the same cases as balsam of Peru (*see* BALSAM OF PERU), the dose for an adult being about one tea-spoonful. Balsam of Tolu is a constituent of compound tincture of benzoin, and its composition is the same as that of balsam of Peru.

Balusters, or Banisters.—Small pillars usually made circular, and swelling towards the bottom, commonly used in a balustrade. Various

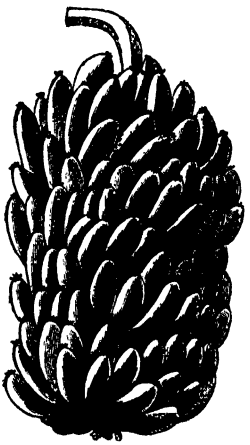
fanciful forms were early given to balusters by the Italian and French architects, in which, however, the pear-shaped swelling in some part of the shaft always preserves its influence.

Balustrade.—This name is given to a range of balusters, together with the coping or cornice supported by them. We find the balustrade in frequent use as a parapet for bridges, the roofs of large edifices, &c. It is also employed to enclose stairs, balconies, altars, &c. The material of which balustrades are constructed may be wood, stone, or metal.

Bamboo.—In its native countries the bamboo is used for a vast number of purposes. In this country it is principally employed in the manufacture of walking-sticks, umbrella-sticks, pipe-stems, and fishing-rods. Owing to its toughness and hardness, and the facility with which it can be split to any extent, it is sometimes used for coarse brushes suitable for sweeping gardens, lawns, &c., but in this case it seems to be generally mixed with the fibres of the rattan cane. Occasionally it is employed for light wicker-work. Ornamental vases made of the larger stems, and beautifully carved by the Chinese, are frequently to be seen in our houses.

Ban.—A public proclamation or notice; prohibition; a depriving of rights, privileges, or dignities; proscription; curse; excommunication; a pecuniary fine.

Banana.—This is the fruit of a handsome plant, originally East Indian, but now grown almost everywhere in the tropics. It is really a variety of the plantain (*Musa paradisaica*), the fruit of which is very much like it. The bananas have generally spots on the stems, with dark purple stripes, and the fruit is smaller, less curved, and of a more delicately-luscious taste than the plantains. Banana



BANANA.

fruit is generally four or five inches long, and the fruit of the plantain from eight to twelve inches long. The two names are somewhat variously used. The distinctive botanical name of the banana tree, *Musa sapientium*, means the plantain of the wise men, and was given to it because it was supposed that Theophrastus, the Greek naturalist, when he spoke of a fruit which served as food to the wise men of India, referred to the banana. This fruit is always used in a ripe state, and unlike the plantain, does not serve as a substitute for bread. It constitutes a nutritious food, and contains less water and more nitrogenous matter than most fresh fruits. Sometimes the pulp is squeezed through a sieve and formed into shapes, and in this form it will keep for a long time. Sometimes the fruit is fried in slices, and it is also made into jam. Excellent wine is made of the juice. The negroes of the West Indian islands regards this fruit as invaluable.

Banbury Cakes are chiefly composed of mincemeat enclosed in rich pastry and baked. They are usually cut either into a square or an oblong form, and are eaten cold. They are peculiar to Banbury, a Saxon town in the north of Oxfordshire, which is celebrated for its cheese and ale as well as for its cakes. Banbury cakes were renowned in the time of Ben Jonson. A quantity of them were presented to Queen Victoria on the 30th of November, 1866.

Bandages.—Bandages are generally made of unbleached calico, linen, and flannel, and vary in width and length according to the part to which they are intended to be applied. They are almost indispensable in the treatment of fractures, wounds, and in all cases where support or pressure is required. They should never be applied too tight, as they may cause strangulation and gangrene. There are many varieties of bandages, their use being generally indicated by the name, as, for example, the spiral bandage, which consists in covering a limb with spiral turns overlapping each other, and made to fold upon itself at each turn. Then there is the figure-of-eight bandage, which is adapted for joints, fractured collar-bones, and for keeping dressings on the groin or arm-pit. The T bandage consists of one piece of bandage, which goes round the waist, to the centre of which behind, another piece is fastened and brought between the thighs to be attached in front. It is useful for keeping dressings about the perinæum and anus. The starch bandage is chiefly used for fractures, and is thus applied:—The broken limb must be well covered with cotton-wool; over this, splints of soft thick pasteboard, soaked in starch and moulded to the part, should be laid; then a bandage, which has also been well saturated with starch, is to be applied, and the whole secured with a dry bandage. French glue and silicate of potass are occasionally substituted for the starch. Plaster of Paris bandage is made of soft muslin which has been thoroughly rubbed with plaster of Paris, and then moistened with cold water. The mode of application is as follows:—A dry roller having been previously applied to the part, the wetted plaster bandage is smoothly and carefully rolled over it, and kept thoroughly moistened during the application. Slips of the bandage may be laid on where additional strength is required, and in a few minutes the whole will harden, affording a solid support.

Bandana, or Bandanna.—A kind of printed handkerchief, of Indian origin, having white or coloured spots on a red, blue, or other dark ground. The process of printing them was first practised in India, where it seems to have been understood by the Hindoos from time immemorial. The method adopted was that of binding up with thread the portions of the handkerchief which were to be uncoloured, and then exposing the whole fabric to the dye. Bandana handkerchiefs in imitation of the Indian bandanas are now largely made in Britain, and are principally of cotton. The process of making them was invented by M. Koechlin, of Mulhausen, in 1810, and by this method the Oriental patterns have been exceeded in precision and beauty. The pattern (of which the real bandana style is spots or diamonds) is cut out in leaden plates. These are placed at the top and bottom of a thick pile of handkerchiefs which have been dyed of a dark colour, mostly Turkey red. Hydraulic pressure is then applied, and the pattern is made by discharging the colour with bleaching liquor, which is run in on the uppermost plate, and passed through all the folds of the fabric. The pressure required to work the pattern clearly is enormous. Bandana handkerchiefs are not so popular now as they were once.

Bandilor.—The bandilor is a toy made of hard wood, and is not unlike a pulley with a very deep groove. A piece of string is wound round the groove, a hole being made in the centre of the wood, through which hole the string is passed, and out of which it is kept from slipping by a knot. In playing with the bandilor the end of the string is held between the fore-finger and thumb, and the grooved piece of wood is let fall. As a natural consequence the string is unwound, and if the fall be suddenly checked by a sharp jerk, the bandilor will begin at once to rise, and will go on ascending and descending as long as the player pleases. Under the name of Quiz, the bandilor was a very fashionable toy about the beginning of this century. Now-a-days, however, one seldom sees it, unless when manufactured by private hands.

Bandoline.—This is a vegetable mucilage prepared from the pips of quinces, from gum arabic, from Irish moss, &c., to which are added spirit for the purpose of preservation, and perfumes to make the odour of the compound agreeable. Bandoline is used to make smooth and to stiffen the hair. The name is French, and from the word *bandeau*, a straight plank or board. When bandoline was first introduced, its purpose was to fix the hair in a straight and even line on either side of the face, according to the fashion then prevailing.

Bands.—The bands occasionally worn by English clergymen are two strips of fine white cambric, each about two nails deep and one nail wide when hemmed, the hem being a quarter of a nail deep. They are slightly hollowed at the top, and are placed side by side upon a piece of white tape, by which they are tied round the neck. Those worn by barristers are somewhat larger. The flannel band which is worn by very young children round the stomach and hips properly belongs to the subject of baby-linen. (*See* BABY-LINEN.) The term band is also employed of almost any narrow strip which forms a part of dresses and other garments, and it occurs in such combinations as hat-band, head-band, waist-band, &c. Wrist-bands, waist-bands, collar-bands, and shoulder-bands, in fact, every band of material likely to be stretched in the wearing, must always be cut the selvage way of the stuff. Calicoes, muslins, and flannels will always tear, and the bands made of them will be much straighter when torn than when cut. Linen bands must be cut by the thread.

Bandy.—The game of golf is sometimes known in England as bandy. The bat used to be called a "bandy" from its being bent. The game of "hockey" is also known by this name.

Bandy Legs.—A form of rickets in which the legs are bent outwards or forwards, occurring in early childhood, and caused by deficiency of earthy matter in the bones, thereby preventing solidity and rendering them liable to yield to the superincumbent weight of the body. The sufferers from this deformity are frequently strumous, and appear to inherit the tendency, but it is equally caused by the maternal milk being impoverished through debility, protracted nursing, and other causes; by indigestible food not suited to that period of life; by bad air, absence of sunlight, insufficient clothing, and want of cleanliness. The treatment must therefore consist in the removal of all these causes as far as is practicable. Pure air (seaside, if possible), good food, especially milk, salt-water baths, followed by friction with a coarse towel, steel wine, cod-liver oil, lime-water with milk—in fine, everything that promotes health, and is suitable to infancy and childhood, is necessary in these cases. (*See* RICKETS.) There is some difference of opinion as to the wearing of instruments in bandy legs. Properly adjusted, and made very light, they doubtless afford considerable support, and prevent the deformity increasing; but made clumsily, and not skilfully applied, they are likely to do more harm than good. In some cases they are absolutely necessary.

Banisters. (*See* BALUSTERS.)

Bank Bills.—Promissory notes or bills of exchange issued by a bank, and payable at some future time after date. Bank bills payable a stated period after date require merely to be presented for payment; bank bills payable a certain time after sight require to be presented to the persons on whom they are drawn, that their due dates may be fixed. If it be desired to send money away by post, and immediate payment be not required, a bank bill due so many days after date may generally be procured from bankers, free of charge, the use of the money for the time that it remains in their hands remunerating them for their trouble in the matter. The stamp duties on bank bills are the same as on bills of exchange. (*See* BILLS OF EXCHANGE.) Bank orders are promissory notes, payable on demand or presentation, and, as cheques, require merely a penny stamp, whatever their amount.

Bank Books.—Books used by a person who keeps a banking account, and generally known as pass-books. In them the bankers enter all the amounts paid or received on behalf of the owner of the book. In paying money into a bank, the usual custom is to fill up a slip, giving particulars of the payment, the value of the notes, gold, and silver, and the amount of each cheque or bill separately. A counterfoil of this slip should be retained by the person paying in, for future checking with the pass-book. Similarly the cheques paid by the bank, and entered by them on the credit side of the pass-book, should be compared with the cheque-foils or counterparts. (*See* CHEQUE-BOOK.) The pass-book should be regularly left at the bank to be made up—that is to say, for the debit and credit items to be entered therein from the bank ledgers. It should also be as regularly checked when returned by the bank, so that if any mistake may have been made, any forged or withdrawn cheque paid, &c. &c., it may be discovered at once.

Bank Cheques are orders upon a bank authorising the payment of money. Bank cheques may be divided into two classes—those payable to bearer and those payable to order; and each of these classes are again separated into cheques that are crossed and cheques that are uncrossed. Cheques payable to bearer (and uncrossed) authorise the payment by the bank of the sum for which they are drawn to whomsoever may present them; on the other hand, cheques payable to order are only available for payment by the bank when endorsed—*i.e.*, signed on the back—by the persons in whose favour they are drawn. Crossed cheques are those which are crossed on the face by two transverse lines, with the name of a bank, or the words "and company," or some abbreviation thereof; cheques so crossed are only payable through a banker—that is to say, they cannot be presented for payment by a private individual, but must be paid through a bank. A person, therefore, holding a crossed cheque must either pay it into his account at his bankers', who will obtain the money for him and credit him with it; or, if he have no banking account, he must get some other person to cash it for him, this last holder either passing it on, as he would a bank note, to some other individual, or paying it into his banking account. The object of crossed cheques is, of course, the better security of the drawer, as by this means the presentation for payment by some individual known to the bank is ensured, and if by any means the cheque may have passed into wrong hands, the steps by which it has done so may be the better traced. At the present time there are three different classes of crossed cheques—those crossed generally (that is, with the words "and company," or some abbreviation thereof), which can be paid only through a banker; those crossed specially, which can be paid only through the banker with whose name they are crossed; and those marked "not negotiable," the property in which remains in the lawful owner, even though they be lost or stolen. These last cheques are intended to afford a complete safeguard against the loss of a cheque by theft or otherwise. Thus any *bona fide* holder of a cheque may cross it, and write across the face the words "not negotiable," in which case it has been enacted by Act of Parliament that no person can convey a better title to it than he himself who crossed it. It should, however, be clearly understood that the phrase "not negotiable" does not imply that the cheque so crossed may not pass from hand to hand, or may not be cashed by a banker; the fact is, that it may circulate just as freely as persons are willing to accept it, and its negotiability is not *necessarily* restricted. The real effect of the "not negotiable" crossing is to warn all whom it may concern that they accept the cheque subject to the liability of being compelled to refund its value should it prove to have come improperly into the possession of any person from whom their own title is derived. In this way the negotiability of the cheque is virtually restricted, but only so far as is desired by the person crossing it. Of course, nobody would accept such a cheque except from a person on whose integrity he could thoroughly rely. The safeguards offered by this system of "not negotiable" cheques do not at present seem to have been taken advantage of by the general public; but we think it is only necessary to remind our readers that all other cheques, whether crossed or not, are equally negotiable with bank notes, and that the property in them legally passes by mere delivery, to show them clearly what special advantages are afforded, where great safety is desired, by merely crossing a cheque with the magic phrase "not negotiable."

Bank Notes are promissory notes issued by a bank and payable on demand. In England, £5 is the lowest value for which a bank note may be issued, and the higher values are £10, £20, proceeding in even tens to £50, £100, and increasing in even hundreds to £500, £1,000. The Scotch and Irish banks are entitled to issue £1 notes. The Bank of England is the only London bank authorised to issue notes, their issue being limited to £14,475,000 for notes without any reserve of gold held against them; for all notes issued above that amount, an equal amount of gold must be held in reserve. (*See* BANK OF ENGLAND.) Many country banks issue notes, but such issue is, in all cases, limited by law.

In almost every country, except Great Britain, the paper currency of the country is at a discount—that is, notes are not worth their nominal value; but in Great Britain, where credit is good, Bank of England notes can readily be exchanged for money. Bank of England notes are, in fact, a legal tender for all amounts above £5, and no one would hesitate to take them. Country notes are not, of course, as safe as Bank of England, since there is always the possibility of the failure of the bank promising to pay; but such failures are so rare, banking being so lucrative a business, that there is seldom any difficulty to be found in cashing even country notes. Still, as a safeguard against forgery, or possible loss by failure of the bank, it is as well not to take country notes in London, unless payable at

some London bank. Scotch and Irish £1 notes are not equally negotiable in London, and the London bankers charge their customers 1d. on each such note paid in for collection by them.

In the manufacture of Bank of England notes many precautions have been taken to prevent forgery, with such success that none have yet been counterfeited which, upon careful examination, could escape detection, and forged bank notes are now very rarely heard of. At the same time, it is always necessary to be on one's guard in such matters; and the temptation held out to swindlers by the negotiability of notes, and the consequent chance of a successful launching of counterfeit paper, is so great, that attempts at forgery in these days of ingenuity are always to be expected. The distinctive peculiarities of Bank of England notes are to be found in the paper, design, and printing. The paper is altogether unlike other paper, being peculiarly thin, crisp, and tough; each note, too, has three rough edges and one smooth. Every genuine note bears a water mark, produced by dies acting upon the paper when in pulp; this water mark has always presented one of the chief difficulties to forgers, since, even if the design be exactly imitated, there still remains the impression of it in the paper, and if this be effected by mere pressure of the die on the paper, the forgery may be readily detected by wetting the water mark with the tongue. If it be a forgery, the damping will remove the mark altogether, whereas the same process with a genuine note will but throw up the water mark more clearly than before. Great reliance is placed by the bank authorities on the mechanical design of the note, that the impression may be such as to make the note easily recognised by the public, while, at the same time, it possesses such peculiarities as render it readily distinguishable by the bank officials. The ink used in the printing is also special, being very black and indelible.

If by any chance a Bank of England note be destroyed, and satisfactory evidence thereof be given to the bank directors, together with ample security to indemnify them in the event of their being at any future time called upon to pay it, another note of equal value will be issued by them in the place of the one destroyed.

Any genuine holder of a note—that is, one who has received it for value—is entitled to prompt payment for it, and is not affected by the previous fraud of any former holder. Indeed, if this were not the case, bank notes would lose their value as negotiable instruments, for people would be afraid to accept them. Still, it has been decided that "if a person take a bill, note, or any other kind of security, under circumstances which ought to excite suspicion in the mind of any reasonable man acquainted with the ordinary affairs of life, and which ought to put him on his guard to make the necessary inquiries, and he do not, then he loses the right of maintaining possession of the instrument against the lawful owner."

If a person finds a bank note, and, after advertising for the owner without success, obtains payment for it, he may nevertheless be compelled to refund the amount to the true owner, should the latter afterwards legally establish his claim to it. Should the finder of a note at once apply it to his own use, without making any endeavours to find the owner, he is liable to be proceeded against criminally should the owner prove his claim. When a person loses a note by theft or otherwise, he may stop payment of it at the Bank of England, by forwarding particulars of the note and its loss; he should also advertise the fact that the note is stopped, in this way endeavouring to prevent its negotiability. Should the note then be presented at the bank, notice thereof will be sent to the loser, and payment will be delayed to allow time for inquiry, and, if possible, to trace the holding of the note right back to the loser; at the same time, if the person presenting the note be a *bona fide* holder, payment therefor must eventually be made to him. It is a popular error to suppose that by "stopping" a note payment cannot be made by the bank, or that all risk of loss is guarded against.

In remitting bank notes through the post it is always well to cut them in half, sending the halves only in the first place, and waiting for an acknowledgment of their safe receipt before forwarding the second halves. By taking this simple precaution a great deal of risk may be avoided.

Bank of England.—The most important and influential banking establishment in the world. It was originally incorporated by royal charter in 1694 as a joint-stock company, with a capital of £1,200,000, which was lent to the Government of the time, who were then in pecuniary difficulties. Since then the Bank of England has always been in intimate relationship with the Government of the country, and at the present time the entire management of the public debt is entrusted to its charge. (*See* PUBLIC FUNDS.) The business of the Bank of England is carried on under the management of a governor, deputy-governor, and twenty-four directors, who are elected annually, and include in their number the most important London merchants and bankers. The original charter granted to the bank in 1694 has been several times renewed, the last renewal being in 1844, when the bank was divided into two wholly distinct departments, the issue department and the banking department. The issue department is concerned simply with the issue of notes (*see* BANK NOTES), while the banking department is engaged in ordinary business, and, as before mentioned, in managing the public debt.

Bank Stock.—The proprietors' capital, or share fund, of the Bank of England, amounting to £14,553,000. This stock, on account of its great security, always stands high in public estimation; and although the dividends payable on it are not as large as might be expected—averaging from 9 to 10 per cent.—it is always at a large premium, each £100 share ranging in price from £260 to £270. The regulations for transfers, payments of dividends, &c., are identically the same as those for the public debt. (*See* CONSOLS, PUBLIC FUNDS.) Bank stock is amongst those securities in which a trustee or executor, not otherwise advised, may invest any funds in his charge, and for this

reason it is quoted in the official list of the Stock Exchange, not with the other banks, but amongst British Government and similar securities.

Bankers' Clearing House.—An establishment of which all the London bankers are members, designed as a medium through which they may obtain a settlement of the amount of all bills and cheques due for collection between one another, and this too with an entire absence of cash transactions. This result is arrived at by a cheque on the Bank of England being received or paid in settlement of the differences of account between one banker and another.

Banking.—A system of trading in money, without which the vast commercial system of the world could not possibly have attained to its present magnitude. Viewed in its simplest aspect, banking is the custodianship of the money of the community at large, and the banker may be considered in the light of a cashier to those people who deposit money with him. But bankers do more than this: they not only receive and pay away money on behalf of their customers, but they also lend money on good security, such as bills of exchange, mortgages, &c. It follows of necessity that a bank, with a large number of depositors, will always have large sums of money in its charge, and by lending these out at interest, discounting bills, &c., large profits are made—large enough to pay all the expenses of management incidental to the keeping of its customers' accounts, and still to leave a handsome margin for division among its proprietors or shareholders. (*See* BANKS.) The advantages of the system of banking to the private individual and to the world at large are very numerous; amongst others may be mentioned the security banks afford against theft, fire, and other contingencies when they are used merely as places of deposit for money and other property; the facilities the system offers for the transfer and payment of money (*see* BANK BILLS, BANK CHEQUES, BANK NOTES, LETTERS OF CREDIT); the collection of accounts; the cashing and discounting of acceptances and bills of exchange, &c.; the saving of time to the individual effected by the keeping of his accounts undertaken by the bank, and the valuable check upon all his receipts and payments afforded thereby.

Accounts at bankers' are generally either current or deposit. Current, often called drawing, accounts are those out of which the banker, as agent, makes all payments and meets all claims authorised by the depositor, and to the credit of which he enters all receipts. In the case of these accounts, if a large balance be always left in his hands, the banker usually pays interest, but at a low rate, and that only on the minimum monthly balances—that is to say, the lowest amount in his keeping on any one day during the month. Where a small balance only is ever left in the banker's hands, it is evidently impossible for him to pay any interest; indeed, the advantages gained by him by the use of the money can in such cases scarcely recompense him for his trouble in keeping the account. Deposit accounts are those in which sums of money, from £10 upwards, are lodged in a bank, generally for certain stated periods, and which cannot be drawn upon. On these accounts a higher rate of interest can of course be paid.

Bankers are responsible in damages to their customers for any errors or lapses that may occur in the course of their business. As examples of such responsibility may be cited the following:—If bankers neglect to carry out the orders of their customers, such orders being strictly within the course of business—such as the payment of premiums on a life assurance policy, the purchase of stocks or shares—they are responsible not only for the delay, but also for losses that may arise out of that delay. Bankers are bound by law to know their customers' handwriting; and if, therefore, they pay a cheque or bill which turns out to be a forgery, they must bear the loss.

Bankruptcy.—The state of being broken or bankrupt financially. Formerly only traders could be bankrupt; but now and since the Bankruptcy Act, 1869, the 32 & 33 Vict. c. 71 (which applies to England only), any one, either trader or not, may be adjudicated a bankrupt upon petition of his creditors, on his committing any one of the following acts of bankruptcy, as they are termed:—

1. Making a conveyance or assignment of all his property for the benefit of his creditors generally.
2. Making any fraudulent conveyance or assignment.
3. Doing any act with intent to defeat or delay his creditors.
4. Filing a declaration of insolvency.
5. Having execution levied by seizure and sale of his goods for a debt of £50 or upwards.
6. Having, if a trader, for seven days, and if a non-trader, for twenty-one days, after service of a debtor's summons for a debt of not less than £50, neglected to pay or satisfy same.

The petition grounded upon any one of these acts must be presented within six months from its commission.

There are two distinct territorial jurisdictions for administration of the bankrupt law:—

1. The London district, comprising London and all places within the jurisdiction of the metropolitan county courts.
2. The country district, comprising the remainder of England.

On adjudication of bankruptcy, all the bankrupt's property, both real and personal, vests in the trustee or trustees, who are authorised—

1. To receive and decide on proofs of debts.
2. To carry on the bankrupt's business.
3. To bring or defend actions.
4. To sell the bankrupt's property by public auction or private contract, and
5. To give effectual receipts for the sale moneys.

On the termination of the bankruptcy (and during its continuance, with the assent of the creditors), the bankrupt may apply for and obtain an order of discharge, if his estate has paid 10s. in the £, but not otherwise. If undischarged, he is protected for three months from the close of the bankruptcy proceedings; and

if during that period he should have made up the 10s. in the £, he gets his discharge, otherwise the unpaid balance becomes a judgment debt against him, leviable upon his property, real or personal, in the usual way.

Banks may be divided into two classes, private and joint-stock. Private banks may be the property of one or more partners, not, however, exceeding *ten* in number, and each of these partners is individually responsible for the liabilities of the bank. Banking partnerships of more than ten persons in number constitute a joint-stock company, and must be registered as such under the Companies' Act. In the case of joint-stock banks, the liability may be limited or unlimited—that is to say, the partners or shareholders may be severally limited in liability to the amount of the capital subscribed by them to found the bank, or they may be individually responsible for the entire indebtedness of the bank, in cases of failure or stoppage of payment, in this latter case standing in the position of partners in a private bank. The Bank of England was the first joint-stock bank in this country (having been founded by charter in 1694), and so it continued until 1834, since which year numerous other joint-stock banks have sprung into existence. (*See* BANK OF ENGLAND.) The nominal capital of the joint-stock banks now amounts to considerably over one hundred millions, and the paid-up capital to about fifty millions.

Banks, Penny.—Banks in which the important principle of the deposit of savings, however small, has been carried still further than in savings banks. In these latter, deposits of one shilling are the lowest received; in penny banks, as is implied by their name, pence may be deposited. They are therefore very useful in poor districts, and have done an immense amount of good by their inculcation of habits of thrift and economy. The deposits often take the form of weekly payments. The conditions and regulations affecting penny banks resemble those for savings banks in general. (*See* POST OFFICE SAVINGS BANKS, SAVINGS BANKS.)

Banks, Savings. (*See* POST OFFICE SAVINGS BANKS, SAVINGS BANKS.)

Banner-screen.—These screens came into vogue some twenty years ago. They are not so stiff and cumbersome as the pole and cheval screens whose places they took. Banner-screens are suspended by rings from a rod, which is fastened by means of a jointed arm and screw to the mantelpiece or to a stand; they are thus easily made an available shelter from heat. They are made of velvet, silk, canvas, and other materials; a very common device is that of a coat of arms worked in the centre. It is usual to insert a small quantity of shot between the lining and its cover, in order to weigh down the banner and keep it steady. Bannerettes are miniature screens of the same style as the foregoing; they are suspended from a cross-bar, which is fastened to a pedestal. They form useful ornaments for chimney-piece or chiffonier, from which they can be moved as a screen from the light of candle or glare of lamp.

Banners. (*See* FLAGS.)

Bannock.—This is a flat round cake made of oat, rye, or barley meal, and common in Scotland, though not so much so as it used to be. It is baked either over the fire, on an iron plate called a girdle, or on the hot hearth. Bannocks are in all probability of primitive origin. The word itself, which in the western parts of Scotland is pronounced "bunnock," is derived from the Gaelic *bonach*, a cake. Bannocks of barley meal have been celebrated in song. A mashlum bannock is made of mixed meal. A Selkirk bannock, named from the place where it is made, is a superior kind of bannock, something like a tea-cake.

Banns.—When notice is given in church of the intended marriage of two persons according to the rites of the Church of England, this is said to be "publishing the banns." The notice must be read on three successive Sundays. This is one of four modes of proceeding towards the celebration of a marriage. (*See* MARRIAGE.)

Bantams.—The bantam is a little Indian breed of fowl, very delicate to eat, but, from



BANTAMS.

the smallness of its size, not of any economical importance. It is well known for its grotesque-looking limbs. The nankeen-coloured and black birds are the most esteemed. The bantam should have a rose comb, a full tail, and a lively carriage, and should not weigh over a pound. The characteristic of feathered legs is said not to be an improvement, the birds with clean bright limbs being the best.

Baptism, Customs at.—Three sponsors are required: for a girl, two godmothers and one godfather; for a boy, two godfathers and one godmother. The term sponsor is from the Latin *spondeo*, to promise; that of godfather and mother is of Saxon origin. The practice of providing sponsors is of great antiquity. Their responsibilities are supposed to cease when those for whom they promise receive the rite of confirmation. At the time appointed for the baptism, the infant is taken to the font (so called from *fons*, a fountain), the clergyman,

sponsors, and nurse forming the group there. The child is held by the godmother until the clergyman is ready to receive it, when she should place it on his left arm. When the name of the infant is asked by him, the godfather should pronounce it. When the act of baptism has been performed, the nurse (who should stand on the right hand) should take it; the service then proceeds to its conclusion. Afterwards the father follows the clergyman to the vestry, and there gives the necessary particulars for registration. Fees are optional; none can be legally demanded for the performance of this rite. If any festivity is held in honour of the event, it is customary to ask the officiating clergyman to be a guest.

Bar, Barrister.—A trial at bar is a trial at the bar of the court itself, before all the judges, as distinguished from a trial before a judge and jury at Nisi Prius or the assizes. The term bar is also used to describe the whole body of barristers. A barrister is a counsellor at law, qualified and called—*i.e.*, admitted to plead at the bar of the several courts of justice. He is in his professional character under the control of the benchers of his Inn. His fees (*i.e.*, remuneration for his services) are considered *honoraria*, and no action lies to recover them, nor can security be taken for them. Not so with conveyancers, or special pleaders before the bar, as it is termed, who may recover their fees by action, or take security. A barrister is not subject to proceedings for mistake as to the law, negligence, or non-attendance. He has numerous privileges, which are considered, however, for the benefit of his client. He is not subject to any process for libel or slander in his conduct of a case. He is, however, subject to be punished for contempt of court, even where he has spoken in the discharge of his duties as advocate. He is privileged from arrest while attending on the courts or going circuit. (*See* ADVOCATE, QUEEN'S COUNSEL.)

Barbel.—The barbel is a fish common in many English rivers. Its colour is brown above with a green wash, and yellowish-green on the sides. The fish is somewhat long in



BARBEL.

proportion to its weight, which is extremely variable, seldom, however, exceeding eleven or twelve pounds. The barbel is a mud-loving fish, and from its habit of grubbing in the mud it has earned the name of the fresh-water pig.

Barberry.—A perennial bush or shrub common in most parts of the world except Australia. The fruit is cooling and astringent, but of such acidity that it is refused even by the birds. It is used in pastry, but requires a good deal of sugar. A very excellent preserve or jelly may be made from barberries, and they are also used to make sugar-plums and similar articles of confectionery. They are also pickled with vinegar, and in this form are very agree-



BARBERRY.

able. The juice of the fruit mixed with water constitutes a refreshing fever drink. The bright red berries alternated with parsley are a very pretty garnish for white meats. The root of the barberry is used for dyeing yellow, and the bark can be employed in tanning leather. Both root and bark were formerly highly esteemed as a cure for jaundice. The barberry is admirably adapted for a hedge plant, and is now in Britain much used, more frequently than it was a few years ago, as an ornamental shrub.

Barège.—A light woollen fabric, so named from its having been first manufactured in the valley of Barèges, France. Paris has of late years become celebrated for this species of material, but in this instance the barèges are generally woven with the warp of silk and the woof of wool. The warp is very frequently composed of cotton in the common imitations exposed for sale in shops.

Bargain and Sale, Law of. (*See* BUYING AND SELLING.)

Bargains, using the word in its most familiar sense, are things bought at less than the ordinary current price. It may of course sometimes happen that articles are picked-up "bargains," but in quite nine cases out of ten the supposed cheap purchase proves to be anything but cheap in the result, the lower price not being due to the unselfish generosity of the seller, but to the fact that the article sold is of inferior quality, or second-hand, or in some respect or other defective. Bargains, therefore, of this nature, unless concluded with persons in whose integrity confidence may be placed, should be suspiciously regarded. Very many people will buy a thing *as a bargain* of which they have no need whatever; but it should always be borne in mind that the purchase of

unnecessary articles, however cheap, unless of course with a view to re-sale, is but another form of reckless extravagance.

Bark, Peruvian. (*See* CINCHONA.)

Barley is a well-known grain, the next in value to wheat. It came originally from Western temperate Asia. It has been cultivated from remote antiquity, and is mentioned in the book of Genesis, the Egyptian crop being destroyed by hail while yet in the ear. It was a favourite grain with the Athenians; but though it was largely cultivated by the Romans, and occasionally used by them as food for the soldiers, it was generally given to the horses. The Greeks, the Egyptians, and the ancient Germans made beer from it. In former times it was largely used in the British Islands for making bread, and it is so still in some parts of Ireland, and occasionally in the Highlands of Scotland, but the larger portion of that grown in Britain is used in the manufacture of malt. (*See* MALT.) It is not much cultivated in America.

Barley is hardier than wheat and oats, and is capable of being cultivated over a wider climatic range than any other grain. It is not so nourishing as wheat, and constitutes a lighter and less stimulating food. Average barley meal contains—

Starch	68
Albumen, Gluten, &c. . . .	14
Fatty matter	2
Ash or Saline matter . . .	2
Water	14
	100

One pound of pearl barley cannot produce more than one ounce of the nitrogenous substance of muscle or flesh. Barley is considered the mildest of the cereals; it is valued as an emollient and a demulcent. In ancient times decoctions of barley were the principal medicines employed for acute diseases.

Bread made of barley is less nourishing and less easy of digestion than bread made of wheat. It is best to mix barley flour with wheaten flour for making bread. Barley flour does not keep well; it is very apt to acquire a hot unpleasant taste.

Scotch Barley, or *Pot Barley*, is barley which has been milled and deprived of the husk. Pot barley is a coarse product, and retains in part the natural shape of the grain.

Pearl Barley is made by steaming barley to soften it, then drying it, and subjecting it to a rasping and paring process, by means of which the grains are rounded and polished, and their fibrous coats removed. Scotch and pearl barley are used in soups, puddings, &c. Patent barley is made by grinding pearl barley to flour in a mill.

Barley Water, made from pearl barley, is a wholesome and agreeable beverage, useful in inflammatory ailments, and in diseases of the chest and urinary organs.

Barley Cream, or *Crême d'orge*, is made by rubbing boiled pearl barley through a sieve, and then adding it to chicken broth.

Barley Sugar is so named because a decoction of barley water is used in its manufacture. A good deal of barley sugar is made with water, however, instead of barley water.

There are several varieties of barley. The principal varieties grown in England are the Chevalier barley, the common barley, the early English barley, and the Norfolk barley. The first of these is considered the best. In Spain and Sicily two crops are obtained in one year, but in more northerly latitudes only one is gained. The "yield" is usually from 28 to 40 bushels per acre, and the average weight is from 50 to 51 lbs. per bushel.

Barm. (*See* YEAST.)

Barn-door Fowls. (*See* POULTRY.)

Barometer.—An instrument for measuring the pressure of the atmosphere, or, in other words, weighing it, at any given spot. Its invention is due to Torricelli; and the principle on which its action depends was thoroughly worked out, in an elaborate series of experiments, by Blaise Pascal. The idea was suggested to Torricelli by his observing that when a tube, about a yard long, open at one end and closed at the other, is filled with mercury, and then inverted in a basin of mercury, the open end dipping below the liquid metal, only a small portion of the mercury in the tube will flow out into the basin, and the downward movement will cease when the level of that in the tube is about 30 inches higher than that in the basin. Pascal repeated the experiment under a variety of conditions, using water, oil, wine, and other liquids, and trying them at the base and summit of mountains. He found that the height of the column of liquid at any given spot was always in proportion to its specific gravity as compared with mercury; so that in using so light an article as water he was obliged to provide a tube exceeding 33 feet in length, the relative weight of mercury to water being as 13·6 to 1. He found too that the diminution in the height of the liquid in the tube was always closely proportional to the increased height at which the experiment was performed. The explanation is that the weight of the air at high elevations is so much less than at lower levels. It is evident that in the upper part of the closed tube from which the mercury has sunk down there is a vacuum; and that the weight of the column of mercury between the vacuum and the level of that in the basin must equal the weight of the air that supports it.



BAROMETER.

Mercurial barometers are made in two forms, with sundry variations—the cistern and the syphon. The original instruments were made of the first-named form, and some of the best barometers of the present day are modifications of it. The syphon barometer is very commonly adopted in making weather-glasses.

The simple form of the cistern is already described in speaking of Torricelli's experiment.

It needs, however, a graduated scale to enable minute changes of level to be read off with accuracy; and allowance ought also to be made for the rise of the mercury in the cistern, for it is not the apparent height of the mercury in the tube, but the difference between the levels in the tube and cistern that has to be ascertained. It is evident that an instrument so constructed is far from being portable, and that the mercury in the cistern is liable to be spilt unless it is kept nearly upright. For shipboard, and still more for travellers by land, the open cistern is unsuitable. An adaptation of it, however, furnishes the most portable form, and it is so arranged that it can be adjusted with the greatest possible nicety. The cistern is there enclosed in a way that the mercury cannot escape, while at the same time the atmospheric pressure is transmitted through the intervening membrane; it is also provided with a movable bottom worked by a screw, so that the surface of the mercury in the cistern can also be brought to the exact same level. The graduated scale on the tube then gives the exact height of the mercury, and the only correction necessary is that for temperature when great precision is required.

The syphon barometer is made of a glass tube, U-shaped, open at one end and closed at the other, the closed arm being nearly three feet in length, the other much shorter. When filled with mercury and inverted, the mercury in the closed arm will fall until it is balanced by that in the open one, plus the atmospheric pressure; and the difference in level between the two will then give the measure of the weight of the air. For this purpose it is necessary to have a scale affixed to each arm, graduated in contrary directions, from a common zero point, and the height of the mercury will then be the sum of the two readings. Special contrivances are resorted to, to prevent loss of mercury or the admission of bubbles of air, to both which risks the syphon barometer is liable when being removed from place to place. The aperture in the short arm may be reduced to the smallest possible dimensions, a pin-hole being large enough to transmit the atmospheric pressure to the surface of the mercury in the tube.

The wheel barometer is on the syphon principle, with an open end and a float on the surface of the mercury. The float is connected, by a string which passes over a pulley, with a weight at the other end. The motion thus imparted to the pulley as the float rises or sinks with the mercury is recorded by the pointer on the dial. This is the ordinary weather-glass.

Barometers, Uses of. — To measure altitudes; to make allowance for variations of pressure in the chemical analyses of gases; to indicate the changes in the atmospheric pressure due to storms, and hence to some extent also the general state of the weather.

At the equator the mean annual height of the barometer at the sea-level is 29·84 inches. The pressure increases as you recede from the equator till a maximum of 30·04 is reached, and as you recede still further it again diminishes. There are periodic variations in the pressure, both in regard to the seasons of the year and the hours of the day. The diurnal variations are most conspicuous in the tropics, the others in the temperate zones.

In measuring altitudes it is desirable, if possible, to have two barometers, one to be kept at a given starting-point, the height of which is already known; and the other to be carried to the summit whose elevation is to be ascertained. The observer at the base records any changes in the barometer during the absence of the exploring party, so that an exact comparison can afterwards be made of its position at the precise time the other observations are taken. The readings of the barometer must be corrected for change of temperature, and for purposes of comparison it is customary to reduce them always to 32° Fahr. The fall in the height of the mercury is more rapid at low than at high level—the fall of the first inch representing a rise of about 860 feet from the sea-level, and that of every succeeding inch a rise of about one-thirtieth part more than the preceding one. Thus in the high balloon ascents of Messrs. Glaisher and Coxwell in 1862, the barometer (corrected and reduced) sank to 11·143 inches, indicating a height of 26·177 feet, and in one instance to 9·753 inches, indicating a height of 29,000 feet above the sea-level.

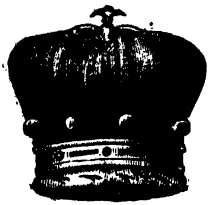
Chemists, in making gas analyses, are obliged to take the pressure of the atmosphere into their calculations, and therefore need to use the barometer. For this purpose the readings are also corrected and reduced to the temperature of 32° Fahr.

At sea the barometer is a most valuable instrument. The atmospheric currents alter the barometric pressure, and a careful watch of the rise or fall of the mercury, coupled with observations of the changes in the wind's course, will show the mariner whether the centre of the atmospheric disturbance is approaching or receding from him.

The common weather-glass can hardly take rank amongst scientific instruments, as it is not sufficiently exact in its indications, while the remarks usually put on the dial are misleading rather than otherwise. It happens in this country, situated as we are with a continent on the east and an ocean on the west, that the easterly winds are usually dry, and the westerly more or less charged with moisture, and that the south-west winds are warm, and north-east winds cold. Hot air being lighter than cold air, the mercurial column sinks when the former prevails, and *vice versâ*; and as the warm winds are the rainy ones, in this climate we have associated wet weather with a falling barometer, and dry weather with a rising one, though there is no real connection between the two phenomena.

Baron.—Anciently all peers were styled barons, but now the title is applied to the lowest order of the hereditary peerage. The wife of a baron is a baroness, and this title may be conferred independently upon an unmarried woman. Many persons in this country are called barons who have received the title from some foreign power, but who have no rank among us in consequence. There are

also barons by office, in the case of Barons of the Exchequer, but they do not take rank with hereditary barons, who as such have a seat in the House of Lords, unless they are simply barons for life.

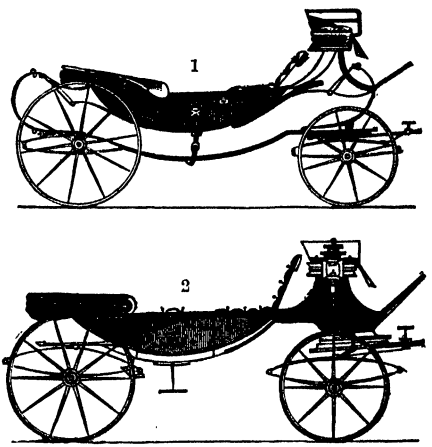


BARON'S CORONET.

Baron of Beef.—A large piece of beef consisting of two sirloins not cut asunder. The joint was probably thus named because it was so much superior to a sirloin, and a "baron" is higher in rank than a "sir." A baron of beef varies in weight from fifty to a hundred pounds. It was a great favourite with our ancestors, and was served on important festive occasions supported by a boar's head and a Christmas pie. It is not often seen now-a-days, excepting at civic feasts, and for the sake of conformity with ancient customs. On these occasions it is placed in an elevated position, and is carved with great ceremony.

Baronet.—This is the lowest order of our hereditary nobility, and the possessors of the title have no seat in the House of Lords. A baronet is styled "sir," and his wife "lady." James I. instituted the order in England in 1611; and subsequently baronets of Scotland, Ireland, and Great Britain respectively were created; but since 1800 all new baronetcies have been styled "of the United Kingdom." The creation of Scotch baronets ceased in 1706, and that of Irish baronets and baronets of Great Britain in 1800.

Barouche.—The barouche, or half-headed carriage, has of late years undergone many changes and improvements, the principal being in the direction of decreased weight in consequence of the prevailing fashion of employing a smaller, lighter, and more active breed of horses than were formerly in request for carriages. It is found that horses averaging fifteen and a half hands are suitable alike for draught and for the saddle, will do a longer day's journey, and travel with greater rapidity than the large coach-horses formerly employed did. The barouche must not, however, have its strength sacrificed to lightness. All carriages require a strong and sound foundation proportioned to their uses; but the skill and ingenuity of coach-builders have of late years done wonders in reconciling the greatest degree of lightness with a sufficient degree of strength, and we no longer see the massive timber foundation formerly used, with its consequent deep panels and high projection to step over on entering the carriage. The bottom sides are now so framed as to leave a gap in the centre for the door to reach down to the real bottom line of the body, and the timber used, instead of being six or more, is about three or three and a half inches in thickness, and the framing of the doorway is at the same time so reduced in depth at the doorway as to be stepped over with much greater ease—a convenience especially valued by invalids and elderly persons. The doors of the modern carriage reach to the bottom line, enabling the glass to fall lower and the panels to be made shallower. Fashion and good taste dictate that, in barouches especially, the construction should be conducted with due reference to artistic proportion and gracefulness of line. The folding steps must be concealed from sight when not in use, and should open and close with the action of the door, to avoid the necessity for a footman to let them down. Steel should take the place of iron wherever it is possible to use it, and pieces of india-rubber should be placed so that the doors do not keep up an unpleasant rattling during the time the carriage is in motion. The construction of a carriage, embracing as it does such a variety of different materials—wood, metal, paint, leather, cloth, silk, ivory, hair, carpeting, glass, &c.—is one which should



BAROUCHES.

1. With C Springs. 2. With Elliptic Springs.

be carefully investigated by the purchaser, and upon the quality of the fittings and their greater or lesser completeness the price of the vehicle will of course very largely depend. The cost of a carriage is often considerably increased by ornaments, finish, and automatic contrivance, which can be advantageously dispensed with, as they add nothing to its real beauty or its strength, and are of much greater apparent than real practical utility. Still, a good carriage is never very low in price. The low-price vehicle is all "leather and prunella," and resembles the cheap couches and easy chairs of inferior furniture-dealers. Spring cushions make up for external springing, and showy exterior fittings serve to conceal constructive defects and bad materials.

Barragon.—A stout cotton fabric of the fustian class, used chiefly for the garments of those to whom strength and cheapness combined are of importance. It is usually called moleskin. (*See* MOLESKIN.)

Barrel.—The ordinary barrel made by the cooper is too well known to call for any lengthy description, although it is an article of no small importance, enabling us, as it does, to convey the richest viands and wines from remote parts of the world, and export and import a large

variety of articles. Barrels are chiefly constructed of oak, cut into narrow pieces called staves, made narrower at the top than they are at the bottom. After the staves are dressed, and ready to be arranged, the cooper, without attempting any great nicety in sloping or bevelling the edges so that their surfaces meet perfectly, brings them into contact at the inner surfaces only, and then the hoops of wood or iron being put on and driven tight, a more complete join is effected than would have been obtained by sloping the staves from the outer to the inner side. The wooden hoops are usually constructed of ash or hazel. For barrels intended to hold liquids, split flags, which swell with moisture, are sometimes placed while dry between the staves; but as a rule these are found unnecessary, although in repairing old casks of a leaky description this plan is commonly adopted. Barrels were in more common use for domestic purposes in olden times, and even down to the first quarter of the present century one of the more common London street cries was—"Any work for the cooper?" Air and water-tight metallic barrels are now largely in use for the preservation of provisions. These are usually made of wrought-iron, of a cylindrical form, with a seam soldered or riveted in the usual way.

Barrow.—The barrow is a machine for carrying loads by manual labour. There are two kinds of barrows, known as hand and wheel-barrows, varying in form and construction according to the work for which they are intended. The excavator's barrow, the brick-maker's barrow, and the gardener's barrow have differing features, but they are all so far alike that they are constructed with a single wheel in front and two handles behind, the longer which are, the less is the strength required in the labour of wheeling. It is estimated that with a barrow a labourer can do half as much more work in carrying loads than can be accomplished with the hod or any similar means of carrying a load. There should be two long leaf springs in the outer end of that part on which the pivot of the wheel turns.

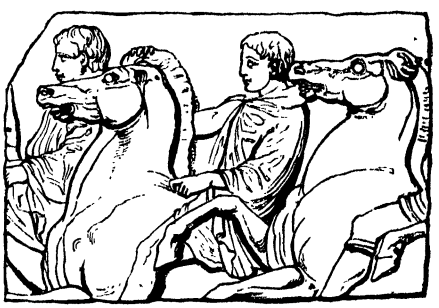
Barwood, usually considered to be identical with camwood, is a tree which grows in West Africa, and owes its importance to its uses as a dye-stuff. The wood is red, and the colour from it is also red, which, though bright, is not very permanent.

Basilicon.—This popular ointment is the *Ceratum Resinæ* of the Pharmacopœia. It is composed of resin, wax, and olive oil or lard. It is a useful application for indolent ulcers, bad sores (after sloughing), and chilblains when the skin is broken. It is frequently applied to boils, and is certainly useful when there is a discharge of matter, but it should not be employed previous to this except when spread in a small quantity upon a poultice.

Black Basilicon is the above preparation with pitch added. It is sometimes used for sores on animals. *Green Basilicon* is the ordinary basilicon with verdigris. This also is used for animals. Neither of these two latter preparations are now officinal.

Baskets.—The majority of baskets made in England are of willows. In the valleys of the Thames and Trent these are largely cultivated. Willows are grown in France, Germany, Belgium, and Holland. French willows are firm, clean rods; Dutch willows are soft and pithy; English willows are tough and leathery, and therefore are the strongest. The rods are cut from the root of the trees, and then soaked in water or boiled: the latter treatment turns the canes a light brown colour. The baskets known as Southport baskets may always be recognised by their brown hue; the rods are considered to be stronger than when peeled white. After the willows have been stripped of their bark, they are exposed to the sun and air, and then placed in a dry situation. Few and very simple are the implements required by basket-makers, and the process of weaving them is also simple, and affords employment to many blind people. The art is ancient and universal; the Britons were especially famed for it in early times. Many and various are the materials employed in the making of baskets. The North American Indians form them from the roots of trees, the South American Indians from the fronds of palms; the Africans employ reeds; the Japanese and Chinese make use of the bamboo, the natives of India the fronds of the Palmyra palm and the odorous leaves and roots of the pine. In New Zealand strips of the flax plant, and in Spain Esparta fibre are employed for the purpose. Straw and sedges, twigs, rushes, and strips of wood, glass, and wire are all severally used for the construction of these useful utensils. The Austria lacquered and varnished imitations of gold, silver, and steel are made. The Viennese baskets are distinctive by having a china plaque fixed in the centre. Many elegant fancy baskets are made in the Black Forest.

Bas-relief, or Basso-rilievo.—A kind of low sculpture in which the figures and other details do not stand out in bold relief, but are



BAS-RELIEF.

only slightly raised above the ground. (*See* ALTO-RILIEVO.)

Bass.—A name for the hassock or cushion used for kneeling on in church. The word **bast** occurs in the same sense, and both properly denote the tenacious inner bark of the lime-tree, from which most likely these cushions were originally made.

Bass.—The bass, or sea-dace, or sea-perch, is a fine fish common on many of our coasts, and considered by anglers to afford good sport. Its

flesh is excellent, and is thought to be in the best condition when the fish is small, and measuring about eighteen inches in length. The colour of the bass is dark dusky blue on the back, and silvery white on the abdomen; the fins are brown. It occasionally grows to a large size, specimens having been met with weighing upwards of twenty pounds.

Bass (Voice).—The name of the lowest and deepest quality of the human voice. The compass of a bass voice is generally from F below the lowest line of the bass stave to D above the first ledger line, which tones should all be delivered from the chest. The bass voice only begins to show itself at the age of manhood, and is very often a change from a low treble voice in a boy. A high bass or baritone voice may be distinguished from the second bass by its not possessing fulness below the low C or B. The second bass is distinguished by its full, heavy notes in the lowest part of its compass. In the upper part of the voice it is not very dissimilar to the baritone, though it lacks its characteristic brightness and resonance. This sign, or clef, adapts  the staff to bass voices. The line on  which it turns is F, and it is hence called the F clef. Every one should know the compass and capabilities of his own voice. It is exceedingly important for good effect in part-singing that each part should be sung by its proper voice. A tenor should never try to force his voice down into the bass, or a bass to strain at the tenor.

Basset Horn (more commonly known to musicians by its Italian name, *corno-di-bassetto*) is a now practically obsolete wind instrument of the single reed species, and may be termed the "tenor" of the clarinet, which instrument it very much resembled in shape and tone. The "bell" of the *corno-di-bassetto* was, however, made of brass, the tube being of wood. The compass was about two octaves and a fifth from lower bass F. The instrument is supposed to have been invented at Passau in 1770, but was certainly introduced by Lotz, of Presburg, in 1782. Mozart was the only composer who made a frequent use of this instrument, which is seldom seen in a modern orchestral score.

Bassinette (and Furniture).—A bassinette is a wicker-work cradle of very small dimensions, which, on account of its greater warmth as compared to one of the ordinary size and character, is preferable of the two for a delicate child. It has the additional advantage of being more portable, as it should measure about three feet long, by eighteen inches wide, and fifteen or sixteen inches high at the sides. The wicker-work is covered with sprigged or spotted muslin, and pink or blue glazed calico underneath, to show through; or else a small-patterned chintz can be used, and the inside of the bassinette is to be lined to match. The cover is made about half a yard deep down the selvage, and four yards and a half in width. The breadths are sewn together, a deep hem made at the top, with a runner for a string, so that it can be drawn in round the top to fit the cradle. A similar runner must be made at the bottom for the same reason. The head of the bassinette must be covered in a similar way. There should be a small mattress made of horsehair, about one nail in thickness. Fine chaff, sea-weed, beech-leaves, or wool, are sometimes employed. Chaff is said to keep very dry, but horsehair is the best material for it. The feather bed above the mattress should be very thin, and the pillow likewise, the latter filled with down. The other requisites for the furnishing of the cradle comprise a pair of fine calico sheets, one of india-rubber, to be placed under the lower sheet; three blankets of thick Welsh flannel, worked round with coloured worsted, or bound; and a piece of flannel two breadths square, and likewise worked or bound round the edge, in which to wrap the feet of the child. Lastly, there should be a coverlet, the nature and thickness of which must depend on the season of the year. White piqué, such as used for toilet-covers, is very suitable for the purpose.

Bast.—The Russian mats used by gardeners and upholsterers, made from the bark of the linden, or lime-tree, go under the name of bast mats. The name is also given to the bark or tough fibres of the hemp and flax plants, of which bast brooms are made. Bast mats are used in gardening for a great variety of purposes; for protecting wall-trees, delicate shrubs, and tender plants; to cover hothouses, hand-glasses; and to shelter plants from wind, shade them from the sun, &c. Bass and bast are synonyms. The hassock or thick mat on which people kneel in church is sometimes called a bast.

Basting (Cookery).—One of the essential conditions of good roasting is constant basting. The operation should commence almost as soon as the joint is put down to the fire, before the skin has had time to harden and get dry. A little dripping, as much as will fill the basting ladle, should be melted before the joint is hung so as to be in readiness, and this should be poured over the entire surface of the meat every ten minutes. By this means only can an ordinary joint be properly roasted. It is a great mistake to suppose, as some cooks do, that the basting process need not commence until the joint has itself yielded sufficient fat for the purpose. By the time it has done that it will have yielded also a good deal of its succulence. Neither should it be continued until the joint is taken down, as this will make the meat taste greasy. For the last quarter of an hour that it is before the fire it should be left unbasted. It is the lean part of meat that needs basting; the fat part scarcely requires it at all.

Basting (Work).—This term is more particularly used by tailors than by any other class of sewers. To baste is to tack parts of work together with long stitches for the purpose of keeping the pieces in their places until they are properly sewed together. It is the sign of a well-taught sewer to baste each part instead of fixing with pins, or merely placing the pieces together. The time occupied in basting work is never wasted, for the result is a degree of neatness and exactness which can never be attained by any other method.

Basting Ladle.—Of course the fat with which meat is basted should be quite clean and free from cinders, dust, or impurities of any kind. In order to ensure this, basting ladles are made half covered with a piece of metal perforated with small holes, so that if a piece of cinder should get into the dripping, it may be kept from falling upon the meat. These ladles are also provided with very long handles, so that the cook need not scorch her face in basting the meat.

Batch.—This word primarily seems to mean a baking, and hence it is used to denote the whole of the bread baked at one time in an oven. From this comes its colloquial use to denote a lot or quantity—*e.g.*, a whole batch of letters.

Bath Brick.—A friable artificial stone of a yellow colour, and moulded into the form of bricks. It is formed of a fine siliceous sand, and is chiefly made at Bridgewater, in Somerset. It is used for polishing metal, especially for cleaning steel knives and forks, and vessels of brass or copper. Flanders brick is a similar composition.

Bath Buns.—Bath buns are made from a mixture of flour and butter, with eggs and yeast added. The paste is moulded into the shape of buns, and caraway-seeds which have been dipped in sifted sugar are sprinkled lightly over the top. A little candied-peel or orange-rind is sometimes introduced. Bath buns are almost the same thing as the Brioche cakes which are so popular in Paris. (*See* Buns.)

Bath Chairs.—Bath chairs, fixed on wheels and covered with a hood, are used for invalids. They derive their name from the city of Bath, where they were first employed by sick people who went there to drink the water from the famous hot wells.

Bath Stone.—A description of freestone used for building purposes, so named because it comes from the neighbourhood of Bath. The great oolite there attains a thickness of some 200 feet, and the softer beds of it are extensively quarried. Though fossil shells are common in all the oolite rocks, many of the beds around Bath are almost free from them, and in these the stone presents a very uniform structure, yields easily to the saw of the stone-cutter, and is also well adapted for the chisel of the sculptor. It is not, however, so durable as some of the other freestones.

Bathing-dresses are usually made of coloured serge or coarse flannel. Dark colours are most advisable, and neither cotton nor linen materials should ever be employed. The costume most used in England consists of a loose blouse and trousers. The blouse has a belt at the waist, and is either with or without sleeves, according to taste, and reaches to the knees. In America the ladies wear a straw hat to shade the face and head from the sun while bathing—a wise precaution when the sun is hot and powerful.

Baths and Wash-houses.—These highly-important public institutions are of modern origin, and arose out of the desire to provide the public with cheap aids to cleanliness. The first movement in London was in 1844, since which time baths and wash-houses have been established in many large cities and towns of this kingdom, and upon the Continent. Their establishment is regulated by Acts of Parliament, and the outlay is met by a charge upon the rates. In boroughs the borough council may decide upon their introduction; in parishes it is left to the vestry, with the sanction of one of the Secretaries of State. Two or more vestries may concur in carrying out the provisions of the Acts relating to them. In parishes from three to seven ratepayers must be appointed commissioners for carrying out the Act.

Baths and Bathing.—The bath has at all times and in all climates been highly esteemed as a powerful agent in promoting cleanliness and vigour in the young and healthy, and in its many forms, medicinal and otherwise, it has, by its action upon the eliminative function of the skin, been of great service in the treatment of various kinds of disease. Baths are so numerous and diverse in their composition and mode of administration, that they can only be partially described and in detail.

The Cold Bath.—This bath, taken at a temperature ranging from 33° to 70° Fahr., first by shock and afterwards by healthy reaction, imparts vigour to the body and cheerfulness to the mind. For persons suffering from lung or heart-disease, or who feel cold and weak after its use, this bath is not suitable. Bathers in the sea or river, if they have been previously heated by active exercise, should not wait until they have cooled down before taking the plunge, as they are less likely when warm to take chill or cramp; neither should they remain too long in the water.

Under the head of cold bath may be described the *Cold Affusion* and *Shower Bath*. The former is employed in numerous diseases, as fainting, epilepsy, hysteria, poisoning by prussic acid, suffocation by carbonic acid or charcoal; and consists in pouring water out of a pitcher upon the head or body from a height of one to three feet. The affusion should be kept up for a few seconds only, and the part should be carefully dried and afterwards warmly wrapped up. Dashing cold water on the face or chest, or slapping with a wet towel, are forms of affusion which may always be used with safety when the object is to restore animation and respiration.

The Shower Bath is tonic and invigorating in its action, but should not be used too cold. It is a good plan to have the water placed in the bath over-night, and a little warm water added in the morning when necessary. The shower bath has been extensively used in the treatment of the insane when violent. If it induces headache or chill after its use it should be discontinued.

Tepid Bath.—This bath, at a temperature from 92° to 98° Fahr., promotes perspiration and relaxation, and is very serviceable in dropsy after scarlatina, in the passage of gravel or gall-stones, in inflammation of the bladder or kidneys, in strangulated bowels, in spasm, rheumatism, and in certain skin diseases.

Hot Bath.—At a temperature ranging from

98° to 112° Fahr., this bath increases the fulness and frequency of the pulse, accelerates respiration, and produces throbbing of the head. It is powerfully excitant therefore, and must be used with great caution.

Vapour Bath.—This deservedly popular bath consists in placing beneath a cane-bottomed chair a vessel of hot water, under which a spirit-lamp is kept burning. The patient sits undressed on the chair, wrapped up in a waterproof cloak or blanket, so as to exclude all air, until profuse sweating results. Hot bricks, or a lump of quicklime folded in wet cloths and placed under the chair, will answer the purpose when there is no apparatus such as that described at hand. This bath is most useful in chronic rheumatism.

Hot Air (Roman Bath, Turkish Bath).—This consists in exposing the naked body in a room into which hot air of high temperature is admitted (this, as a rule, should not exceed 140° Fahr.). After remaining until perspiration is fully established and has continued for some time, the process of shampooing begins, in which the body is soaped, cleansed, brushed, and kneaded, and the joints stretched; this operation completed, the bather plunges into a cold swimming bath, from which he emerges into a comfortable apartment, where he dries and dresses himself, and if he desires it can complete his enjoyment with a cup of coffee and a cigarette.

Medicinal Baths.—These are very numerous, and it is only possible to describe a few of those most in use. They should never be taken except under medical advice, and are generally administered *tepid*.

The Alkaline Bath contains carbonate of potash (salts of tartar) in the proportion of half a pound to twenty gallons of water; it is useful in rheumatism.

Iodine Bath, useful in rheumatism and certain skin diseases.

Mercurial Vapour Bath.—This highly efficacious mode of administering mercury is effected by supplementing the vapour bath above described by placing in the vessel holding the water a saucer containing ten to twenty grains of calomel, but in such a way as not to be wetted by it; or if hot bricks are used, the calomel may be sprinkled on them. This is a valuable remedy in syphilis.

Acid (*Nitro-Muriatic*) *Bath.*—The vessel containing this bath must be of wood, and the acid should be in the proportion of about two ounces to the gallon of water. It is generally used as a foot or knee bath, and is said to be very efficacious in liver disease.

Sulphur Bath.—This bath is made by placing from half a pound to a pound of sulphur in a pail of tepid water, and allowing it to remain for several hours, frequently stirring; the contents of the pail are then thrown into the ordinary bath, and mixed up with the water in it. It is a most useful remedy in many skin diseases, especially itch.

Electro-Chemical Bath (Dr. Caplin).—The patient being placed in an appropriate bath, is saturated with the electric fluid, which is supposed to decompose and carry off all morbid matter foreign to the system.

Mineral Baths.—In addition to the baths already described, we have under this head the natural springs of Bath, Buxton, and Harrogate in this country, of Vichy, Ems, Aix-la-Chapelle, and Kreutznach on the Continent, as well as those of America, all of which have some special virtue accredited to them, and are consequently much frequented.

Bath Waters.—These are hot springs having a temperature of about 117°. They are acidulous, chalybeate, and slightly saline, and contain carbonate of lime, iron, common salt, and magnesia, all kept in solution by carbonic acid. The waters are drank twice a day, about half a pint each time, and they are also used for baths. They are said to relieve rheumatic gout, neuralgia, and some forms of paralysis and skin disease. They were highly prized by the Romans who made Bath a favourite station, and erected handsome baths there, the remains of which were discovered in 1755.

Bâton-sinister.—The figure in heraldry commonly known as the bastard bar, and consisting of a bar or bâton diagonally placed across the coat of arms.

Bats (Cricket, Racket, &c.) are implements generally constructed more or less of wood, and used in various games that are played in this country and elsewhere, to strike a ball or other missile. Full descriptions of each kind of bat will be found under the respective games for which they are used. (*See* Badminton, Cricket, La Crosse, Lawn Tennis, Rackets, Tennis.)

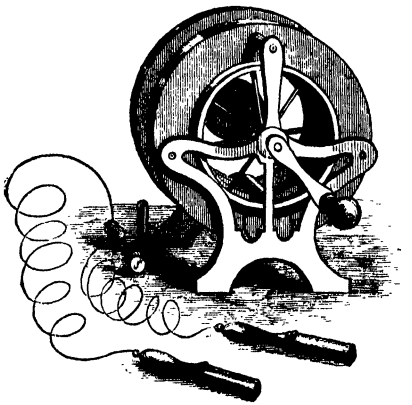
Batten (Carpentry).—A scantling of wood from two to four inches in breadth, and in thickness about one inch, is called in carpentry a deal or batten (the word scantling indicates the transverse dimensions of a piece of wood in breadth and thickness). It is chiefly used for wainscot, and doors resembling wainscot doors, called batten doors. In wainscot doors, properly so called, the panels are grooved into the framing. Three-inch deals, or battens, when cut into two boards of equal thickness, are technically known as "one-cut;" if cut into three boards of equal thickness as "two-cut," and so on. On board a ship, the word batten is used for the thin strip of wood which the carpenter puts round the hatches to keep down the tarpaulin, or upon rigging to keep it from chafing. A large batten widened at the end and put upon the rigging is called "a Scotchman."

Batter is in cookery a half-fluid mass made of flour and liquid beaten smoothly together, and used for pancake fritters and puddings, and for frying meat and vegetables. The preparation becomes hard when cooked. The ingredients of which batter is composed consist usually of flour and either milk or water or a mixture of the two, and enriched with eggs, butter, and seasoning. According to the purpose for which the batter is intended to be served, a portion of the milk or water which it contains may be replaced by wine, brandy, beer, or any sort of liqueur such as noyeau, maraschino, curaçoa, &c. In German batter there is beer. In Italian

batter there is no water and no butter; the liquid part is made of oil, the yolks of eggs, and either milk or wine. Batter is always best when mixed an hour or two before it is to be cooked. The whites of the eggs, whisked to a firm froth, should not be introduced till the mixture is wanted for the fire.

Batterie de Cuisine.—A French phrase frequently employed instead of its English equivalents, culinary apparatus, or cooking utensils.

Battery, Electric.—An electric battery consists of a series of Leyden jars, all connected with one another. The ordinary form of Leyden jar is that of a glass bottle coated for some distance up the outside with tinfoil, and either coated within with the same, or filled with thin leaves of copper or with gold-leaf. A brass rod passes through the cork, the upper end

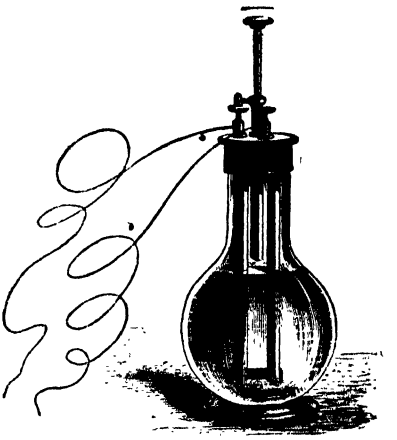


ELECTRIC BATTERY.

terminating in a knob, and the lower end being in contact with the metal within. The jar is charged by bringing one of the coatings or armatures in connection with the ground, and the other with the source of electricity. In the battery the wires communicating with the interior coatings of each jar must all be connected together; and likewise the outside coatings must be in connection with one another. The larger and more numerous the jars are, the more powerful will be the effect of the battery, but it will take so much the longer to charge it properly.

Battery, Galvanic.—There are several forms of galvanic battery in common use; Daniell's, Grove's, and Bunsen's, all named after their respective inventors, are the most familiar. The earlier forms, consisting of two metals, such as copper and zinc, and one liquid, a weak acid, all suffered from loss of intensity as the action proceeded. Those named above have been constructed with the special object of obviating this defect, and are called by way of distinction "constant batteries."

A Daniell's cell consists of a vessel containing a saturated solution of sulphate of copper, in which is immersed a copper cylinder, round the inside of the upper edge of which runs a shelf, with a perforated bottom, on which sulphate of copper crystals are placed for the purpose of maintaining the strength of the solution. Inside the copper cylinder is a porous vessel, made of unglazed earthenware. This contains a solution of common salt, or weak sulphuric acid, in which stands a cylinder of amalgamated zinc. A battery consists of a



GALVANIC BATTERY.

number of these cells connected together in a series by wires attached by binding screws to the copper and zinc cylinders respectively.

Grove's battery is made of a series of connected cells arranged as follows:—The outer cell is of glazed earthenware, in which is placed a thick sheet of amalgamated zinc, the part within the cell being bent into the shape of the letter U, with a flap one side projecting over the next cell for the purpose of attaching binding screws to connect the zinc of the one with the platinum of the adjoining cell. Inside the U-shaped portion of the zinc is placed a narrow porous cell, and inside that again a thin sheet of platinum. The porous cell is filled up with the strongest nitric acid, and the outer cell with dilute sulphuric acid.

Bunsen's battery is made on the same principle as Grove's, only that carbon is substituted for platinum. It is found convenient to alter the form of the parts, the carbon being made in the shape of a solid block standing in a circular porous cell, and that again in a sheet of amalgamated zinc, bent into the form of a hollow cylinder.

Each of these three forms of battery has its peculiar merits. Daniell's is the one in most extensive use, on account of its great constancy of action, of its being cheaper in cost than the other two, and from its not giving off nitrous fumes as the others do. Grove's battery possesses very high intensity, and on that account is much used in experimenting, in producing the electric light, and in scientific investigations. Bunsen's is not inferior in intensity to Grove's, and is used for similar purposes; it is somewhat cheaper, but not so compact in form. In Germany it is much used in cases where Daniell's would be adopted in preference in this country. For telegraphic purposes Daniell's is

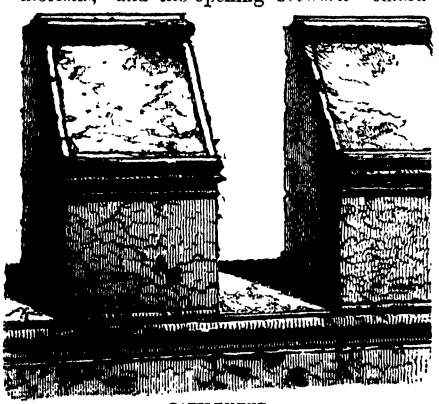
decidedly the best, as it is cheap, and uniform in working, and the intensity required can be obtained by using any additional number of cells. For electro-plating it is also the most suitable, as uniformity of action is necessary to produce a good and even result.

Smee's battery is made with two metals and one liquid, the metals employed being a plate of silver, covered with metallic platinum, in a very fine state of division, with a zinc plate on either side.

Leclanché's cell is made with zinc and carbon, and the liquid used is a solution of chloride of ammonium. The block of carbon stands in a porous cell which is filled in with a mixture of powdered peroxide of manganese and carbon.

Battledore.—In former times battledore and shuttlecock was quite a fashionable amusement among grown-up persons. It is mentioned in an old comedy of 1609, and is also recorded as having been used as a diversion by Prince Henry, son of James I. Now-a-days it does not enjoy so high a position by any means, but it is still popular. Originally battledores were all of wood, but the best kinds are those known as "drum," with parchment headings.

Battlement.—A notched or indented parapet—introduced originally for purposes of defence, as enabling soldiers to shield themselves from the shafts of the enemies' archers, and at the same time be able to use effectually their own missiles and weapons—is known as the battlement. From castles it became used on ecclesiastical and other edifices, modified for ornament. Its protecting portions are called "merlons," and the opening between "embrasures," and in ancient examples the latter are narrow in proportion to the former. On castles they were, of course, broad, massive, and of great strength; but when they became ornaments only, these qualities gave way to proportions less massive, and were often decorated with circles, trefoils, quatrefoils, and mouldings to form panels. They were, however, sometimes ornamented on the old castles with figures of armed men and animals, as at Alnwick and Chepstow Castles. Battlements became very common in church-building towards the end of the thirteenth century; and they are frequently found on cornices and tabernacle work, and sometimes in the Perpendicular style on the transoms and bases of windows. Occasionally we find a battlement having under it a hollow space which permits water to run away from the roof, thus serving the purpose of the English gurgoyles; and in some places, battlements rising one out of the other in a very peculiar fashion, with rows of holes for the water to escape by.



BATTLEMENT.

Bay-leaves are taken from a species of laurel (*Laurus nobilis*), a native of Asia Minor, which is now diffused over all the countries of the south of Europe, and is cultivated in the shrubberies of Britain. Generally speaking, it is a mere bush growing to the height of a few feet, but occasionally it becomes a lofty tree. The leaves, which are large, leathery, and shining, are bitter, agreeably aromatic, and narcotic. They are used in cookery for the purpose of flavouring. At one time they were employed in medicine for coughs, colds, and hysteria, and were applied externally to sprains, bruises, &c. From very ancient times bay-leaves have entered largely into the ceremonies and superstitions of various nations. It used to be believed that the fading of bay-leaves was a sign of approaching death, and also that those who wore bay-leaves were safe in a thunder-storm. The Greeks named the laurel Daphne, and it was held sacred to Apollo. A wreath of it, composed of berry-bearing twigs mixed with parsley, was placed on the forehead of victorious heroes or poets. Thus Spenser sings—



BAY-LEAVES.

"So him they led through all their streetes along,
Crown'd with garlands of immortal *baies*."

In later times a laurel wreath was bestowed upon those who won honour as poets, artists, or warriors; and to this day this is the emblem of literary or military fame.

Bay-salt is salt obtained by the gradual evaporation of sea-water in shallow tanks or bays by the action of the sun. This salt is of a dark-grey colour, and has a coarse appearance. Where great fineness is required, the salt is re-dissolved and crystallised. It contains iodine, bromine, and the salts which are soluble in sea-water.

In domestic economy, meat which is cured with bay-salt has a superior flavour, and is mellower than that which is cured with common salt. Bay-salt is extensively obtained from the salt marshes which are found along the shores of the Mediterranean, and on the coasts of France.

Bayeux. (*See* TAPESTRY.)

Bazaars, Hints on.—It is not always possible to make these undertakings successful, but there are various methods which, if followed, will materially help to do so. The stalls should afford as much variety as possible. There should be articles to suit all tastes and all pockets. Lacework, embroidery, and children's garments generally meet with a ready sale, but there should be no lack of small inexpensive trifles for the sixpences and shillings that many are willing to spend. One of the chief difficulties is that of providing articles that will tempt gentlemen to buy. The stalls should be prettily decorated with coloured cambric and white muslin; they should not be over-crowded with things, or the general effect will be spoilt. It is a good plan to have a reserve stock in hand, and from time to time to bring from it fresh articles; thus the appearance of the stall is often changed, and fresh attractions catch the eye of the passers-by. It is a mistake to put exorbitant prices on things; it is a mistake to refuse to give change; it is a mistake to persistently bore people to buy. A little extra money may thus be gained from some, but much more is in reality lost, for the public generally will shun those who have the reputation of charging heavily, of keeping what does not fairly belong to them, or of urging them unduly. Raffles and lotteries are two modes of disposing of expensive articles. (*See* RAFFLES.)

Beading.—A moulding. Beadings are used in carpentry by being placed upon the edges of framing in which the panels are flush, the grain of the wood being in the same direction. They are the simplest kind of mouldings in use, being simply small and semi-circular. In architecture it is usually called the astragal, from the Greek term for a knuckle-bone, and it is found encircling a column, &c.

Beadle.—An inferior parish officer, appointed by the vestry. His business is to attend the vestry, to give notice of its meetings to the parishioners, to execute its orders, to assist the parish constable, and generally to do and execute all the orders and business of the vestry and of the parish, as their messenger or servant. The office of the beadle is held during "pleasure," so he may be dismissed at any time for misconduct by the parishioners assembled in vestry.

Bead-work.—Beads when sewed on canvas are a useful as well as an ornamental style of work, for, when soiled, the work can be rubbed clean again with a damp sponge. Mats and stands for tea and coffee-pots, urns, and kettles are particularly serviceable, for heat and damp have no damaging effect on beads. The one difficulty in this work is that of getting the different coloured beads all of one size, and that size exactly to suit the canvas (which should always be coloured). Groups of flowers in shades of pink, grey, or drab rounded with light-blue beads are very effective. They should be sewed on with strong cotton, in straight lines, and a long thin needle will expedite the work; beads which will not pass the needle should at once be put aside, and not dropped back into the original heap. Beads worked into mats or cushions of themselves are not advisable work, as they are not firm enough, and are also apt to scratch and injure polish and varnish should they come in contact with it on trays and tables. A lengthy list of beads could be given, for there are beads made of coral, jet, amber, garnet, pearl, steel, glass, rock crystal, and seeds. Very beautiful beads are made at Venice of transparent glass, enamel glass, threads of coloured glass twisted through clear glass, and other varieties. Rods or canes of these are drawn out, and then the beads are pinched off, and afterwards are cut and faced, if need be. Pearl beads are made by blowing milky-white glass through a blow-pipe. Enormous quantities of glass beads are made in England for exportation to Africa, India, the Polynesian Islands, and other far-off regions. All savage and uncivilised tribes eagerly barter their possessions for beads. The way in which beads came to be known by that name arose thus: the word *bead* is the Saxon word for "prayer." It was the custom then, as it is with the Roman Catholics now, to keep count of the number of prayers recited by means of little round balls strung together, and in this way small balls were eventually called beads.

Beagle.—There are several breeds of this species of dog, distinguished from each other by their size and general aspect. Amongst these are the medium-sized beagle, the rough beagle, the dwarf beagle, or rabbit beagle. So very small are some of the last-named that a whole pack has been conveyed to and from the field in hampers slung over the back of a horse, or simply in the shooting-pockets of the men. Their strength was thus preserved for the labours of the field, and they were saved from the fatiguing walk to the field and back again. Beagles are chiefly employed by those who hunt on foot. They used to be much in favour with the junior members of the universities, for the purpose of affording a pleasant afternoon's amusement.

Beam.—The beam, in building, is a piece of timber resting upon the walls, and used to support the floors or fronts of the houses. Its strength is inversely as the length, and directly as the breadth and the square of its depth, and is therefore generally made greater than its breadth, as by this means comparative lightness is obtained without loss of strength, while both bulk and cost are diminished. The names of beams vary according to their uses and situations. The tie beam extends horizontally from opposite walls, and has notches near the extremities, against which the lower ends of the principal rafters of the roof abut, by which means the thrust of the rafters is against the tie beam, and not against the walls, which they would otherwise have a tendency to displace from their position. A stout beam extending

to opposite walls to carry joists when the distance between the walls is great is called a girder. A beam used to support a portion of a building above a considerable opening, similar to a lintel over a doorway, is called a bressummer. When a beam projects from a wall, and has the outer end unsupported, it is termed a cantilever. When, in consequence of the greatness of space between the points of support and the load a beam has to sustain, it is not formed of one piece, a truss is employed, consisting of two inclined beams abutting against notches in a horizontal beam near its extremities, the upper ends of the beams meeting in a point upon which the load rests, so that the pressure is transferred from the centre of the beam to that portion of it more directly above the points of support. The stress upon the beam is thus changed from a transverse strain to a tensile strain operating in the direction of the fibres. Roofs and centres of bridges have such beams. (*See* ROOFS.) The beam of a steam-engine is a large lever turning upon a centre, and forming the medium of communication between the piston-rod and the crank-shaft. The beam of a balance is the horizontal piece of iron from the ends of which the scales are suspended. In naval architecture, the beams are strong, thick pieces of timber stretching across the ship from side to side to support the decks. They are sustained at each end by thick planks called the clamps. A ship is said to be on her beam-ends when she inclines so far to one side that her beams are nearly vertical. In pictorial art, the word beams indicates rays of glory such as we see depicted around the heads of saints; and in ornamental art, it should be borne in mind that for angels they are always blazoned, or on an azure field.

Bean, Tonquin.—The fruit of the *Dipterix odorata*, a tree growing in the West Indies and in South America. It is used in perfumery in the form of an essence or oil. One bean will be sufficient to place in a drawer containing articles of clothing to impart to them a pleasant odour; and it retains its fragrance for years. These beans are peculiarly adapted for the scenting of snuff, for which purpose they are much employed.

Beans (Various).—The garden bean is an annual plant. It is supposed to be a native of the East, and particularly of Egypt, but has been known in this country from time immemorial, having, in all probability, been introduced by the Romans. The seeds are the only part employed in cookery, and are either put into soups, or sent to table in dishes apart. Amongst the principal sorts planted in British gardens are the early Mazagan, long-pod, Windsor, green Windsor, green long-pod, white-blossomed, red-blossomed, dwarf fan, dwarf red, &c. "The Mazagan," says Loudon, "is one of the earliest, hardiest, and best-flavoured. Mazagan is a Portuguese settlement on the coast of Africa, near the Straits of Gibraltar; and it is said that seeds brought thence afford plants that are more early and more fruitful than those which spring from home-saved seed." The dwarf fan or cluster bean is also an early variety, but it is planted chiefly for curiosity. The long-pod bean has been long noted for its fruitfulness. Of all the large kinds the Windsors are preferred for the table. The dwarf red is the smallest, earliest, and one of the most productive kinds.

The common dwarf kidney bean, erroneously called French bean, is a tender annual, a native of India, and was introduced in 1597, or earlier. The unripe pods are chiefly used in Britain as a legume, for which they are in great estimation throughout the year. They are also used as a pickle. On the Continent the young beans, while still green, and not quite full-grown, are very much esteemed when prepared like green peas. The ripe seeds are also much used in cookery, forming what are called *haricots*, of different kinds, and are put into some sorts of soups.

All the varieties of beans are wholesome and nutritious, especially when young, to those who labour hard in the open air, and whose stomachs are accustomed to the coarser articles of food. In the latter end of the year the bean should be deprived of the white skin or covering with which the inner seed-lobes are enveloped before it is eaten, as that tough substance is most indigestible even in younger beans. As one of the favourite dishes of the working classes in some parts of England is beans and bacon, the union appears to answer very well, as the oily nature of the bacon renders the stomach and bowels less liable to be affected by the flatulence the beans are apt to produce. Persons with delicate stomachs and of sedentary habits should not indulge in this kind of food, even when the beans are young, or attempt to make a full meal on this favourite dish, as such indulgences produce flatulence, indigestion, and heartburn.

Beard.—This is chiefly characteristic of adult men, but is not universal, since there are not only individuals but whole peoples who are almost entirely without it. On the other hand it occasionally develops itself upon children and women. Among men it has in many nations and ages been regarded as an honour; but custom has been very capricious in its treatment. Some ancient nations, as the Assyrians, appeared to have bestowed much attention upon it; others, as the Egyptians, removed it. In modern times fashion has varied considerably; sometimes it has been wholly shaved off; sometimes portions only have been left; and sometimes it has been all left. The beard is usually of a lighter hue than the hair upon the head, and is very often disposed to be curly or frizzled. Its general treatment, and the ailments to which it is liable, belong to the article HAIR, to which the reader is referred.

Bear-skin.—Bear-skins are used as saddle-cloths for horses, for foot-muffs and furs, grenadiers' hats, and formerly for cuffs. This fur takes dye well. About eight thousand bear-skins are annually imported by the Hudson's Bay Company, and some others are brought from the United States, Canada, &c. Sir John Richardson tells us that at one time the skin of a black bear, with the fur in prime order and the claws appended, was worth from twenty to forty guineas; but at present the demand for them

is so small from their being little used either for muffs or hammercloths, that the best sell for less than 40s. Bear-skins as furs are best when the animals are just issuing from their winter sleep; at that season the Indians are reaping their bear harvest. The name bearskin is sometimes given to a thick cloth of a long pile and dyed, used to make a very strong warm dress.

Bear's Grease.—This is a highly-prized ingredient for pomades, as the fat of the bear is supposed to lubricate and stimulate the growth of the hair in an especial manner. It was in much request in France where the manufacture of pomades is extensive. But little use is now really made of it, for it is scarce and therefore costly; hog's lard and soft veal fat is substituted for it in the generality of pomades. Before hibernating, bears grow very fat, and it is by the gradual consumption of this fat, which is known by the name of bear's grease, that vitality is kept in the animals.

Beauty, Hints on.—Beauty can be enhanced in various ways: it is said that bodily health and mental vigour are essentials. Much can be done to attain these desirable possessions. A clear complexion and a healthy glow are the general results of plenty of fresh air and plenty of fresh water. A too liberal use of soap makes the skin look stiff, and causes it to shine unbecomingly. The hair cannot shine too much; the constant and regular application of the brush will produce that smooth appearance which always beautifies its possessor. These simple helps are much more to be depended upon than the aid of skin or hair cosmetics, which, although they may produce a good effect for the time being, soon lose their efficacy, and ofttimes prove a source of annoyance to those who are in the habit of constantly using them. Many of the eruptions and diseases of the skin are caused by cosmetics. White, well-kept teeth are always an ornament. It is an error to suppose that any extreme gives beauty. A small waist is not becoming if it is out of proportion with the rest of the frame. Feet and hands if distorted by being thrust into coverings too small for them are not beautiful to look upon. The choice of colours and style of dress chosen has much effect on the personal appearance. Quite a different selection of colours should be made by blondes and brunettes.

Beaver (Fur, &c.).—The beaver (*Castor fiber*) is at present found only in the north of Europe, Asia, and America. In the twelfth century it existed in one river in Wales, and one in Scotland; and bones of the species have been discovered in beds of marl in Berwickshire and Perthshire, under peat-moss. They herd together in colonies—numbering some two or three hundred—in the autumn, when they commence building their winter habitations, having only lived in holes on river-banks in the summer. These houses, some six or eight feet in height, are domed at top, and look like ovens. These, varying from ten to thirty, consist of earth, stones, and sticks cemented together; the entrance is made under a projection, with a regular descent under the water, and the different chambers within are plastered very neatly. Near their dwellings they store up the branches of trees, the bark of which forms their chief food during the winter. Their name—*Castor fiber*—is derived from a drug which they produce, called "castor;" that obtained in Russia being much the best; and it is said that their flesh is delicious. This animal is about three feet long, and is of a tribe that has collar-bones; the upper front teeth are wedge-shaped, the incisors large and powerful, capable of gnawing



THE BEAVER.

through trunks of trees of considerable size; and are peculiar for the faculty of growing from the base as fast as they are worn away at the edge. The tail is flat, scaly, and nearly half as long as the body, and is used as a stand and rudder in the water. The fore-limbs are shorter than those behind, and they have five toes on each foot, those on the hinder feet being webbed. They have a thick, round head, short ears, small eyes, obtuse muzzle, and a vertical fissure in the upper lip. The female produces once a year from two to four at a birth, and the young quit their parents at the age of three years. In the neighbourhood of civilised man the beaver becomes a more burrowing animal, from a feeling of danger. It has been adopted as the emblematic animal of Canada, and formerly appeared on Canadian postage-stamps. In Chili there is another species of this creature, much resembling an otter.

The fur of the beaver is of a chestnut brown, and is very thick, short, and soft. In the year 1828 the skins sent to this country from Quebec alone amounted to 126,927; and it is said that in 1763 the Hudson's Bay Company disposed of 54,670 at one sale. A few years ago it was employed for men's hats and caps, and for women's bonnets; but its use is now almost entirely confined to the trimming of out-door clothing for the winter—at least in Great Britain. Beaver hats fetched a high price when first introduced. In 1585, Stubbs wrote thus:—"And as the fashions be rare and strange, so is the stuffe whereof these hattes be made divers also; for some are of silke, some of velvet, some of taffatie, some of sarcenet, some of wooll; and which is more curious, some of a certain kind of fine haire. These they call beaver hattes, of xx., xxx., or xl. shillings price: fetched from beyonde the seas, from whence a greate sorte of other vanities doe come beside."

The beaver-hat trade employs more subsidiary trades than the silk, on account of the preparation of the fur, and making long bows for the "bowing process;" and the workmen require a longer apprenticeship than for the manufacture of silk hats, now so much more in vogue.

Beaverteen.—A species of coarse twilled cotton; one of those materials comprehended in the general term fustian. This latter fabric when shorn after the dyeing is called beaverteen; and forms a strong and durable article for the wearing apparel of labouring men. They are chiefly manufactured at Bolton and Manchester. Formerly it contained some admixture of linen, but at present it is composed wholly of cotton.

Béchamel (Cookery).—Béchamel, or French white sauce, consists of equal parts of velouté or white cullis and cream—the word cream having of course a large signification, dependent to a great extent upon considerations of economy. A very good béchamel for everyday use may be made of pale stock mixed with milk, and slightly thickened with fine rice-flour or arrowroot. It is said that this sauce takes its name from its inventor, Louis de Béchamel, Marquis de Nointel, who occupied the position of Lord Steward of the Household to Louis XIV., and who died in 1703. He does not appear to have been a particularly wise person, but owing to this sauce it is probable that his name will be remembered when others far more noble are forgotten.

Bed-curtains, Furniture, and Hangings.—The drapery—viz., the curtains and valances of the bedstead—can be made of chintz either lined or unlined, of dimity either plain white or striped with colours, or of woollen damask. Of these white dimity is the most serviceable, for each time that it is re-hung it looks fresh and new. In towns, where white is very quickly soiled, a glazed full-patterned chintz will be found the best choice. Damask hangings look the handsomest, and are the most costly. Chintz furniture unlined is the least expense; where lined the cost is nearly doubled. Dimity comes between the two in price. Many members of the medical profession, and other persons also, are of opinion that the use of bed-furniture is not healthy; but in some instances two curtains at least are necessary as protections against currents of air; it seems desirable that the furniture should be of a washing material. In olden days the canopy and curtains were put up to prevent dust from falling on those in bed.

Bed-key, or Wrench.—This is an instrument which is useful in most households, for without its help bedsteads cannot be taken down or put up, and with its aid the task is easy. This small instrument for screwing and unscrewing ironwork is usually sent as an appendage of the bedstead, more especially of iron bedsteads. The buyer should mention it when purchasing, and then one will be provided for use.

Bed-lace.—Bed-lace is cotton binding, such as the edges of mattresses are bound with. Orris-lace is that used for the trimming of bed-furniture. It is made of silk in every variety of colour and pattern; the price per yard differs according to the width as well as quality. Float-lace is another trimming made of silk and worsted, and is not so expensive. Those laces in which cotton is introduced with silk or worsted are cheaper, but will soon fade and look shabby.

Bed-linen.—In this list may be entered sheets, bolster, and pillow-cases. Sheetings differ in width as well as in quality, therefore it is impossible to furnish a price-list. The width of sheeting for a single bed should be about 66 inches; for an ordinary-sized double bed, 78 to 88 inches. The length should average from two yards and a half to three yards. A very serviceable sheeting, and one particularly fitted for winter use, is of twilled cotton. Linen sheeting is objected to by some persons on account of its chilliness, but it wears longer and keeps its colour better than cotton. For pillow and bolster-cases, linen is always preferable to calico, as it looks smoother, and does not soil so quickly. The linen chosen for this purpose should be of medium thickness.

Bed-quilts.—The handsomest counterpane is a good marcella; the next in price are the toilet quilts, which are very suitable for the summer season, being particularly light in weight. The cotton honey-comb are another kind, which are also light. The old-fashioned knotted quilts are thick and warm; they are the least expensive of white quilts, but they soil quickly. In buying quilts for single beds it should be remembered that the difference in size should be in the *width* only. In the present day white coverings find the most favour. Those of the Romans were often of purple, embroidered with figures in gold. The Greeks used very splendid bed-covers, made of woollen materials. Our English ancestresses quilted and broidered counterpanes of silk and satin, and fine linen; they also made them of patchwork in minute and elaborate designs. At the present time the quilts in use are much plainer in style, and are made entirely by machinery.

Bed-steps.—In bygone days these were a necessary article of bedroom furniture, for the bedsteads were so high that it was impossible for a person to get in without the help of steps. A flight of three was not at all uncommon. The bed frames are in the present day made much lower, and consequently the form of the bed-steps is lower also. They are of service to elderly people and to invalids.

Bed-tick.—A linen tick is much better for its purpose than one made of cotton, for cotton is quickly soiled, whereas the glaze and smoothness of linen keep it clean for a considerable length of time. As the business of changing the tick is a troublesome one, and beds are in constant use, it is well to choose a good material at first. When the feathers begin to make their way through the tick, unless a new tick is bought, it is well to encase the old one in brown glazed holland, otherwise many will be lost every time the bed is shaken. For the pillows, calico is preferable to holland, that

material being too stiff. The Greeks used leather, linen, and woollen materials for bedticks.

Bedding.—This term includes palliasse, mattress, feather bed, bolster, and pillow, each of which is separately mentioned in its alphabetical order.

Bedford Lace. (*See* LACE.)

Bedroom.—It has been well said that "a bedroom should be deaf to noise and blind to light." This, of course, is not always practicable, but efforts should be made to attain this desideratum. A baize covering to the door deadens sounds, and dark linen blinds soften the glare of a sunny room. The room should have plenty of ventilation, and yet be free from draughts. The windows should open from the top, and there should be a fireplace in the room.

Bedroom, Arrangement of.—It is often difficult to arrange the bedroom on comfortable principles, for doors and windows and fireplace interfere with our plans. The bedstead ought not to face windows, neither should it be within full view of the door, nor yet should it be exposed to draughts from the chimney. The wash-hand stand should find a retired corner, the dressing-table should be placed to secure a proper light for the looking-glass, the chairs should stand here and there, and not be side by side. A stand or small table is useful, when there are no chests of drawers whose tops can be made available. All the articles of furniture should be of the same kind of wood, and match in appearance. The medical faculty strongly disapprove of much carpet in a bedroom, and advise either strips only, or a square which does not entirely cover the room, and can easily be taken up and laid down.

Beds, Damp, To Detect.—As it is extremely dangerous to health to sleep in a damp bed, it is essential to know of an easy and sure method by which to detect dampness. Warm the bed, and then place a hand-glass under the coverings. If a mist is observable, and the vapour is condensed into drops, it is a sure sign of the presence of damp.

Beds (Various).—It is of great importance that feathers used in beds should be thoroughly prepared, for if they have not been properly stored the odour which arises with warmth is neither sweet nor pleasant. The prices per pound differ materially. This difference is attributable to the superiority of some kinds of feathers over others. The subjoined list will show which are considered the best: the average prices are appended. Poultry feathers are 1s. per pound. Grey goose, 1s. 4d. The feathers of the foreign grey goose are from 2s. to 2s. 6d. The white goose feathers are the most expensive, costing 1s. more than the last named. For invalids, water-beds are much used. They are very expensive, as they are made of waterproof, and require great care in making. In the earlier ages, beds of dried weeds, of dry herbs, and of wool were used; the poorer class of people lay upon straw or rushes.

Bedsteads.—Bedsteads are now made to suit every kind of fancy. The plainest form is the stump bedstead, which has merely a board or rails at the head, and does not afford opportunity for furniture of any description. French bedsteads differ but little from the foregoing, having a board at the feet as well as the head. There are also half-testers with square heads, and those with canopies; these require a couple of curtains and various valances. Four-post bedsteads are still made, but not often sought after; and allied to these are the French bedsteads, which have an entire canopy. Iron and brass have almost superseded wood as a material for bedsteads. The metallic bedsteads manufactured at Birmingham, being of light and simple construction, find universal favour; in towns they are decidedly preferable, as no unwelcome insects can secrete themselves in iron or brass. The latter metal is very much more costly than the former, and its appearance is much handsomer. In ancient times the Greeks and Romans had very splendid bedsteads—some were of ivory, some of wood veneered with tortoiseshell, some were ornamented with gold and silver feet. In form they resembled the modern French bedstead, except that they were much higher from the ground. Early English bedsteads had a movable post on each side, which served to keep the clothes from falling off, and was used to beat the feathers.

Beech-wood.—The beech tree is a very large one, frequently attaining the size of the oak, ash, and chestnut. Its wood in the green state is hard and brittle, neither its lateral nor its longitudinal adhesion being equal to that of oak, ash, or elm. When dry its weight is about fifty pounds to the cubic foot. It has heart as well as sap wood, and varies in colour from brown to white, the darkest being the superior wood for most uses, being less liable to warp than the white beech, and considerably harder. Dark beech comes from trees which are healthiest and strongest and grown in the best soil. Beech is valuable where it is submerged, or kept constantly wet, in which condition it is very durable. Consequently it is largely used for waterworks, as well as for keels and planking of vessels. If exposed alternately to the extremes of wet and dry it soon rots, and when kept too dry it is very likely to be attacked by worms. It is largely used for bedroom or other furniture, when it is protected by varnish or some similar protection. Much of the cheap furniture which is stained to resemble other and more costly woods is made of beech, and it is also used for the panels of carriages, and for many purposes in joinery and turnery, and also for the handles of such tools as planes, and for screws and wooden shovels, &c., for which purpose the darker kind is chosen, being of a tough texture and not so liable to split or warp. If you examine a piece of beech endways you will perceive the grain runs in streaks, and in all planes this grain, which is the hard fibrous particles of the wood, should run in a direction perpendicular to the face of the plane, which in that case appears full of little hard specks; whereas if the grain runs parallel to the face it will be seen in irregular streaks, when it will be subject to warping or twisting, and its surface will wear

unevenly. In saw-handles and stocks for bits the grain should run in the same direction as the saw-blades, or in the same direction as the stock when laid on its side. In moulding planes, pieces of box are sometimes let into that part of the face which forms the quirk of the mouldings; but this is not desirable, the texture of the two woods being differently affected by temperature, and a tendency to warp being thereby originated.

Beef.—Beef is the flesh of bovine animals generally, but the name is given as a rule only to that of the domestic ox, cow, or bull. Beef is more generally acceptable to the taste than most other kinds of animal food. It is good at all seasons, and we continue longer to relish it without disgust than any other kind. It is the most strongly nutritious animal flesh in use; but it is not quite so digestible and light as mutton for those who are of weak digestion. This, however, depends in some measure on the part selected. Ox-beef is characterised by a fine, smooth, open grain, a lively and agreeable red colour, and a tender texture, with the fat of a pleasing pale whitish-yellow colour, or but slightly yellow, and the suet white and hard. When fine and well fed, the flesh is marked or intergrained with fat. Cow-beef has a closer grain than ox-beef, and the lean is marked by a deeper red. Bull-beef has a still closer grain, and the fat is dark, hard, and skinny, the lean being of a deep coarse red, and the odour and flavour strong. Heifer-beef resembles ox-beef, except that it is smaller, which is frequently an advantage; it lacks, however, the rich flavour of the flesh of full-grown oxen. The peculiar flavour of beef depends much on the feeding on which the animal is reared. When fed upon turnips it often acquires a peculiar taste. Beef is dressed in various ways all the year round; but for roasting the best season is from November to the end of March. For joints the only really good roasting pieces are the sirloin and the long ribs. Beef requires to be hung a long time in order to ensure its being tender.

Beef-eater.—A popular name for the yeomen of the king's guard. The origin of the name has been pointed out as a good example of what Dr. Latham calls "words of foreign simulating a vernacular origin." It was originally *beaufetier*, or *buffetier* (French), one who attends the buffet or sideboard. The beef-eaters were originally ranged at table on solemn festivals, royal banquets, and other state occasions. It is curious, however, that Boyer, in his French dictionary, translates beef-eater *mangeur de bœuf*, and subjoins, by way of remark, that this is a nickname given to the guards of England, because while on duty they are fed upon beef; that otherwise their true name is yeomen of the guard. The beef-eaters have maintained the same distinctive costume, with a slight alteration made in 1858, for nearly four centuries.

Bee-hives.—The size, form, and materials of the hive or artificial habitation for bees are very important questions, and have received a large share of attention. Whatever be the form adopted, it is found that bees accommodate themselves to it, and fashion their labours accordingly. *Straw hives* are those commonly used in cottage gardens, and being easily and cheaply constructed they are likely to maintain their place, though much better habitations might be suggested. They are of roundish form, ordinarily measuring about twelve inches deep and nine inches wide in the lower part. Made of unbound rye straw, or any other straw of a strong and elastic fibre, and well bound, they will, if tolerably well sheltered, last for many years. *Wooden hives* are better than those made of straw, the square shape being better adapted for the deposit of combs than the round form. Of whatever material the outer covering consists, it must project so far on all sides as to protect the hive from moisture. This cannot be too much guarded against; and whether of wood or straw, hives ought to be well painted at the beginning, and periodically afterwards. *Glass hives*, and hives with glass windows, which can be covered at pleasure with wooden slides, are employed by those who wish to observe the movements and habits of bees. Numberless have been the plans invented to enlarge hives as may be required, both to permit of the greater accumulation of honey and to render swarming unnecessary. Capes or hoods are the simplest of these inventions.

Amongst the many varieties of bee-hives in existence, the following deserve notice:—*The chamber hive*, made with two apartments, the lower for the residence of the bees, the upper to hold the boxes in which the bees put their honey after having filled the lower part. These hives are sometimes constructed several inches narrower from front to rear at the bottom than at the top, to prevent the comb from slipping down. They are also sometimes furnished with inclined bottom boards to roll out the worms that fall upon them or are driven down by the bees. *Suspended hives* of various kinds have been contrived to protect the bees from vermin. They have inclined movable bottom boards. *Driving hives.*—These are made with several compartments, so as to multiply at the will of the bee-keeper the number of colonies, without the trouble and risk of swarming and hiving. *Changeable hives.*—These inventions are to enable the bee-keeper to change the combs and get the honey without driving out or destroying the bees. They are made in sections, generally three drawers placed one above another with holes to allow the bees to pass. When the boxes are all filled, and it is desired to change the combs, the upper box is removed, and its place supplied by a new one put in at the bottom. *Swarming hives* are sometimes used. They are made in sections, so that by closing all or part of them the space which the bees occupy is lessened, and they are crowded out, and their swarming hastened.

In some parts of Europe cylindrical cork hives are much used, made by removing the wood of the cork tree, and leaving the bark uninjured; and hives of earthenware are common in Greece and Turkey. The entrance to the hive requires to be small—a little larger than a shilling, but rather wide than deep—and it ought to be at the lower edge of the hive, on the side which is exposed. It is necessary to guard against

shading the hives too much in spring and autumn, and against preventing a free circulation of air all around them in summer, and exposing them too much in the middle of the day to the sun. (*See* APIARY.)

Beer. (*See* ALE.)

Beer-cellar.—It is very important that the temperature of the cellars in which malt liquors are kept should be as uniform as possible; vaults are often therefore constructed for this purpose under the ground, as the changes of heat from the seasons are observed not to operate beyond a very few feet below the surface of the earth. "This attention is the more necessary," remarks one writer, "for beer, as this liquor soon comes to a state of fermentation by a heat above 55° sufficiently great to exhaust its remaining fermentability, and then it will become vapid and sour. If, on the other hand, the temperature of the cellar should ever descend to the freezing-point, and the beer should become frozen, it will be separated into distinct substances: the water and mucilaginous part will pass into the state of ice, and its small portion of spirit will collect in the centre, where, even if it should remain perfect till the returning heat again dissolve the ice, the other parts of the liquor will never combine with it in the same homogeneous fluid which it was before; its flavour is totally lost, and it remains fit only for distillation, or to be converted into alegar, a kind of vinegar."

Beer, Ginger. (*See* GINGER BEER.)

Bees.—Under this name we have a very large family of insects, some of which live in large societies, whilst some are solitary; their food is the nectar of flowers, honey, and ripe fruit; the larva is soft and without feet; the pupa resembles the perfect insect. They abound in all parts of the world, but particularly in the warmer parts of it. There are no fewer than two hundred and fifty species known as natives of Great Britain. The natural history of the common bee has been more fully considered than that of any other creature of the insect tribe, and there seems to be no insect more deserving of regard. Its singular instincts, its active industry, and the useful products resulting from its labours, all help to raise it to a position of dignity and importance.

There is nothing particularly striking in the structure of the bee. In their form they vary in different species and in different sexes, but generally speaking they are uniformly bulky animals, having the head large, the eyes oval and conspicuous, the thorax broad and thick, as well as the body, and most are commonly covered with hair or down. The hive bee is probably not a native of Britain, and may even have been brought to Europe from the East. Its communities seem usually to number from 10,000 to 60,000 individuals. One member of each community is a perfect female—the queen or mother bee; at certain seasons from 600 to 2,000 are males or drones, and the rest are neuters or workers. In gathering honey, the bees lick the sweet juices from flowers, swallow them, and store them for the time in a membranous cup, popularly called the honey-bag. When this cup is filled, the bee returns to the hive and discharges the honey into cells, closing its mouth with wax when it is filled. In summer, bees may be seen almost everywhere where flowers bloom. In April and May they are abroad the whole day; but during the hot months they venture out less frequently, generally in the morning and evening.

Since in civilised countries the hive bees are kept in habitations of limited size, their numbers soon outgrow their home, and a large number accordingly quit the hive at intervals, under the government of the old queen, the rule of the hive being broken up by one of the young queens, which has, in the meantime, burst from its cell. A large colony is founded as soon as the bees can meet with shelter, and their new residence is speedily filled with honey and young. The first young swarm, as it is called in this country, is generally sent off in June. The migration seems, as we have said, to depend on want of space in the mother hive; indeed, if there be space for the operations of the increasing community, bees will not naturally swarm; and skilful apiarians sometimes take advantage of this circumstance, and, by making successive additions to the hive, retain the whole year's increase in the same building.

The cells of the bee-comb are set back to back, and each comb hangs like a thick curtain from the top and sides of the hive, so that the cells lie nearly horizontally. The structure of the bee-cell, its marvellous adaptation to the several purposes for which it is intended, its mathematic accuracy of construction, whereby the best amount of material is found to occupy the greatest amount of space and strength—all these are subjects too complicated to be treated satisfactorily within our limits.

Bees are extremely well provided with organs of sight, and evidently possess that sense in great perfection. They also have, in a very high degree, the sense of smell, and their possession of the senses of taste and hearing is almost equally unquestionable. The social bees have certainly some means of communicating with each other by means of their antennæ; and they avail themselves of these organs both for their ordinary operations, for recognition of each other, and for what may be called the conduct of the affairs of the hive.

Bees are well fitted by their structure for rapid flight through the air. They possess great muscular strength in proportion to their size, and their indefatigable activity in the different labours of the hive is truly astonishing. Aristotle and Pliny have pretended that, during high winds, they endeavour to steady their flight by holding a small stone with their feet by way of ballast! The bee can emit, either by the mouth or motion of the wings, a variety of sounds, expressive of its anger, fear, contentment, and other passions.

The sting of the bee is a curious weapon, adapted to the industrious habits of its life, which expose it to a multitude of dangers. It is an instrument in every way calculated for offensive or defensive operations in the annoyance of its enemies. The danger of being stung by bees may be in a great measure prevented by a quiet, composed behaviour. A thousand bees will fly and buzz about a person

without hurting him, if he will but stand still and forbear disturbing them, even when near his face, in which case he may observe them for hours together without danger; but if he molests or beats them away he usually suffers for it.

Bees do not like wet weather; yet it is perhaps less the presence of rain than the change in the degree of light which deters them from venturing abroad at this time, for they possess large and complex organs of sight, and when clouds collect quickly over the clear sky they are seen to hurry back in great numbers to the hive; while, if the sky be uniformly overcast, it is not merely a shower of rain that will drive them back. Many of the actions of the bee prove, on the contrary, how essential moisture is for them. The degree of cold which bees can endure has not been ascertained, though it is no doubt considerable. They survive the winter in many cold parts of Russia in hollow trees, without any attention being paid to them.

Buffon refuses to allow bees any share of intelligence, and contends that the actions we behold, however admirably they are directed to certain ends, are in fact merely the result of their peculiar mechanism. Other philosophers have gone into the opposite extreme, and have considered them as endued with extraordinary wisdom and foresight. The truth, no doubt, lies between these two over-strained opinions.

In the domestic state the bee has many enemies, but in a state of nature the seare far more numerous. While in the apiary, wasps and hornets are among the most formidable of those enemies; they will often contrive to enter the hive and build their nests in it, and harass the bees without mercy, till they leave their habitation, unless proper care be taken to prevent such encroachments. The fox is a dangerous enemy in the winter, as he is able to make a passage into the hive and devour the honey. Rats are equally injurious; the house and field mice should also be guarded against. Birds are bitter enemies to bees—the sparrow, house-lark, and swallow, in particular. Amongst other foes we may name toads and frogs, spiders, ants, and some species of moths.

Bees, Stings of, To Treat.—The stings of bees, though painful, are not dangerous to life, except when very numerous from the attack of a swarm, or when the part stung is the throat. In the former case, death has ensued from the shock to the system. When possible, the sting must be extracted, and this is best done by pressing the centre with the hollow barrel of an ordinary clock key (any small drawer or trunk key will do), when the sting, if there, will start up in the barrel, if the key has been properly adjusted, and may be easily pulled out. The part should then be rubbed with olive oil, or if irritable and painful, may be touched with spirit of hartshorn (*Liq. Ammonia*), sal volatile, or eau de Cologne; and in certain cases cold poultices and cold lotions, as Gouland water, will be necessary. In Australia, ipecacuanha poultices are considered a specific for all venomous bites. If, as sometimes happens, the throat is stung through swallowing the insect concealed in honey or fruit, there is some danger of suffocation from the severe swelling which follows. Gargles of hot salt and water should be used frequently, followed by ice. When the urgent symptoms have subsided, leeches should be applied to the throat; and if these fail to relieve, and the danger becomes imminent, it will be necessary for the medical attendant to make an opening in the larynx or trachea. Persons suffering from the shock of being stung by a large number of bees should have brandy or sal-volatile administered to them frequently, until they have completely rallied. When erysipelas ensues, as it sometimes does in unhealthy persons, it must be treated by the remedies suitable for that disease.

Beeswax is manufactured by bees, and is the material of which their cells is chiefly composed. For some time it was supposed that bees merely collected the wax from various plants, and carried it to the hive; but now it is proved that, though they may gather part of it, they can also, if fed only upon honey and saccharine substances, produce it. The best beeswax is that which is taken from British hives. Large quantities are imported from North America, Brazil, Singapore, Ceylon, Mogadore, and Gambia. Of these, the Gambia wax is the worst and also the most abundant. British wax is of a pale yellowish-brown colour, and has a pleasant odour; while that procured from foreign countries is of a pale dirty colour, and is generally loaded with bees and foreign matter. The wax obtained from Brazil is of a mahogany tint, and is yielded by a kind of black bee which lives underground.

In order to obtain wax, the honey is first removed, and then the comb is gently melted in heated water, passed through hair bags, and received into cold water, where it is washed and cooled till it cakes upon the surface of the liquid. It has to be bleached and refined before it can be used. Although other materials are largely employed in the manufacture of candles, none are equal to those prepared from pure wax. The large candles used in Roman Catholic places of worship are always made of wax. Beeswax is employed largely in the manufacture of composite candles, and serves to impart hardness to them. It is also used by gilders and modellers, and for making ointments and pomades, &c., and for various other purposes. It does not mould well; wax candles, therefore, need to be carefully rolled on a marble slab.

Beetroot.—The common beet is a native of the shores of the Mediterranean, but is now in very general cultivation both in gardens and fields, chiefly for the sake of its large, succulent, and most often carrot-shaped roots, which are used as food both for men and cattle, and from which sugar is largely extracted on the continent of Europe. The variety chiefly cultivated in gardens is known as red beetroot, from the colour of the root. It forms a favourite pickle, and is also very agreeable when properly dressed as a boiled vegetable. It is also made into a conserve, jam, or confection. The kinds most thought of for salads are the small red and the yellowish-red varieties of Castelnaudary. The white beet of our gardens is thought to be merely a variety of the common beet, with little or no red in its leaves or roots, and a com-

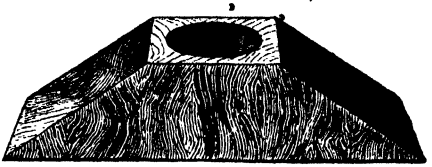
paratively slender root. It is grown for the sake of its leaves, which are employed in the same way as spinach, and form a good substitute for it, particularly in early spring. The leaf-stalks, and the mid-ribs of the leaves, especially of a variety in which these parts are unusually developed, are also dressed for the table.

The common *field-beet*, for cattle, which has been long known in Germany, was introduced into England at the latter end of the last century, and its introduction is generally attributed to Dr. Lettsom, a physician of great repute, and one of the Society of Friends. The German name is mangold-wurzel, or mangold-root, but is commonly pronounced mangel-wurzel, which means scarcity-root.

Beetroot Sugar.—The extraction of the sugar from beetroot has become an important branch of manufacture in several countries of the Continent, especially in France and Germany. It was developed in consequence of the difficulty of obtaining colonial sugar in France during the time of Napoleon I. The white beet has been chiefly cultivated for the purpose of extracting sugar from its juice. It is smaller than the mangel-wurzel (*see* the preceding article) and more compact. The manufacture of sugar from beetroot has been greatly improved of late years, and it now competes on nearly equal terms with colonial or cane sugar in the markets of the world. Most of the operations in manufacturing beetroot sugar are nearly the same as those by which the juice of the sugar-cane is prepared for use; but much greater skill and nicety are required in rendering the juice of the beetroot crystallisable, owing to its greater rawness and the smaller relative proportion of sugar it contains. When beetroot sugar is refined, however, it is almost impossible to distinguish it from the other, either by the taste or the appearance. The molasses drained off from beetroot sugar has a disagreeable taste, and cannot be employed, like cane molasses, for sweetening purposes.

Beetle Paste and Powders.—Among the various devices which are used to get rid of black beetles, one of the most usual is that of laying in and about their haunts poisonous pastes or powders, prepared and sold for the purpose, and which have been spread upon bread and butter or mixed with sugar. This plan often proves of good service, but care must be taken that favourite household pets, such as cats and dogs, and more than all, that little children should not inadvertently partake of the poison, and so unexpected calamity ensue. The objection to these preparations is that when they are effectual the beetles are found lying dead about the place, and unless quickly removed become very unpleasant. For the best way of destroying these obnoxious insects, *see* BEETLE-TRAPS.

Beetle-traps.—The black beetle or cock-roach (*Blatta Orientalis*) is said to have been originally a native of India, and to have been brought westward by the progress of commerce. Wherever it came from it has taken up its abode in Britain and in large towns, and especially in seaport towns has become a perfect pest. It is too well known to need description. It conceals itself in holes during the day, but comes out at night, devours whatever animal or vegetable substance may be in its way, and emits from its mouth a dark-coloured fluid, which causes everything that it passes over to smell most unpleasantly. Various methods have been devised for getting rid of these troublesome insects. (*See* BEETLE PASTE AND POWDERS.) Traps are made for the purpose of catching them. These are simply wooden boxes with sloping ends, and a glass cup, which has a hole at the bottom, fixed in the



BEETLE-TRAP.

centre of the box. A little sugar is sprinkled at the bottom of the trap, and the beetle to obtain it drops into the cup, and cannot get out again. One of the most effectual of beetle-traps can be made at home, and should be placed at night near the beetles' haunts. A little stale beer, or better still a little treacle, should be put in the bottom of a basin, and a piece of wood should be placed with one end resting on the edge of the basin and the other end on the floor. This wood will conduct the beetle to the trap, from which its escape will be prevented by the slipperiness of the sides of the basin. By means of two or three traps constructed in this way scores of beetles have been captured in a single night. Strong snuff sprinkled near their holes, or the parings of cucumber scattered near them, is said by some to be an effectual method of driving away these troublesome insects. Care should be taken that the captured beetles are really killed. If they are simply drowned in the beer and thrown out, it is probable that they are only dead in appearance and may revive, and, returning to their old homes, may communicate the secret of the basin to their less experienced acquaintances, and so render it ineffectual for the future.

Bège. (*See* BEIGE.)

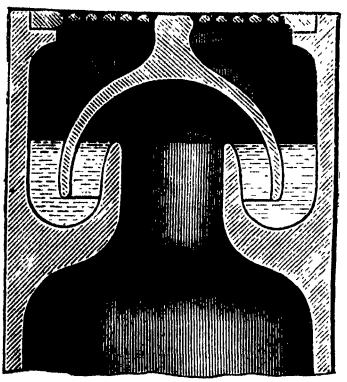
Beggars.—These are mendicants, or persons who solicit casual alms. The Vagrant Act, 5 Geo. IV. c. 83, describes beggars as "idle and disorderly persons," and includes not only those who beg themselves, but set any child to do so. Such are liable to a month's imprisonment. Fortune-tellers, and those who expose wounds and deformities in order to get alms, are liable to three months' imprisonment as rogues and vagabonds. After two convictions these latter expose themselves to still severer penalties. Our law, therefore, prohibits begging altogether; but it extensively prevails, and while in many cases it is the resource of idleness, in others it is owing to misfortune. Under the circumstances discrimination is a duty, and it would be well if efforts were more generally made to ascertain the actual character of those who beg. Begging-letters are one of the worst

forms of mendicancy, and should in no cases be entertained without careful inquiry.

Beige, or Bège.—This is a French word properly denoting wool in its natural condition, but is commonly employed to denote a fabric consisting of undyed wool, and much used for dresses worn by ladies.

Bell-metal. — Of this there are sundry varieties, all of which owe their name to the sonorous character of the alloy, and its use in the manufacture of bells, &c. In general, bell-metal contains nearly four-fifths copper and the remainder tin; but in some cases small quantities of other metals are added, as zinc, lead, iron, and antimony, bismuth, or even silver. The sound of bells is influenced by the proportions and nature of the metals used.

Bell-trap.—The very poisonous nature of sewage gas is so well known that all means for excluding it from the houses we inhabit are to be carefully considered. Amongst such means ranks the bell-trap, so called from its bell-like form, the purpose of which is to prevent the escape of foul air generated in the sewers. All drains should be double-trapped—one, the bell-trap, being used at the sink where the waste water runs away, and another, a well-trap, nearer the inlet to the drain. In order to prevent the removal of the bell-trap by careless and ignorant servants, it is an excellent plan to have it so fixed with a hinge that it can only be partially raised for the purpose of cleansing out the space, which should always contain water, and when no longer held up is again closed by the mere force of its own weight. When this trap is down the air ascends into the bell, and being rendered air-tight by the presence of water outside it, effectually excludes the poisonous vapours by which so much disease is engendered. Unfortunately, a trap of this kind unprovided with the hinges of which we have spoken is only too often allowed to be up, and so permit the egress of what the late Charles Dickens called the dark shapes which are allowed to creep into Christian homes "to swell the retinue of the destroying angel as he moves forth amongst them."



BELL-TRAP.

Belladonna.—The belladonna, more generally known as the deadly nightshade, is a plant indigenous to our fields and hedgerows, where it grows to great luxuriance. The flowers are of a violet hue, with a yellow eye of a star-like shape, and in seed-time it bears very pretty red berries, which have many times tempted cottage children to eat of them, when fatal results in some instances have followed from the poisonous juice contained in them; and all those who introduce it in gardens should use every precaution, particularly when young children have free range. It is very largely used for medicinal purposes, and is a very useful agent in a variety of cases. It will grow in any soil, and can be easily propagated by cuttings.

Belladonna Poisoning.—There is no specific antidote for poisoning by belladonna, unless it is the Calabar bean (*Physostigmatus Faber*), which recent research has shown to be eminently antagonistic to it. When there is reason to suspect poisoning by belladonna, an emetic of sulphate of zinc or mustard must be given at once, and if this does not produce vomiting the stomach-pump should be used. Castor oil is useful afterwards, and strong tea or coffee should be administered frequently. If there are symptoms of fainting or collapse, brandy is essential, followed by strong beef tea. Belladonna is said to be an antidote in poisoning by opium, but the evidence on the point is as yet not quite conclusive. They are certainly very antagonistic in their action.

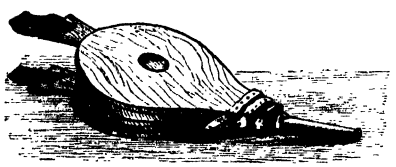


THE DEADLY NIGHTSHADE.

Belladonna, Preparations, Uses.—The active and poisonous principle of belladonna is an alkaloid called atropia. The dried leaves and branches are used in medicine in the form of extract and tincture of belladonna, and the root in the liniment. Taken in small quantities,

belladonna produces dryness of the throat, and diminishes sensibility and irritation by its action upon the spinal cord. It is given to children in incontinence of urine, whooping-cough, false croop, and diabetes, and is said to check the sweating in consumption. Applied externally round the eye, it dilates the pupil, and in this way permits of a certain amount of vision in persons suffering from central cataract. A single drop of the Pharmacopœian solution of sulphate of atropia, which has been weakened one-half, will also dilate the pupil. In the form of liniment, which is very strong and must be used with care, belladonna gives great relief in neuralgia, tic, and lumbago. As a plaster it relieves painful palpitations of the heart, and stops the secretion of milk in the breast. Taken in larger and poisonous doses, certain remarkable phenomena occur. The pupil dilates until the iris is almost imperceptible; the vision becomes confused even to blindness; there is difficulty of swallowing, with loss of voice; the gait is staggering, with restless motion of fingers and mouth; there is great excitement, resembling intoxication. Sometimes there is tingling of the flesh, and in certain cases vomiting of purply-coloured matter, which is indicative of the poison. The skin is frequently covered with a rash resembling scarlatina, and in fatal cases there is a tendency to syncope and collapse.

Bellows.—The common bellows for blowing the fire is as simple and ingenious as it is an ancient invention. The principle upon which it acts is its forming a vacuum, into which air rushes to fill it up, the air being afterwards expelled through the nozzle in a stream by pressing the two boards of the bellows together. The whole apparatus is composed of two flat boards united by a leather joint, and having leather nailed on the edges so as to permit the boards being separated at one end. In the lower board there is a hole, and on the inside of the hole a leather valve is fastened, which permits the air to enter when the upper board is raised, but shuts when the boards are brought together, and thus obliges the air to be driven out at the nozzle. By good housewives the use of bellows is frequently declaimed against; and, certainly, fires may be managed perfectly well without the use of this apparatus. There are, however, occasional cases where they are found extremely convenient.



BELLOWS.

Bells (Pulls, &c.).—There is but little mystery about the ordinary hanging of a bell for domestic purposes. The pull is a lever, with a handle working on a pivot with a drum, about one-half of which is encircled at its outer edge by a flat chain, which is acted upon by the movement of the lever or handle. To the lowest link of this chain the wire communicating with the bell by means of a crank is fastened. If the distance is great between the pull and the bell, several of these cranks are required, and where it travels far horizontally, staples of galvanised wire are made use of to keep its weight from dragging it downward. The bell is attached to the wire by another lever and with a spiral spring. Where a number of bells, varying in tone in order to identify each, are in use, the usual plan is to arrange them so that the highest or smallest bell is at one end of the line, and the deepest or largest at the other, the remaining bells being ranged in regular order according to their size, because then the wires communicating with each are kept separate. Bell-pulls are of different kinds, but they call for no special descriptions.

Bells (Various).—The earliest use of bells in this country appears to have been in the parish churches, where they were originally established for the purpose of calling together the worshippers, for which purpose they were used at a very early date. The forms of bells vary considerably, some being truncated cones, others segments of spheres, but the most common form is that in which the sides diminish in a curved line from the bottom upwards, the top being slightly convex. The use of bells may be traced back to very ancient times; and they appear to have been employed at remote periods amongst the Egyptians—who used them for the announcement of religious festivals—Jews, Greeks, Romans, and early Christians. Their first application in connection with a church is said to have been in the city of Nola, in Campania, about the year 400. The high-priests of the Hebrews wore small golden bells, and the prophet Zechariah (xiv. 20) speaks of war-horses adorned with bells. What is called bell-metal is composed of three parts of copper and one of tin; but these instruments are made of these and other metals in varying proportions, and some of cast steel, being of greater durability and cheapness, their sound being, however, often objected to as too loud and harsh, but they are admirably suited for signal bells on railways, mining works, steamboats, &c. It is also urged against cast-steel bells, that being less dense in material than bell-metal they are far more susceptible to oxidation, whereby their tones suffer deterioration. The tone of a bell depends upon its shape as well as upon its material; it is softened by the presence of copper, and is loud and harsh in proportion to the excess of tin. A little zinc is sometimes added to the ordinary bell-metal to give it tone, charms, and brilliancy. Antimony is also sometimes used to improve the tone. The loudness of a bell depends, like the quality of the tone, partly on its materials, and partly on the shape and the weight and velocity with which the hammer, tongue, or clapper strikes it. In order to give the maximum of effect, the shape of the bell must be such as will cause the air within it to vibrate in unison. When the bell is too shallow or flat, the air escapes with a sudden harsh sound, too loud and harsh to be agreeable to the ear. On the other hand,

if the bell is too long in proportion to its width, the sound does not travel sufficiently far in a horizontal direction. The notes of bells depend upon the number of their vibrations, and therefore upon the elasticity of its materials, the more elastic giving the greater number of vibrations and the higher note. It is said that a good bell gives three distinct notes: one when struck at the bottom, a second when struck in the middle, and a third when struck at the top—results sometimes, but erroneously, attributed to the varying vibrations of the rings of metal, the fact being overlooked that the bell divides itself into vibrating lunes by meridional nodes and not by circular nodes. Bells are used as subsidiary adjuncts to the electric telegraph, and other kinds of electric bells are now made use of for domestic purposes. A single small battery, or magnetic arrangement, is sufficient to ring all the bells of a large establishment by conducting a small wire from the machine to the bell, a touch instead of a pull sufficing to put one or the other in motion. The practice of ringing peals of bells is said to have had its origin in this country during the Anglo-Saxon rule. Six, eight, ten, or twelve bells form the peals or sets of bells used for ringing changes or peals, and these are timed to harmonise. (*See* Electric Bells.)

Belmontine. (*See* Candles.)

Belts.—The word is derived from the Latin *balteus*, which signifies "a girdle." This article of dress is of very ancient use, not only amongst the people in the East, but also among the Greeks and Romans. Both men and women wore the zone—those of the former were broad, and often served as a purse; those worn by the latter were narrow, and resembled girdles. It was the custom for the Roman dictator to wear a broad, red leather belt, embroidered with needlework, and fastened by a splendid gold buckle. Formerly in England the right of wearing belts was restricted to knights; they are now an article of feminine attire much worn. The Norwegian women are particularly famed for their tasteful and handsome belts of leather and silver.

Belvedere.—This name is employed to denote an open railed platform or enclosure upon the roof of a house, accessible from the inside, and occasionally frequented for the sake of the prospect commanded. The word is Italian, and simply means "a fine view." It may be applied to any cupola, lantern, or turret upon the roof of a building; and in Italy it sometimes signifies an open gallery or corrider. The belvedere is more common in the south of Europe than in this country, but is an interesting feature of a house anywhere where the scenery is romantic or the view extensive.

Bench.—A long wooden seat with a back, suitable for lobbies, servants' halls, and other places where they may be conveniently placed, and be turned to good account. They belong to the same class as the form and the settle. (*See* Form, Settle.)

Bench.—The seat of justice; the persons who sit to dispense justice, as judges or magistrates. The word is also used to describe a class of dignitaries, as the "bench of bishops" in the House of Lords. (*See* Queen's Bench.)

Bencher.—A senior of the Inns of Court. Each Inn is superintended by a certain number of benchers, who admit candidates, and ultimately call them to the bar. They have the power of punishing for misconduct by admonishment or rebuke, or by prohibiting attendance at hall or library. There is an appeal from their decision to the judges. (*See* Barrister.)

Benedictine. (*See* Liqueurs.)

Benefice.—An ecclesiastical appointment, generally applied to a parochial living, whether a rectory, vicarage, or perpetual curacy.

Benefit of Clergy (*Privilegium Clericale*).—This term denoted privileges formerly conceded to the clergy or priesthood, which originally emanated from the great influence exercised by that class during the dark ages, when they were treated with peculiar honour (learning being almost confined to them), and possessed extraordinary and peculiar privileges, which were ultimately extended with more or less qualifications to all who could read. These were as follows:—

1. Places consecrated to religious rites and ceremonies were exempt from criminal arrests.

2. The persons of priests were exempt in certain cases from secular process, and made only amenable to ecclesiastical jurisdiction.

The first of these, after being somewhat abridged in the reign of Henry VIII., was finally abolished in the reign of James I. The second was not abolished until the year 1827, by the 7 & 8 Geo. IV. c. 28, s. 6, so that now no one can claim this ecclesiastical immunity.

Benefit Societies. (*See* Building Societies, Friendly Societies.)

Benzoin, Gum, more commonly called in commerce Gum Benjamin, is the produce of the *Styrax benzoin*, a tree which grows in the East Indies, especially in Sumatra, Borneo, and Siam. It emits a very fragrant odour. The best quality is white; but the greater portion imported is more or less brown, owing to age and impurities. Properly speaking, it is a resin, and not a gum, being soluble in alcohol, and not in water. It is used to some extent in medicine as a stimulant, and largely by perfumers, on account of its fragrance.

Benzol, called also Benzine, and in chemistry, hydride of phenyl, is one of the hydrocarbons obtained in the distillation of coal-tar. For commercial purposes it is always prepared from the portion of coal-tar boiling below 212° Fahr. This is first shaken up with dilute sulphuric acid, then with water, and lastly a solution of soda. It is then distilled. The distillate always contains other hydrocarbons besides benzol, and to separate it from them it is crystallised out at a low temperature, produced by the application of a freezing mixture. The benzine of the shops always contains large quantities of toluol. The pure article is a colourless liquid at ordinary temperatures, its melting-point being 42° Fahr.; it is very limpid and inflammable, is highly refracting, and possesses a strong

smell. It is of importance to the chemist on account of the wide range of substances towards which it acts as a solvent, including india-rubber and gutta-percha, resins, camphor, wax, fatty and essential oils, sulphur, phosphorus, iodine, quinine, &c.; and from it is made nitro-benzol, as well as other compounds used in the arts. Benzol itself is very useful in surgery on account of its detergent and cleansing properties.

Bequeath, Bequest.—Bequeath is the proper and usual word in wills to denote a gift of personal estate, and the gift is termed a bequest. The use of the word itself is not, however, absolutely necessary to make a valid bequest; any word denoting the intention would be equally valid. (*See* WILLS.)

Bergamot, Essence of.—What is called essence of bergamot is really a fragrant volatile oil obtained from the rind of the bergamot orange (*Citrus Bergamia*) either by distillation, or by grating the rind and subjecting it to pressure. The oil is purer by the former process, the perfume is more delicate by the latter. The bergamot orange is shaped like a pear,



THE BERGAMOT ORANGE.

and has a smooth rind of a pale yellow colour, with a green firm pulp of an acid flavour. It is cultivated in the south of Europe. The oil is almost colourless, being very lightly tinged with yellow. It is used in perfumery for scenting pomades and various essences, such as eau de Cologne and eau de mille-fleurs; it also enters into the composition of various liqueurs. It is often adulterated with oil of lemon, or oil of turpentine, and with rectified spirits. In order to detect adulteration with an inferior oil, place a drop of the oil of bergamot upon a sheet of white paper, and subject it to the action of heat. If it is pure, it will evaporate entirely; if not, a greasy stain will be left on the paper. In order to detect adulteration with alcohol, mix a little water briskly with the volatile oil. If a milky appearance is the result, alcohol is present. Oil of bergamot is itself frequently used to adulterate oil of camomile. It is said that 100 bergamot oranges will yield by distillation nearly 3 oz. of oil.

Berlin Canvas.—This canvas is more quickly worked upon than the old-fashioned Penelope canvas, because its threads are regularly divided into small open squares, whereas the threads in Penelope canvas are woven equally, and therefore more time is expended in counting and separating. Berlin canvas is more particularly adapted for the Berlin stitch; it also requires to be completely covered. For designs which are to be executed in light-coloured wools or in beads, coloured canvas is best for the purpose, as then the stitches are more distinctly seen and counted, being in stronger contrast with the light shade of wool or beads.

Berlin China may be said to be a close rival of that of Dresden in its beauty of form and excellence of painting. It is particularly noted for a very lovely rose-pink colour which adorns many of its specimens. The date of its first introduction is 1751, when a manufactory was established by one William Gasper Wegeley—at this period the pieces were marked with the letter in this form W. In later times King Frederick the Great held possession of the manufactory, into which he brought many modellers and painters from Dresden. The mark was then changed to that of a sceptre. On dark-coloured china these marks were always brown; on the white china they were blue. Berlin is now famed for biscuit china of which figures and pictures are made; the different thicknesses of the biscuit tablet are so arranged as to represent the light and shade which form the picture.

Berlin Patterns were first introduced in the early part of this century. At that time a stationer in Berlin arranged designs on paper for this style of work, which soon became in great request. The designers and engravers ranked as artists, hence these patterns were expensive; copies of pictures containing figures cost forty and fifty guineas, for great care had to be taken to mark every small square for each stitch, and also to shade each colour in a natural manner.

Berlin Silk is that which is smoothly and loosely twisted; it is used for the embroidery of dresses, shawls, &c.

Berlin Stitch is commonly known by the name of cross stitch. In each square of four holes the wool is taken in a slanting direction from the bottom to the top, and brought back in a slanting direction from the top to the bottom in the corresponding holes of the stitch, and thus the canvas threads are completely covered. As these stitches should look flat and regularly even, it is necessary to work and cross every stitch the same way.

Berlin Wool is mostly manufactured at Keighley, in Yorkshire; it is known by the name of Berlin and German wool, owing to its being spun from the wool of the sheep of that country. There are two sizes of this wool, which are called single and double Berlin. It is the most expensive of the various kinds of wool used for fancy work. Its principal use is for Berlin work, as it is not fitted for articles which require washing, the wool becoming harsh and hard after that process. Berlin

work is very useful and durable; some thirty years ago it was the chief kind of fancy work, and ladies executed large and elaborate pictures and pieces in this style of work.

Beryl.—Like the aquamarine, the beryl resembles the emerald in its character and constitution. The aquamarine is distinguished by its green and blue tints, while the beryl is inclined to yellow, though sometimes colourless. It is not of very much value, and it is found in large masses; but it is extensively used in jewellery, and jewellers sometimes call it chrysolite, for which they mistake it. There is said to be a fine beryl surmounting the globe in the royal crown of this country. (*See* AQUAMARINE.)

Besants.—These were coins in gold and silver, small and round in form, and varying in value; they came originally from Byzantium, and were variously called bezants, byzants, bezantus, &c. They were introduced into Europe during the Holy Wars by the Crusaders, and from the ninth to the fourteenth century they were current coin in England and France.

Betrothment.—A mutual promise of marriage, or pledging of troth. The formal ceremony of betrothal, once usual in this country, is now no longer observed, although it still exists in other lands. Thus in Holland the pledging of troth is celebrated by the friends of the parties concerned by a feast of *briudsuker*, or bridal sugar, and *briudstranen* (literally, bridal tears), a kind of spiced wine specially prepared for the occasion. In England the old custom on such occasions was to break in two a gold or silver coin, in token of the verbal contract, each party to the contract retaining a half. It is the fashion in modern times for the gentleman to give his *fiancée*, or betrothed, a ring, generally termed an engagement ring. This ring, if set with stones at all, should not contain opals or emeralds, popular superstition attaching ill-fortune to both of these—opals being supposed to denote change, and emeralds jealousy. On the other hand, diamonds, pearls, rubies, and turquoises may all be brought into requisition.

Betting, Advice against.—Betting, although not altogether prohibited by the law of the land, is yet fenced about by many precautionary measures, and some kinds of betting are actually illegal and punishable by law. The essential difference between allowable and prohibited betting consists in the fact as to whether or not the money betted by the one is deposited with the second party previous to the decision of the result betted on. If such be the case, the betting is illegal, and any one making or accepting such a bet, or allowing such a bet to be made by others in any place occupied by him, is liable to punishment. On the other hand, betting which is dependant on the mutual trust and confidence in each other of the parties concerned is not actually prohibited, although at the same time it is not recognised by law, but rather discountenanced, so much so that no bet is recoverable in a court of justice. That betting should be in such disfavour under the law of the land cannot be regretted, for it is undeniable that a vast amount of vice and misery is engendered by gambling of any description, and of all gambling, betting is perhaps the most insidious. One reason for this may, perhaps, be found in the fact that a certain amount of knowledge, judgment, and sagacity, even though it be not of a high character, is required in the man who bets successfully, and by success his vanity is flattered. But money which is the fruit of gambling, although great talents be employed in its attainment, can never bring true happiness to the possessor, and has probably wrought infinite misery for the many who have lost that the one may win; we would therefore lift up our voices in earnest condemnation of gambling in any form whatever.

Beverages.—In the Middle Ages, beverage meant money given for drink to any workman over and above his wages. The daily potations at colleges were called "beverages;" and at various public schools they had "bever" days, when extra beer was served to the students. Any one who had a new garment, or who was lately released from prison, or who was in a position upon which he was to be congratulated, was called upon to "pay beverage." In the present day, beverage is a term generally applied to any agreeable *mixed* liquor which is taken to quench the thirst or to exhilarate the system. Thus nectar is called the "beverage" of the gods. A beverage is supposed to be specially adapted to produce a certain effect. It is a "cooling," or "refreshing," or "strengthening," or "stimulating" beverage. The Americans have paid particular attention to drinks of this kind, and many of their beverages have attained a well-earned celebrity. (*See* AMERICAN DRINKS.)

Beyond Seas.—By 19 & 20 Vict. c. 97, no part of the United Kingdom of Great Britain and Ireland, or of the Channel Islands, or the islands adjacent, being in the dominions of her Majesty, is deemed to be beyond seas within the meaning of that Act, or of the 4 Anne, c. 16. For some purposes, however, either or any of the above places are treated as being beyond the seas.

Bézique (Cards).—This is comparatively a new game, at any rate in this country, but has rapidly taken its place among older games of a somewhat similar nature. It may be played by two, three, or four players, being, however, especially suited to two. If there be only two players, two packs of cards (from which all the numbers from the two to the six inclusive are thrown out) and two scoring boards constitute all the machinery required. For three-handed bézique, three packs of cards, &c., and for four-handed, either two or four packs (according to whether the four persons play individually or in pairs) are needed. For two persons the game is played as follows:—After shuffling the two packs together and cutting for deal, one of the players gives eight cards to his opponent, taking the same number himself. The seventeenth card is then turned up, and determines the trump suit, as in whist. The non-dealer then plays a card, and the

dealer follows, the two cards played constituting a trick, which is won by the best card. In bézique, the usual value of the cards is in one respect altered, and that is that the *ten* is second in importance to the ace, and therefore wins the trick over the king, queen, or knave. It should be noted that—unless an ace or ten be included in it—the only advantage gained by winning a trick is the option allowed the winner of "declaring" or showing certain combinations, which may perhaps be in his hand, and which it is the object of the game to secure, since on the attainment of these combinations the scoring mainly depends. The person who wins a trick takes the top card from those remaining undealt, and his opponent draws the next, and so on until all are exhausted—an important rule being that each player must hold eight cards, and eight only, in his hand before playing. When the whole of the cards have been drawn, the sixteen which are left between the players are played as at whist, each person being bound to win the trick if he can. In the usual way, the player who first scores 1,000 wins the game, the scoring taking place after each trick, when the player who has won it is entitled to declare and score for any combinations he may hold. The following are the combinations entitling the player to score when they are held together in the hand, and are declared:—

Four aces	100 points
Four kings	80 „
Four queens	60 „
Four knaves	40 „
Simple marriage (king and queen of the same suit) . . .	20 „
Royal marriage (king and queen of the trump suit) . . .	40 „
Bézique (queen of spades and knave of diamonds) . . .	40 „
Double bézique (the two queens of spades and the two knaves of diamonds)	500 „
Sequence (ace, ten, king, queen, and knave of the trump suit) .	250 „

The following are also scored:—

Seven of trumps turned up . .	10 „
Each seven of trumps played .	10 „
Last trick	10 „
For every ace and ten in the tricks taken	10 „

Bias.—The term is applied to the cutting of material crosswise, or on the bias. In order to do this properly, it is necessary to take very exact and continual measurements across the width of the piece doubled, to ensure correctness of bias. The word is said to be derived from *bihais*, a Norman-French word, meaning deviation from a straight line. The weight in bowls which causes their deviation is also called bias.

Bicarbonates, sometimes called hydric, or acid, carbonates. The only definite bicarbonates are those of the alkalies, ammonia, potash, and soda.

That of *Ammonia* is found in guano, in white crystalline masses. The neutral carbonate on exposure to the air always gives off ammonia, and thus becomes gradually converted into the bicarbonate. It may be made also by saturating an aqueous solution of ammonia, or sesquicarbonate of ammonium, with carbonic acid. It is not so pungent as the neutral salt, and hence is known in medicine as the mild carbonate.

Bicarbonate of Potash is made by passing carbonic acid into an aqueous solution of the neutral carbonate as long as any continues to be absorbed, and then crystallising it out. It is much used in chemistry on account of the purity with which the salt can be obtained. In medicine it is given for gout and gravel.

Bicarbonate of Soda exists in some mineral waters. It is prepared artificially in the same way as the potash salt. It is used largely in making effervescing powders, and acts beneficially in the treatment of calculous disorders.

Those best known and most used are the bicarbonates of potash and soda. Chemically, the name indicates that two proportions of carbonic acid unite with a base to form a salt. The bicarbonates of potash and soda are much prescribed by medical men in a variety of ailments which have, as a rule, a common origin, such as indigestion with acidity, gout, rhematism, and gravel. The dose for an adult is about twenty grains dissolved in water. Externally, a lotion of bicarbonate of soda has sometimes given relief in painful rheumatism of the joints. These salts are also used in the composition of effervescing drinks, and being mixed with an acid in the following proportions afford a pleasant and refreshing beverage. Dissolve twenty grains of bicarbonate of potash in a wine-glassful of cold water. Put eighteen grains of tartaric acid, or seventeen grains of citric acid, or a table-spoonful of lemon-juice, into half a tumblerful of cold water, to which a little simple syrup or syrup of lemon or raspberry vinegar may be added; all being dissolved, pour the contents of the wine-glass into the tumbler, and drink whilst effervescing. In hot weather, the addition of a little ice is an improvement. If twenty grains of soda are used instead of potash, the proportion of tartaric acid required will be fifteen grains, that of citric acid fourteen grains—the lemon-juice will be the same. The bicarbonates, especially that of soda, are much used for domestic purposes. Amongst other things, that of adding a little soda to the teapot when the water is hard is well known and very popular.

Biceps.—The biceps is a long spindle-shaped muscle occupying the front of the upper arm for its whole length. About the middle of the arm its two tendons, one long from the margin of the glenoid cavity, the other short from the coracoid process of scapula, unite to form a rounded belly, which is very prominent, especially in athletics, who are proud of this development. Towards the elbow-joint the muscle becomes narrow and twisted, and is inserted into the tuberosity of the radius, giving off an aponeurosis, which is continuous with the fascia of the lower arm. The use of this muscle is to bend the lower upon the upper arm, as in rowing, boxing, &c. When the lower arm is fixed, as in climbing,

&c., the biceps, with the aid of another muscle, the *brachialis anticus*, will bend the upper upon the lower arm, thus reversing the action.

Bicycle.—The bicycle, as implied by its name, is a two-wheeled velocipede, or carriage worked by the feet. In modern bicycles these two wheels are of very unequal size, the front, or driving-wheel, being very much larger than the rear wheel. The bicycle is the latest result of improvements that have been made from time to time during the last century in the velocipede. (*See* VELOCIPEDE.) From a mechanical point of view, a bicycle may be considered in the same light as a hoop, or a spinning-top, or a single wheel; they are all representative of what is known as kinetic stability—that is to say, equilibrium is only attained when they are in motion. A bicycle with its two wheels placed in a direct line behind one another is, for most practical purposes, in the position of a single wheel, and will fall to the ground unless it be in motion. The driving-wheel, which revolves by the pressure of the rider's feet on two cranks attached to its axle, is connected with the rear wheel by a bearing-shaft. The rider sits upon a leather saddle, attached to a steel spring, above and between the two wheels, and guides the machine by means of a handle, which turns the driving-wheel in any required direction. Of late years bicycling has become a very popular exercise, and in consequence a great deal of ingenuity has been displayed in the manufacture of the bicycle, so that it is quite impossible to mention the names of all the different kinds now in use; it will be found, however, that they all depend alike upon the general principles we have laid down. Of the value of the bicycle as a means of getting over the ground, no proof is, we think needed, when we state that it is now a thing of constant occurrence for the youth of the country to ride sixty and seventy miles in a day, and this, too, with no undue strain upon the muscular powers.

Bidree-work.—The appearance of this Indian alloy is that of pewter or zinc. It takes its name from the city of Bider, situated north-east of Hyderabad. Many elegant and graceful articles are there made, which are often enriched by engraved designs. This alloy is not liable to rust. It is sometimes called bidery and videry, the work being executed in other parts of India as well as at Bider.

Biennials are those plants that require two years ere they sufficiently acquire maturity to hold a place in the flower garden, and many of them are great rivals to the more aristocratic flowers more freely cultivated now than in former years, before the custom grew of making such ornamental beds in lawns as are now so fashionable. The seed of biennials should be sown in a light soil, about the month of April or May, and when the plants arrive at the height of three or four inches must be carefully taken up and planted separately, in rows about four inches apart, and the same distance from each other; but some of the more leafy kinds might require greater space. It is well to plant them in a warm situation, sheltered from the cold winds of winter, and when the spring comes will well repay for the care which has been bestowed upon them. If there are convenient spaces in the borders, many sorts can be planted in the spot they are to occupy in the summer, and thus produce little blossoms, as shifting often retards the growth. Canterbury bell, foxglove, snapdragon, sweet william, larkspur, wallflower, are some which will do well. These make excellent background flowers for borders.

Biffins, or Beaufins, are apples which have been slowly and carefully dried in a cool oven, and pressed occasionally until they are so flat as to appear like small cakes, three-quarters of an inch thick. They are largely prepared in Norfolk, and the hard red apple, which is best adapted for the process, grows plentifully in that county. The apples need to be wiped and arranged in the oven side by side, and they must be taken out and put in again several times before the desired effect is produced. A cool brick oven is the kind best suited for the purpose.

Bigamy.—The offence of one's marrying again, having a lawful husband or wife still living. This offence is by Statute 24 & 25 Vict. c. 100, made a felony, and subjects the offender to penal servitude for not exceeding seven nor less than two years, or imprisonment, with or without hard labour, not exceeding two years. The Act does not extend to any two marriages contracted out of England or Ireland by other than a subject of her Majesty; nor to any one marrying a second time, whose husband or wife shall have been continually absent for seven years, and not known to have been living during that time; nor to any person who shall have been divorced; nor to any person whose former marriage shall have been declared void by a court of competent jurisdiction.

Bilberry, Uses of.—The bilberry, or whortleberry (*Vaccinium*), is a genus of shrubs of



BILBERRY.

the natural order *Vacciniaceæ*. There are about 200 species, and they are mostly natives of the temperate parts of the world. The common bilberry, called in Scotland the blaeberry, is found in various parts of Europe, in Iceland,

and in the northerly parts of North America. It is very common in Britain, and is found in dry situations and in woods. The berries are of a dark purple colour, are sweet and pleasant to the taste, and are much used in making jelly. The bog whortleberry, or great bilberry, grows in marshy places. It is a larger plant, and bears a larger fruit than the common bilberry, though it is decidedly inferior in flavour to the smaller variety. It is said to be narcotic, and to cause giddiness when taken in large quantities; it is employed to make beer "heady." A decoction of bilberry leaves has been used as furnishing a valuable remedy in chronic affections of the bladder. The huckleberry of North America, which is widely diffused from Canada to Georgia, is a variety of bilberry.

Bile.—Bile is a natural secretion of the liver, and is a viscid, greenish-coloured fluid of a bitter taste and unpleasant smell; it is slightly alkaline, and becomes frothy when shaken up with water, in which it is very soluble. Bile consists principally of cholic and choleic acids in combination with soda (cholate and choleate of soda), cholesterine, green colouring matter, fat, and mucus; its ultimate decomposition yielding 76 atoms of carbon, 66 of hydrogen, 22 of oxygen, and 2 of nitrogen. This fluid is first formed in the liver cells, from which it finds its way into the very small ducts, and through them into the larger, and so on until it reaches the common duct leading into that part of the small intestine which is called the duodenum. If the bile reaches this point at a time when digestion is going on, it passes at once into the bowel to mingle with the chyme or food coming down from the stomach; but if digestion is quiescent, it passes instead into the gall-bladder, in which reservoir it is stored up for future use. The precise action of the bile upon the chyme or food it meets in the duodenum is not very clear, but is probable that it assists in converting it into chyle, and rendering it capable of absorption by the lacteals; it is also powerfully anti-septic, preventing the decomposition of the contents of the bowels, and by its action upon the intestinal glands promoting purgation. Bile plays an important part in the formation of sugar in the liver, which is proved by the fact that whilst very little sugar is found in the blood entering that organ, a great deal is found in that coming out of it. The quantity of bile secreted in twenty-four hours is considerable, and is variously estimated at from half a pint to a pint and a half. A very small proportion of this is excreted from the bowels, certainly not more than a twelfth part, and there is therefore every reason to believe that, being re-absorbed, it is used up in the purification of the blood, and by uniting with oxygen it develops heat, and finally passes out of the body in the form of carbonic acid and water. Purified ox-bile is sometimes given in medicine when there is deficient secretion of bile, the dose being from five to ten grains, in pill or capsule. It is also used for various domestic purposes, being an excellent cleansing agent. To detect bile in the urine, or in any liquid, add a little nitric acid, when the liquid will become green. This, however, only proves the presence of the colouring matter of the bile. The only true test is Pettenkofer's, which consists in placing some of the fluid to be tested on a white plate and mixing with it a little solution of sugar and sulphuric acid. The plate is heated by means of a spirit-lamp, when the brownish liquid will become a deep rich red, gradually passing into a purple colour.

Bilious Complaints. — Bilious complaints may be defined to be that class of maladies without a name which are characterised by headache, lassitude, pains in the back, nausea, vomiting, a feeling of being out of sorts, dimness of vision, metallic taste in the mouth, singing in the ears, &c. &c., all of which point to one condition, viz., faulty digestion. They are in most cases easily removed by correcting errors of diet, and by taking a brisk aperient, as, for example, a little calomel (two or three grains), a blue pill (five grains), a compound rhubarb pill (ten grains), followed in the morning by a black (senna and magnesia) draught. If the nausea continues with pain between or about the shoulders, and the white of the eyes has a yellow appearance, then it will probably be advisable for three or four days to take one or two grains of grey powder at bed-time, with a wine-glassful of Friedrichshall or Hunyadi Janos water, in a similar quantity of warm water, in the morning. This will generally effect a cure. For the more serious bilious complaints, *see* GALL-STONES, JAUNDICE, &c.

Bill of Exchange.—A bill of exchange is an unconditional written order from A to B, directing him to pay a sum of money therein mentioned to A, or his order, or to C, a third person, or his order. The person who draws or makes the bill is called the "drawer;" the person to whom it is addressed is called the "drawee," who becomes the "acceptor" by writing the word "accepted" across the body of the bill, and signing his name. The person to whom the money is ordered to be paid is called the "payee," and if he transfers it to another he "endorses," *i.e.*, writes his name across the back, and thus becomes the "endorser," the person to whom it is transferred being the "endorsee," who in his turn may endorse it over to another by signing his name beneath the first endorser. Other endorsements may follow in the same way.

Bills of exchange are either foreign or inland —foreign when drawn by a merchant abroad upon his correspondent in England, or the contrary; inland when both the drawer and drawee live in this kingdom. The same laws and customs apply to both, though formerly foreign bills were regarded as of more legal importance. The remedy to recover on bills of exchange and promissory notes has been much simplified and shortened by the 18 & 19 Vict. c. 96. (*See* ACCEPTANCE, APPEARANCE.)

Bill of Fare, or Ménu, is a list of the dishes provided for a repast. It is generally placed by the side of each individual, so that he may know at once what is to be set before him, and may partake of that which he most approves. According to the requirements of modern

society, a small ménu-stand, containing the bill of fare, should be placed before each guest; and most beautiful and artistic cards are sold upon which the order of the dinner can be written.

The task of drawing up the bill of fare is generally undertaken either by the mistress of the house or by the experienced cook to whom she entrusts the execution of her orders. Knowledge, taste, and judgment are called for in its accomplishment, and the crowning honour of a successful banquet certainly belongs to the person who conceived the idea of it. The name "Ménu" is the same as that of the son of Brahma who drew up the code of civil and religious law observed in India.

Bill of Lading.—A bill of lading is an instrument used for authenticating the transfer or assignment of goods sent from beyond seas to a party resident here. In form it is a receipt from the captain of the vessel to the shipper of goods, undertaking to deliver them (on payment of freight) to the person whose name is mentioned in the bill or endorsed thereon by the shipper. The delivery of this instrument passes the property in the goods to the holder or endorsee, without prejudice to any right of stoppage *in transitu* or of freight.

Bill of Rights.—The Statute 1 William & Mary, s. 2, c. 2, so termed because it sets forth the true rights of British subjects. After reciting the several unconstitutional and illegal acts of the Stuart reigns, its chief enactments are as follows:—

1. The suspending of laws or the execution thereof by the Sovereign without the consent of Parliament is illegal.
2. The dispensing power as of late exercised is illegal.
3. Levying money by prerogative is illegal.
4. Subjects have a right to petition the Crown and all commitments for so petitioning are illegal.
5. The raising or keeping a standing army within the kingdom in time of peace without the consent of Parliament is illegal.
6. That Protestants may have arms for their defence.
7. That freedom of speech and debate and proceedings in Parliament ought not to be impeached or questioned in any court or place out of Parliament.
8. That excessive bail and excessive fines be discouraged.
9. That all grants and promises of fines and forfeitures of particular persons before conviction are illegal and void.
10. Parliaments ought to be held frequently.

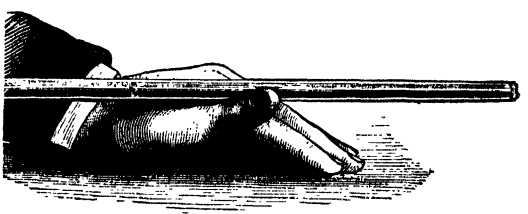
Bill of Sale.—An instrument by which one person, termed the "assignor," assigns to another, termed the "assignee," personal estate or chattels, either by way of mortgage, security, or absolutely. By the Bills of Sale Act, 1854 (17 & 18 Vict. c. 36), a bill of sale is required to be registered in the Court of Queen's Bench within twenty-one days from its execution, otherwise it is void against execution, creditors, trustees in bankruptcy, and others. By a subsequent Statute, known as the Amendment Act, 1866 (29 & 30 Vict. c. 96), it must be re-registered every five years. Owing to the strictness of the law and to the opportunities for fraud and deceit which the circumstances under which a bill of sale is usually given present, a bill of sale is by no means a desirable security. It is in all cases good as between the parties themselves, without registration.

Bill, Parliamentary. (*See* Act of Parliament.)

Billet-doux.—A love-note, or short love-letter. This word has been imported into our language from the French, and as expressive of all the sweet nothings of which a love-note is supposed to consist, has become naturalised, and is now securely domiciled in the mother-tongue.

Billiards.—A game played upon a rectangular table, covered with a green cloth and surrounded by elastic cushions, and provided with six netted pockets, one at each corner of the table, and one in the centre of each long side. The game is played with round ivory balls, which the players impel one against another or into the pockets with striking-cues, according to certain recognised rules of the game.

Billiard-tables vary very greatly in size, but their proportions are always the same—that is to say, their length is always double their width.



THE BRIDGE.

A full-sized billiard-table measures twelve feet by six, its playable bed, inside the cushions, being eleven feet eight inches by five feet ten inches; thus the playable bed will be seen to consist of two squares, each five feet ten inches by five feet ten inches; and in like manner the beds of all tables must consist of two squares, although of course they may be of smaller dimensions. The bed of a billiard-table is always of slate, covered with cloth.

Billiard-cues are long, smooth, tapering rods, tipped at their small ends with leather, to render the striking of the balls more accurate. The usual length of the cue is about four feet nine inches. The thin end of the cue in striking is allowed to rest between the thumb and forefinger of the left hand, which make what is called the "bridge." The butt-end of the cue is grasped with the right hand, about two inches from the extremity. When, on a large table, the ball is so far away that the striker is unable to use his left hand as a rest, an artificial rest, consisting of a curved piece of wood or ivory fastened to the end of a light stick, is used; this rest is very commonly called the "jigger." A long rest and a long cue called the "half-

butt" is also used when the balls are at a very great distance from the striker's standing position. The way in which the game of billiards is played may perhaps best be explained by the following code of rules, for which we are indebted to the pages of "The Popular Recreator."—

1. The game commences by stringing for the lead and choice of balls.
2. The red ball must be placed on the lower of the two spots at the bottom of the table, and replaced there when it is holed, or forced over the edge of the table, or when the balls are broken.

N.B.—Breaking the balls is placing them as at the commencement of the game.

3. Whoever breaks the balls leads off, unless when they are broken by mutual consent, in which case the lead should be stipulated for, or strung for.
4. If a player makes one stroke in a game, he must finish that game, otherwise he loses it.
5. If the striker makes any points, he may continue his game until he ceases to make points.
6. If, when the cue is pointed, the ball should be moved without the striker intending to strike, it must be replaced to his adversary's satisfaction; and if not replaced before the stroke be played, the adversary may claim it as a foul stroke.
7. If a ball springs from the table and strikes one of the players, or a bystander, so as to prevent its falling on the floor, it must be considered as off the table.
8. If a ball runs so near the brink of a pocket as to stand there, and afterwards falls in, it must be replaced, and played at, or with, as the case may be.
9. If (as it may sometimes happen) a ball be spinning on the brink of a pocket, and although stationary for a time, afterwards fall in, in that case the hazard is scored, if the motion be not gone out of the ball at the time it falls into the pocket.
10. If a ball lodges on the top of a cushion, it is considered as off the table.
11. After the adversary's ball is off the table, and the two remaining balls are either upon the line, or within the stringing dots at the upper end of the table, where the white balls are originally placed in leading, it is called a baulk, and the striker who is to play from the half circle must strike a cushion outside the baulk, so as to occasion his ball, in returning, to hit one of the balls in the baulk; if not, he loses one point.
12. A line ball is when the centre of the ball is exactly on the line of the baulk, in which case it is to be considered in the baulk, and cannot be played at except from a cushion out of the baulk.
13. All misses to be given with the point of the cue, and the ball struck only once; if otherwise given, the adversary may claim it as a foul stroke and enforce the penalty—make the striker play the stroke over again—or have the ball replaced where it was struck from the second time.
14. A person cannot score if he make a foul stroke.

NOTE 1.—It is called foul if a striker moves a ball in the act of striking; or if he plays with the wrong ball; or if he touches his own ball twice in playing; or if he strikes a ball whilst it is running; or if he touches another ball; or if his feet are off the floor when playing. The penalty in all these cases consists in breaking the balls, and losing the lead.

NOTE 2.—Enforcing the penalty for a foul stroke is entirely at the option of the adversary.

15. If the adversary does not choose to enforce the penalty for a foul stroke, the striker may play on, and score all the points that he made by the foul stroke.
16. If the striker hole the white ball (called a white winning hazard), or if he hole his own ball from the white ball (called a white losing hazard), he gains two points; if he does both, he gains four points.
17. If the striker hole the red ball, he wins three; and if by the same stroke he hole his own from the red, he wins three more.
18. When the red ball is pocketed, or off the table, and the spot on which it should stand is occupied by another ball, it must be placed in the centre of the table, immediately between the two middle pockets; and whenever it is placed there it must remain until it be moved by being struck by another ball.
19. If the striker plays at the white ball first, makes a cannon, and pockets his own ball, he gains four points; two for the cannon, and two for the white losing hazard.
20. If the striker plays at the white ball first, and pockets his own ball and the red one, he gains five points.
21. If the striker plays at the white ball first, makes a cannon, and pockets the red and white balls, he gains seven points.
22. If the striker plays at the white ball first, makes a cannon, and at the same time pockets his own and his adversary's ball, he wins six points; two for the cannon, and two for each white hazard.
23. If the striker plays at the white ball first, and pockets all the balls without making a cannon, he gains seven points.
24. If the striker plays at the white ball first, makes a cannon, and pockets all the balls, he gains nine points.
25. If the striker plays at the red ball first, and pockets it and his own ball, he gains six points.
26. If the striker plays at the red ball first, makes a cannon, and by the same stroke pockets his own ball, he gains five points; two for the cannon, and three for the red losing hazard.
27. If the striker plays at the red ball first, makes a cannon and pockets the red and the white ball, he gains seven points.
28. If the striker plays at the red ball first, makes a cannon, and at the same time pockets his own and the red ball, he wins eight points; two for the cannon, three for the red losing and three for the red winning hazard.
29. If the striker plays at the red ball first, and pockets his own and the white ball, without a cannon, he gains five points.
30. If the striker plays at the red ball first, and pockets all the balls without a cannon, he gains eight points.
31. If the striker, by striking the red ball first, makes a cannon, and by the same stroke pockets his own and both the other balls, he gains ten points, being the greatest number that can be gained by one stroke.
32. If the striker, in taking aim, moves his ball so as to strike the ball he is playing at, without intending to strike, it is a stroke, and must pass as such, unless the adversary chooses to let him play the stroke over again.
33. If a striker, in the act of striking, moves his ball ever so little, it is a stroke.
34. If the striker fails to hit a ball, he loses one point; and if by the same stroke his own ball runs into a pocket, he loses three points; that is to say, his adversary scores so many points. This is called a coup.
35. If the striker forces his own or either of the other balls over the table, after having made a cannon or a hazard, he gains nothing by the stroke, and his adversary may play on without breaking the balls.
36. If the striker forces his ball off the table without striking another ball, he loses three points.
37. If the striker plays with the wrong ball, and a cannon or hazard be made thereby, the adversary may have the balls broken; but if nothing be made by the stroke, he (the adversary) may take his choice of balls the next stroke, and with the ball he chooses he must continue to play until the game is over.

N.B.—The playing with the wrong ball must be discovered before the next stroke is played, otherwise no penalty attaches to it.

38. No person has a right to inform the adversary that the striker has played, or is about to play, with the wrong ball.
39 No person, except the adversary, has a right to inform the striker that he is playing with the wrong ball.
40. If the adversary does not see the striker play with the wrong ball, or, seeing it, does not choose to enforce the penalty, the marker is bound to score all the points that may have been made by the stroke.
41. If the striker's ball be in hand, and the red and the adversary's balls within the baulk, he (the striker) cannot play at them, except from a cushion out of the baulk.
42. If the striker's ball be in hand, and the other two balls within the baulk, should he strike one of them, without first playing out of the baulk, the adversary has the option of letting the balls remain as they are, and scoring a miss—of having the ball so struck replaced in its original position, and scoring a miss—of making the striker play the stroke over again—or of making it a foul stroke, and breaking the balls.

43. If the striker's ball be in hand, he has no right to play at a cushion within the baulk, in order to strike a ball that is out of it.

44. If the striker's ball be in hand, and he, in playing from the baulk, should move his ball in the act of striking, it is a stroke, although the ball should not go out of the baulk; but the adversary may, if he chooses, compel him to play the stroke over again.

45. If the striker's ball be near the ball he plays at, and he plays the stroke with the point of the cue, it is fair; but if he plays it with the butt end, the marker or umpire must decide whether it be foul or fair.

N.B.—The principle which ought to govern the decision in such a case is this, namely, that the striker's butt must quit his ball before it comes in contact with the other ball.

46. If the striker's ball be on the brink of a pocket, and he, in the act of striking, misses the hit, and drawing back his cue, knocks it (the ball) into the pocket, he loses three points—it being a coup.

47. If the striker, in giving a miss from the baulk, should let his ball remain in the baulk, without its having gone out, the adversary may either let it remain so, or compel him to play the stroke over again.

48. If the striker, in giving a miss, should make a foul stroke, and his adversary claim it as such, and enforce the penalty, the miss is not scored.

49. No person is allowed to take up a ball without permission of the adversary.

50. If one of the players moves a ball by accident, it must be replaced to the satisfaction of the adversary.

51. If, in the course of a game, a person takes up a ball, supposing it to be in hand, the adversary may break the balls, or have them replaced to his own satisfaction.

52. If the marker or a bystander touches either of the balls, whether it be running or not, it must be replaced as near as possible to the place it did or would apparently have occupied.

53. If, after the striker has made a cannon or a hazard, he takes up the ball, thinking the game is over, the adversary has the option of breaking the balls, or having them replaced.

54. If, after the striker has made a miss or a coup, he takes up a ball, supposing the game to be over, he loses the game.

55. If, after the striker has made a miss or a coup, the adversary, thinking the game is over, takes up a ball, he (the last striker) may have the balls replaced as they were, or break the balls.

56. If, after the striker has made a cannon or hazard, the adversary, thinking the game is over when it is not, takes up a ball (whether running or not), he loses the game.

57. If, after striking, the striker should obstruct or accelerate the running of the balls in any way, it is at the adversary's option to make it a foul stroke, and break the balls, or have them replaced.

58. If, after the striker has played, the adversary should obstruct or accelerate the running of the balls in any way, he (the striker) may claim the right of breaking the balls, or having them placed to his own satisfaction.

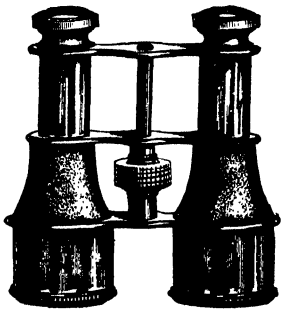
Bills (Accounts).—All bills, preparatory to payment, should be placed on a file, or folded up and endorsed, directly they are received. Bills should always be paid periodically, whether it be weekly, monthly, or quarterly. In the case of housekeeping bills, weekly payments, involving weekly checking of the items, should be adopted if possible. In this way imposition or error may readily be detected, and expenditure is more likely to be kept within due limits. All bills, when paid, should be receipted, and all receipted bills should be folded and endorsed, and put by ready for reference at any time if required. Keep all receipted bills for six years at least; at the expiration of that time they may be destroyed, if found to be in the way, for no unclaimed contract debt of more than six years' standing is recoverable at law, and for this reason there need be no fear of being compelled to pay a bill twice, if claimed for a second time after the expiration of the six years.

Bills of Exchange, Duties on.—All bills of exchange are liable to duty as follows:—

	s.	d.
Bills payable on demand or on presentation (excepting promissory notes), whatever their amount	0	1
Bills of Exchange of any other kind, not exceeding £5 in value . . .	0	1
" " £10 " . . .	0	2
" " £25 " . . .	0	3
" " £50 " . . .	0	6
" " £75 " . . .	0	9
" " £100 " . . .	1	0
and for every additional £100 or fractional part of £100	1	0

Bills of Mortality.—Returns of deaths which occur in a certain district. (*See* Births, Deaths, and Marriages, Registry of.)

Binocular Glasses. — The term is generally understood to mean the opera or field-glasses, which are made double, so that both eyes are brought into requisition. Telescopes for astronomical purposes have also been made on the binocular principle, though they are rarely used. Binocular microscopes are made upon a different plan, as they have but one object-glass, it being manifest that the minute objects for the examination of which microscopes are required could not be brought within the field of two different lenses at the same time. After passing through the object-glass, the



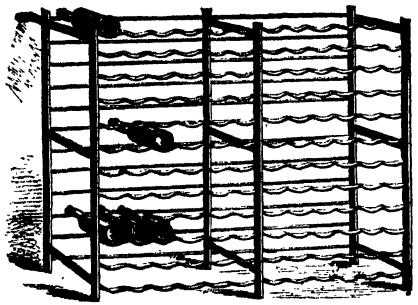
BINOCULAR GLASSES.

light is divided into two portions by means of a prism, which reflects one-half of the light up an oblique tube, while the other passes outside the prism directly up the other tube; or else the light is divided by two prisms into equal portions, which are deflected up two separate tubes, both inclined to the direct line. By adopting the binocular principle, some portion of light is lost, which is a serious consideration when a high power is used; but it is less fatiguing to the eyes to use both, and the objects seen in this way appear in high relief, which sometimes greatly assists in the determination of their structure.

Bins, Corn.—A corn-bin is a sort of convenient box or chest, fixed in the stable for the purpose of containing grain and other provender for horses.

Bins, Wine.—Bins for wine are the open subdivisions in a cellar for the reception of

wine in bottles. The average diameter allowed for green bottles is 3·56 inches. Thus a bin six



WINE-BIN.

feet two inches and three-quarters long will take twenty-one bottles. If they are laid in double tiers, the depth should be thirty-two inches.

Birch.—The common birch is a very beautiful forest tree abounding in the north of Europe and Asia, and often forming large groves by itself. In the south of Europe it is met with only upon mountains of considerable elevation. The leaves of the birch are small and elegant; the boughs finely divided into slender twigs. The bark is smooth and silvery white, and its outermost layers are thrown off as the tree advances in age. From its airy gracefulness, the birch has been styled by Coleridge "the Lady of the Woods." There are two principal varieties of birch—the erect and the weeping birch, the latter being extremely elegant. The weeping variety is the one that prevails in the mountain districts of Scotland and Wales.

The bark and leaves of the birch are in some northern countries employed medicinally in cases of fevers and eruptions. They are also used for dyeing yellow. The bark is occasionally employed for tanning, and is preferred to every other kind of bark for steeping nets, cordage, and sails. The young spray, besides its use for making brooms, &c., affords a capital fuel for iron furnaces. The large old wood is manufactured into furniture and agricultural implements. The outer bark, which is almost imperishable, serves a variety of purposes; houses are roofed with it instead of tiles; and in Lapland, where the dwarf birch is about the only tree, its utility is immense: of it the natives manufacture baskets, mats, cordage, waterproof shoes and boots, and by taking a broad sheet of it, and cutting a hole in the centre for the head, a rough-and-ready mackintosh is produced. Strips of the bark twisted together make excellent torches. The chief uses of the wood of the birch in this country are to make packing-crates and hoops for herring-barrels; it is also used for firewood. Birch charcoal is much employed in manufacturing gunpowder; and well-prepared sticks of it form excellent crayons for drawing. The sap of the birch is an agreeably-flavoured sweetish liquor, well known as the basis of one of our domestic wines; it is, however, necessary to add sugar or honey to make it ferment properly. The juice is extracted by boring holes in the tree, almost in the centre of the trunk, in the spring, as soon as the sap begins to flow.

The dwarf birch is met with in the Highlands of Scotland, especially in wet boggy places. It is a lowly shrub seldom more than two or three feet high. Though looked upon as a botanical curiosity in Britain, it is a plant of great importance, as we have already indicated, to the inhabitants of Lapland, furnishing them with their chief fuel and bedding; while the seeds nourish the ptarmigan—a most valuable article of food to the natives. The dwarf birch is often cultivated as an ornamental shrub.

Bird-cages.—The kind of cage that is best suited for different birds depends on their natural habits of life, and the degrees of liveliness in their disposition. A lark must have a large, a chaffinch a small cage. A further question regards the introduction of perches, which is decided by the bird's habit when at liberty—whether or not it lives on the ground. Such perches are never placed in a lark's cage, though indispensably necessary in one intended for a nightingale. Little cages of a circular form have long been condemned by all who understand bird-keeping, not only because they are so confined, but because they supply the



BIRD-CAGES.

bird with no shelter whatever. As a winter habitation, especially, the best cage is oblong, and only open in front. It can be made to look well, and such small birds as canaries, goldfinches, and linnets will be all the happier with one. The ends may be formed of wire as usual, and covered with a sheet of glass. In cages so constructed, birds may be preserved from the effects of sudden changes of temperature which are so injurious.

Under all circumstances, cleanliness is an essential requisite for the longevity of birds, as well as for their preservation in health and spirits. Every fortnight at least—were it done every week the birds might be too much disturbed—all cages should be cleaned, and all perches freed from dirt. (*See* CAGES.)

Bird-cherry.—A pretty shrub or small tree growing wild in the moist woods of Britain, and in most parts of Europe and the

north of Asia. The foliage is bright and luxuriant, and the younger branches are of a very dark or reddish-brown colour. Ten or twelve feet is the ordinary height of a bird-cherry tree when in a state of nature, but when cultivated it sometimes reaches more than double that height. The fruit is not eatable, being nauseous in flavour, and probably dangerous in its effects, if taken in large quantities. It is, however, used to communicate a pleasant flavour to spirits. The wood of the bird-cherry is held in some esteem by turners and cabinet-makers, being hard and richly veined and coloured.

Bird-lime is used to cover twigs to catch small birds and other small animals. A common practice is to place a decoy or tame bird in a cage near where the bird-lime is spread; the wild birds attracted to the spot by the song of the tame one then get caught. Bird-lime is made from the middle bark of the holly gathered in the months of June or July. The holly-bark is boiled in water till it becomes soft and tender; the water is then drained off, and it is placed in a heap in a pit underground, usually on layers of fern, and covered with stones. Here it is left to ferment for two or three weeks, water being added, if necessary, till it assumes a mucilaginous state. The next step is to pound it in a mortar, after which it is well kneaded with the hands in running water, till all the refuse matter is worked out. Last of all it is placed in an earthen vessel covered with a little water, and thus preserved from season to season. Bird-lime is occasionally made from mistletoe berries, the young shoots of the elder, the bark of the wayfaring-tree, and some other plants. It is also sometimes made of ordinary wheat-flour. A factitious bird-lime is manufactured by boiling linseed oil, sometimes with and sometimes without a little yellow resin. This is most commonly employed, spread on cloth or paper, to catch insects, &c. In this way are made the celebrated but barbarous "Catch 'em alive-o" fly-papers.

Bird-pepper.—This is a species of small *capsicum*, which affords the best cayenne pepper.

Birds, Cage.—From the earliest ages the custom of keeping birds in confinement has been a very general one; the reasons, however, for so confining birds differ greatly according to their species. Thus some, and perhaps the majority, are kept as songsters, whose sweet notes may delight the ear; others again for the sake of their beautiful plumage; others on account of their friendly and loving natures, fitting them especially for pets; and others because of certain peculiarities of form or species, making them objects of interest to ornithologists and bird-lovers. Of course, however, the number of species of birds thus generally kept in confinement bears but a small proportion to the whole known number, since a large majority would not in any way repay the care and trouble necessary to be bestowed upon them if confined.

As already intimated, the vocal qualities of birds form their great attraction, and these vocal qualities, in many cases of a high order in the wild or natural state, are often improved by confinement. The song of birds has been divided into two classes—the natural and the artificial, the former being as various as the birds themselves, since the song of no two different species of birds is alike; the latter consisting of notes acquired while in confinement, or copied while in the wild state from the song of other birds, and therefore peculiar to no single species. The song of birds has again been classified as follows:—"The bird *warbles* or *quavers* when it always repeats the passages or single notes of its song in precisely the same order; such is the song of the nightingale and the chaffinch. It *sings* when it utters the chirping or twittering song, intermixed with most distinct notes, without observing any regular succession, as is the case with the redbreast and siskin. And then only it *whistles* or *pipes* when its song consists of distinct, round, flute-like notes; as, for instance, that of the linnet and the trained bullfinch."

Speaking generally, and as far as health and contentment are concerned, all birds thrive better in a large room or aviary than in a small cage. (*See* AVIARY.) Many birds *sing* better, however, in a small cage, and of these the chaffinch is a notable example. Some information as to the best kind of cage for each sort of bird will be found elsewhere. (*See* CAGES.) The proper food for each kind of bird forms a very important consideration, and it may be laid down as a general rule that that food is the best which bears the closest resemblance to the bird's natural diet when in the wild state. Of course it must often happen, particularly in the case of foreign birds, that the natural food cannot be procured, and it then remains to consider what diet may best take its place. Some few suggestions in this direction will be found under the heading of the more common cage-birds. (*See* BLACKBIRD, BULLFINCH, CANARY, CHAFFINCH, GOLDFINCH, LARK, LINNET, NIGHTINGALE, PARROT, REDPOLE, SISKIN, THRUSH, &c.)

Birds as pets have taken such a bold position in our hearts and homes that their ailments and illnesses have become matters of careful consideration, and a small Pharmacopœia has grown up around them. As might be expected, birds in confinement are more subject to disease than their brothers in freedom, and most of their ailments may be traced to want of cleanliness, closeness of confinement, or errors in diet. (*See* CAGE-BIRDS, BREEDING OF; CAGE-BIRDS, DISEASES OF.)

Birds, Stuffing of.—In stuffing birds, the skins are usually dusted over with a mixture of camphor, alum, and sulphur, in about equal proportions. According to one authority, carbolic acid is superior to all other substances for preserving the skins both of birds and animals. The stuffing and mounting require much personal experience, as almost every group must be treated differently.

Birds, To Scare.—Newly-sown seed and ripe fruit often cause the husbandman and gardener no little anxiety: birds make away with so much of it. To frighten them off, countless means have been tried, as every one knows. It

is unnecessary to speak of the slaughtered birds set up as awful examples, of the occasional doses of small shot, of unearthly rattles making the country air hideous, and of the whole ragged apparatus of scarecrows. Here is an effective method contrived by a practical gardener:—Before sowing peas, radishes, and other seeds that the birds will eat freely, he saturates them in paraffin oil, then dusts them with red-lead, and rubs them well with the hands. The birds visit the seed-bed expecting a pleasant repast. One morsel is enough; they taste the paraffin and lead, and quickly fly off to where they can obtain food of a more palatable character.

Birthdays.—Anniversaries of the day on which persons were born, generally made the occasion for some sort of rejoicing. Birthday festivals are customary amongst most civilised nations, and in our own country take the form of children's parties, dinners, garden-parties, dances, musical *soirées*, &c. The day on which a person attains his majority—his twenty-first birthday—is generally made one of more than usual rejoicing, especially if he who comes of age be a person of large property. It is usual for all the friends of a person on his birthday to offer him their best wishes, "Many happy returns of the day" being the stereotyped phrase on such occasions. The presentation of some small present in commemoration of the day is also very usual.

Birthright.—The rights and privileges to which a man is born; the right of the first-born.

Births, Deaths, and Marriages, Registry of.—A regular system for entry of particulars of all births, deaths, and marriages was established by Statute 6 & 7 Wm. IV. c. 86. The certified copies of entries purporting to be sealed with the seal of the Registrar-General's office are evidence of the birth, death, or marriage to which same refers without any further proof of entry; an affidavit of identity is, however, required. These entries of deaths are from time to time abstracted, and form what are popularly known as the bills of mortality. The conceal-of a birth is by Statute 24 & 25 Vict. c. 100, a misdemeanour punishable with imprisonment for any term not exceeding two years, with or without hard labour.

Biscuit.—Two kinds of biscuit are known in the potter's art: one of them is merely earthenware, &c., partially baked preliminary to the glazing, the other is a variety of china or porcelain which is unglazed, and principally appears in the form of figures and other ornamental pieces. Biscuit china is very tender, but frequently represents with the greatest precision the most delicate flowers and other minute details.

Biscuits (Various).—The meaning of the name "biscuit" is "twice baked," and it was adopted because formerly biscuits were subjected to two bakings. Biscuits are a kind of bread made in the form of thin, flat, dry cakes. There are fermented and unfermented varieties, and some of the fermented biscuits are sweetened and flavoured in various ways, or enriched by the addition of butter, milk, eggs, and similar ingredients; they then become fancy biscuits.

More than a hundred different kinds of biscuits are offered for sale at the present time. The manufacture of biscuits by machinery has been brought to such perfection that they can be bought ready-made much cheaper and at the same time quite as good, if not better, than they can be made at home. The trade in biscuits has increased so largely of late years that several of the largest biscuit manufactories prepare and sell thousands of tons of biscuits each year.

The commonest of all biscuits is the *seaman's biscuit*. This article is much used in the navy, and is most useful in affording food for sailors when on long voyages. These articles are made of flour, salt, and water well kneaded together. The dough, when prepared, is rolled out to a sheet of the proper thickness by being passed between heavy rollers. The biscuits are then stamped into shape, and the slabs on which they are placed are put into a framework and drawn by chains through an oven open at both ends. It is said that about 2,000 lbs. weight of dough is passed through one of these ovens every day. As soon as the biscuits are baked, they are put into heated rooms and left for two or three days, that they may be thoroughly dried before they are sent out. *Captain's biscuits* are made with finer flour than seaman's biscuits; a little yeast is introduced to cause fermentation, and a small portion of butter is sometimes added. *Meat biscuits* are made of lean meat minced and pounded and mixed with flour. *Devilled biscuits* are made of any kind of plain biscuit buttered, seasoned highly with mustard and cayenne, and covered with a slice of cheese. The whole is then either grilled or baked in a hot oven and served very hot.

Bishop.—An important functionary of the Church, elected by the dean and chapter pursuant to the Queen's *congé d'elire*, or license, to elect a certain person named, ranking immediately after an archbishop, and having episcopal powers over a certain prescribed territory known as his "diocese." He is to a certain extent subject to the jurisdiction of the archbishop of the province of which his diocese forms part, and to whom he is termed a suffragan. With a very few exceptions, the bishops of the Church of England have seats in the House of Lords. Under the Bishops' Resignation Act, 1869, made perpetual by the 32 & 33 Vict. c. 111, "bishop's coadjutor" can be appointed in case of mental infirmity incapacitating bishops from the performance of their duties, such incapacity being verified by certificate of the archbishop and two other bishops; and the practice of appointing bishop's suffragan (from *suffragari*, to help or assist), which had for a long time fallen into desuetude, has been in late years revived in several dioceses (the Bishop Suffragan of Dover, for instance), and such bishops are assistants to, and perform the functions of, their principals. They were formerly known as *chorepiscopi*, or bishops of the county.

Bishop (Drink).—A favourite drink

made of red wine, such as claret, burgundy, or port, poured either hot or cold upon ripe Seville oranges. The liquor is sweetened and flavoured according to taste, and may be drunk either hot or cold. This beverage was imported into Germany from France and Italy. It was known during the Middle Ages, but it did not receive its present name until the seventeenth century. It is necessary to exercise moderation when partaking of it, or it may bring on headache. The oranges used in its preparation need to be carefully selected, and the white pithy portion of the skin must be rejected, as this would impart to it an unpleasant bitter taste. The quality of the beverage depends entirely upon the excellence of the wine used. If white wine is employed, the Bishop becomes Cardinal. If it is made with tokay, it is called Pope.

Bismuth.—A whitish metal, crystalline and brittle. It fuses at about 500° Fahr., and is a bad conductor of heat in comparison with other metals. It is very widely distributed in nature, but seldom occurs in sufficient quantities to be mined for its own sake. It is frequently found in the native state in mineral veins; but the commonest ores are the oxide, sulphide, and carbonate. Bismuth forms very fusible alloys with other metals. Sir Isaac Newton found that eight parts of bismuth to five of lead and three of tin constituted an alloy that would melt in boiling water, and hence he called it *fusible* metal. Sometimes it is called, after him, Newton's metal. The proportions which give the most fusible alloy, melting at less than 201° Fahr., are, one-half bismuth, with lead and tin in equal quantities. Equal parts of all these three metals will make a compound melting at 254°. Various mixtures of these are therefore used to make solder. Soft solder consists of one part of bismuth to two of tin and one of lead. Pewterers use solders of this character, the bismuth forming about twenty-five per cent. of the whole, but with varying proportions of the other two metals. Plumbers' solder contains only one part of bismuth to five of lead and three of tin. The so-called Britannia and Queen's metals are easily worked on account of their softness and ready fusibility: these qualities are due to the bismuth that enters into their composition, though the proportion of it is but small. Lead and bismuth in equal quantities make a brilliant white alloy, much harder than lead. Bismuth is also used in making printers' type-metal, because it imparts the necessary degree of hardness. A small addition of it likewise heightens the sonorousness of bell-metal. Pearl white, the magistery of bismuth of the Pharmacopœia, is a subnitrate of the metal. It is in the form of a loose powder, consisting of small crystalline scales, from whence it derives its pearly lustre and its common name. Bismuth in its various medicinal forms, when given internally, appears to exercise a considerable sedative action upon the stomach, and is a most useful remedy for heartburn, water-brash (pyrosis), pain after food, diarrhœa, especially that which occurs in cases of consumption, and in vomiting from irritability or weakness of the stomach. The dose of white bismuth (subnitrate) is from five to twenty grains for an adult; that of the carbonate of bismuth is about the same. The dose of solution of bismuth—an excellent preparation by Schacht—is half a drachm to a drachm. Bismuth lozenges consist of subnitrate of bismuth, carbonate of magnesia, precipitated carbonate of lime, refined sugar, gum acacia, mucilage, and rose-water. Each lozenge contains two grains of bismuth. An ointment containing one drachm of bismuth and half an ounce of spermaceti ointment has been found useful in chronic skin diseases. Bismuth is also much used as a cosmetic, although it has been stated by one writer that when thus applied it produces a spasmodic trembling of the face, ending in paralysis.

Bissextile, or Leap Year.—A year consisting of 366 days, one day more than usual. This happens every fourth year, by the addition of one day in the month of February, which that year consists of twenty-nine instead of twenty-eight days. This is done to recover the six hours which the sun yearly takes up in his course over the 365 days commonly allowed for it in other years. By Act of Parliament passed A.D. 1751, and coming into force in all the British dominions in the year following, what is known as the Gregorian Computation (after Pope Gregory) was adopted, and by which among other things the supernumerary day in leap-years was added at the end of the month of February, and called the 29th of that month. This computation has also been adopted in most foreign countries since the reformation of the calendar in 1582.

Bistre.—A dark transparent brown colour used in painting. It is made from the soot resulting from the burning of dry wood. Beech-wood is found to produce the best article. The soot is collected and boiled in water; the liquor is then left to settle; the clear portion is afterwards poured off and evaporated down to dryness, the solid portion left after evaporation being bistre.

Bites.—Bites may be divided into three classes: 1, simple and irritating; 2, severe and painful; 3, venomous and dangerous to life. The first class includes chiefly the bites of insects, as fleas, gnats, bugs, mosquitoes, &c. These require no special treatment, though at times they are most annoying, preventing sleep, and in this way may prove injurious to persons in delicate health. The best application is ammonia in the form of spirit of hartshorn, sal volatile, or eau de luce. If, as seldom happens, there is swelling and redness, linseed poultices at night and a cooling lotion during the day will be found useful. The second class will include the bites of dogs and cats (not in the rabid state), rats, horses, and animals generally. These, if the skin is not broken, require no interference unless the bruise is extensive, when a little goulard water may be applied. If, however, there is a wound, it should be at once well sucked, then washed with some sal volatile and water, and subsequently treated as an ordinary sore with water-dressing or zinc ointment. Should there be any suspi-

cion as to the animal that has inflicted the bite, then some caustic, as the nitrate of silver, should be freely pushed into the wound (strong acid, either nitric or muriatic, applied with a glass rod or a smooth piece of wood, will do admirably), or the part be seared with a red-hot iron, a warm poultice applied, and the part kept at rest for a few days. Brandy and sal volatile are necessary if the nervous shock, as sometimes happens, is severe, and the person bitten in delicate health. The third class comprehends the venomous bites of such insects as the scorpions and tarantula, as well as those of snakes and other reptiles. In this country the only venomous snake is the adder, the bite of which is seldom fatal except to children and very delicate persons. (*See* ADDERS, BITE OF.) In the East, however, a large number of people die annually from snake-bites, some of which, *e.g.*, the tobacco-pipe snake, are so deadly, that they kill in a quarter of an hour. The cobra di capello will kill in from one to nine hours, and the Australian tiger snake in less than twenty-four hours. The symptoms of a poisonous snake-bite are acute pain in the part, which soon becomes swollen and livid, and, if the patient survives long enough, is followed by diffuse inflammation and gangrene of the surrounding parts. The constitutional symptoms are intense depression, feeble pulse, loss of speech, occasional delirium, insensibility, and death. The absorption of the poison being extremely rapid, the success of the treatment must necessarily depend upon the rapidity with which it is applied. The chief thing of course is to prevent, if possible, the absorption of the poison. A ligature should therefore be applied so tightly round the limb, a little distance from the wound, as to arrest the circulation, and the wound itself should be either cauterised with a red-hot iron or cinder, or excised and afterwards well sucked. (There is no danger from sucking a wound of this kind unless there is abrasion or ulceration of the mucous membrane of the mouth; it is well, however, to rinse the mouth both before and after with a little brandy.) If cupping glasses are available and can be applied, so much the better. The subsequent inflammation must be treated with poultices, rubbing in olive oil where tense and painful, and free incisions when necessary. The shock to the nervous system is so severe in all cases of snake-bites, and the tendency to death from this cause alone so great, that brandy and ammonia (sal volatile or eau de luce) must be administered freely, the former without stint. Galvanism and enforced exercise must be employed if there is drowsiness and feeble respiration. Arsenic in large doses has been given in India with some apparent benefit. (This drug is the chief constituent in the so-called Asiatic pill.) Ammonia has been injected into the veins of persons bitten by the worm-snake of Australia by Dr. Halford with success; but the remedy has failed in the bite of the cobra di capello. For bites of rabid dogs and cats, *see* HYDROPHOBIA.

Bitter Apple, or Colocynth.—The bitter colocynth citrullus (*Colocynthis*) is a plant of the gourd order (*Cucurbitaceæ*) growing in Japan, Turkey, and the Grecian Archipelago, also in France and Spain. There are two kinds of colocynth known in commerce, viz., peeled and unpeeled. The former is imported from Smyrna, and the latter, which is of inferior quality, is brought from Mogadore. French colocynth is of handsome appearance and good quality, but it is wanting in medicinal power. Colocynth pulp is the dried peeled (sometimes unpeeled) fruit, and contains an active purgative principle called colocynthine. It is of a whitish colour, without smell, and nauseously bitter. Colocynth, in its medicinal form of compound extract and compound pill, both of which preparations contain in addition aloes and scammony, is a most useful and powerful purgative, acting chiefly upon the large intestines, and producing copious watery stools. It is therefore most useful in dropsy, obstinate constipation, failure of the menses, and in certain head affections. The dose of the compound extract is from three to ten grains, and that of the compound pill from five to ten grains. Hyoscyamus (henbane) is a useful adjunct to colocynth, correcting griping, and increasing its action. It is therefore much used in the form of compound pill with hyoscyamus, the dose of which is from five to ten grains.

Bitter-cup.—This is a vessel or cup made from some bitter wood, generally quassia, which imparts a certain degree of bitterness to any fluid standing in it for a little time.

Bitters.—These are generally a combination of two or more such vegetable bitters as gentian, quassia, calumba, wormwood, orange-peel, &c., steeped for some days in brandy, gin, or wine, to which some syrup is added. Their usefulness and wholesomeness depend, of course, upon the purity of the ingredients, which in many taverns and public-houses are of the very worst description. The use of bitters under such circumstances is positively injurious, and even when the purity of the infusion can be guaranteed, there is danger in continuing the practice, as their tendency is ultimately to depress the nerves by undue stimulation. A simple infusion of gentian or quassia in boiling water, and allowed to cool, is an excellent stomach tonic and appetiser when taken in moderation and not for too long a period.

Bitumen.—A natural product consisting of a variety of hydrocarbons, but generally more or less mixed with earthy matter. It is frequently called mineral pitch. The hydrocarbons of which it is composed exist in every variety of form, from the liquid mineral oil petroleum, the thicker oil of Burmah sometimes called Rangoon tar, to the still more solid pitch of Trinidad and other places, and then through the flexible sandstones to the solid shales and compact asphalt. The term bitumen is, however, more properly restricted to the semi-solid and solid forms in which it occurs in nature, and the artificial substances of similar consistency prepared from them. Many sandstones are highly impregnated with bitumen, in consequence of which they present the singular feature of being flexible. Earthy bitumens are soft, of a brown colour, and of a dull fracture; but the compact variety asphalt is hard, black,

fracture. more or less freely, emitting large quantities of thick black smoke. Coals are distinguished as bituminous, semi-bituminous, and non-bituminous. The cannel and the parrot coals are those which yield the most, but all gas coals, and even the majority of the house coals, are included in the first category; the furnace and steam coals are semi-bituminous; the anthracites contain none. Some shales are very rich in bitumen, such as the Boghead or Torbanehill mineral, which has been mined extensively for the manufacture of paraffin. Some of the principal sources of the supply of asphalt are Limmer in Germany, Seyssel in France, and Val de Travers in Switzerland.

Bitumen has been turned to profitable use from the earliest ages. The ancient Assyrians and Babylonians used it for building in place of mortar, a purpose for which it is very well adapted. The Egyptians used it for smearing over their mummies after the bodies had been wrapped in the mummy cloths. The Dead Sea derived its name of Asphaltites from the bitumen which is sometimes to be found floating on the surface on its waters; but there were many other sources of supply more abundant than this one which were known to the ancients. Its modern uses are principally, for distillation with the object of obtaining paraffin, illuminating and lubricating oils; for lining tanks and cisterns; as a preservative against damp in house-building; and for making footpaths and carriage-roads. Artificial asphalt is also made now on account of the great demand that has sprung up for it in road-making: for this purpose the bituminous limestones, having first been ground to powder, are boiled down along with pitch, and the mastic thus formed is run into tubs, and sold in blocks. The Val de Travers asphalt is never sold in this form, but the mineral (which is permeated with grains of carbonate of lime) is simply ground to powder, and then put into sacks.

Black Cherry. (*See* CHERRIES—VARIOUS.)

Black Cloth, To Clean.—Black cloth clothes which are in constant wear should be brushed every day thoroughly but lightly, as hard brushing will soon give them a threadbare appearance. If they are wet and spotted with dirt, they should be dried before being brushed, and the spots should be rubbed off with the hand. Tallow dropped on the cloth should be allowed to stiffen, then scratched off with the finger-nail. Grease may be removed by being rubbed with benzine, or with spirits of turpentine or spirits of hartshorn, on a little bit of woollen cloth. If, after the grease has disappeared, the mark is gently rubbed with the palm of the hand in the direction of the grain, it will regain its glossy appearance. Benzine, or benzoline, as it is sometimes called, is the best solvent and cleanser. It may be purchased in sixpenny or shilling bottles, but it should be kept well corked, and should not be brought near a flame. It has an unpleasant smell, but this the fresh air soon removes. The collars of coats, which are liable to get greasy when the hair is worn long, should be examined and cleansed with benzine frequently. When black cloth is very dirty, and has a shabby look, it may be cleaned as follows:—Take a quarter of a pound of logwood, put it into a copper with three gallons of water, and boil it for half an hour. Brush the loose dust from the cloth, dip it in warm water, squeeze it dry, and boil it in the logwood decoction for half an hour. Lift it out, add to the liquid three drachms of sulphate of iron, and boil the clothes half an hour longer. Hang them up for a couple of hours; at the end of that time rinse them in cold water, dry them, and brush them with a soft brush which has had three or four drops of pure oil rubbed on its surface. A very good reviver for black cloth may be made by boiling for two hours a pound of logwood with half a pound of bruised galls, a quarter of a pound of green vitriol, and five pints of water. This reviver may be made at a cost of about 1s. 6d. Scouring balls of various kinds are also sold for freeing cloth from grease, dirt, and paint. When these are used, the spot needs to be first moistened with hot water, and rubbed with the ball. The place is then allowed to soak for a few minutes, after which it is gently rubbed with a piece of flannel dipped in warm water, rinsed in cold water, rubbed dry, and brushed with a soft brush.

Black Currants, Preparations of.—Black currants (*Ribes nigrum*) are so called from their supposed resemblance to the small dried grapes which go by that name. They are, however, quite a different fruit, and are more nearly allied to gooseberries than to grapes. The bushes will not grow well in any soil that does not retain a considerable amount of moisture in dry weather. They love the shade, and in a hot situation are liable to be blighted. They flourish abundantly in moist woods and on the banks of streams. The fruit is acidulous, cooling, and wholesome. It is used as an aperient, and has a cooling effect on the stomach. The jelly and jam made from it are useful for quinsies and sore throats. Black-currant vinegar, made in the same way as raspberry vinegar, is used for the same purpose, as also are black-currant lozenges and black-currant wine. The juice of the black-currant has achieved its highest fame, however, in the form of a liqueur, the Liqueur de Cassis. In France, large tracts of land are cultivated with black currants, in order to supply the liqueur manufactories; the town of Dijon produced during one year as much as 220,000 gallons. The young leaves of black currant bushes are sometimes used instead of tea, and a small leaf added to black tea will impart to it the flavour and fragrance of green tea. Black currants are not valued in England so highly as red currants, but they grow abundantly in Scotland. They are particularly luxuriant in the Hebrides and the Shetland Islands.

Black Draught.—This popular draught is composed of sulphate of magnesia (Epsom salts) from two to four tea-spoonfuls, sal volatile thirty to sixty drops, and infusion of senna from one to two ounces. The latter is prepared by pouring half a pint of boiling water upon an ounce of senna-leaves and half a drachm of ginger. Less or more can be made in these

proportions. Potassio-tartrate of soda is sometimes substituted for the Epsom salts, the dose being about the same. Black draught is an excellent aperient in biliousness, and in disorders of the digestion generally. It is generally given in the morning fasting, and preceded overnight by two or three grains of calomel, or five grains of blue pill.

Black Inks.—The original plan of making a black ink was to use a black substance in a state of fine subdivision, mixed with sufficient gum and water to make it adhere to the paper. Lamp-black is an article well adapted for such a purpose; and it is therefore the principal ingredient of such inks. In order to obtain a sufficient depth of colour, these must be made rather thick, and are consequently more suitable for use with a brush than with a pen. Fluidity is indeed an essential condition in a good writing ink. Common black ink is made of copperas, galls, gum, and water, to which some add logwood. The gallic acid turns the green copperas black, and the gum is added to prevent the colouring matter from settling at the bottom. Logwood improves the colour of the ink. These inks are apt to turn mouldy, though this can be prevented by the addition of a small proportion of creosote; and the black colour turns rusty with age through the iron absorbing oxygen from the air. An ink of a superior quality consists of a tannogallate of iron dissolved in sulphate of indigo, which is blue when first used, but speedily turns to an intense black; no gum is used in its preparation, as the colouring matter is in solution and not merely mechanically suspended in the liquid; and hence this ink is very fluid, and easy to write with. Another ink, which possesses the advantage of not corroding steel pens, is prepared by adding one part of chromate of potash to 1,000 parts of a saturated solution of logwood, which, when well stirred together, produces a very fluid ink of a deep blue-black colour; anything written with this is unaffected even by weak acids. A very permanent ink is prepared from the rare metal vanadium; and so minute a quantity of the vanadate of ammonia is sufficient to produce an intensely black fluid when mixed with an infusion of galls, that the cost of the salt (which is now much less than it was only a few years ago) is no longer an impediment to its general adoption. Copying inks are made by the addition of a little sugar to the common writing ink, and by increasing also the proportion of gum.

Black Lace, To Clean.—Dip a sponge into beer or cold tea, and damp the lace, taking care not to make it wet; place brown paper over it, and press it with a warm iron. The lace will look glazed if paper is not put between it and the iron. If the lace is worsted, the dust should be thoroughly brushed off before the lace is made damp.

Black-lead.—Black-lead, graphite, or plumbago is a mineral consisting chiefly of carbon. The name "black-lead" is rather an unfortunate one, for not a particle of lead enters into its composition. Black-lead is found pretty abundantly in various parts of the world, as Russia, Austria, and Mexico. From these countries it is imported into England in large quantities. It is also found in Cumberland.

The well-known powdered form of black-lead is inferior to the plumbago used for pencils, but it is very serviceable for polishing grates, stoves, and many other articles made of iron which are not to receive the natural white polish of the metal of which they are made. It acts as a protection from rust, and, being susceptible of a very high polish, improves the appearance of the articles on which it is laid. Besides the ordinary powdered black-lead, a solid kind moulded into small blocks is also to be bought. This black-lead must be broken up and made into a paste, which is then to be used in the same way as the other. Many think that it produces a more brilliant polish than the powdered black-lead.

Black-lead Pencils. (*See* PENCILS.)

Black Paints.—The principal black pigments used in commerce are obtained by carbonising organic substances, especially bones (*see* BONE-BLACK), by exposure to a dull red heat, in covered vessels, protected from contact with the air. Secondly, by collecting the soot formed during the combustion of unctuous, resinous, and bituminous matters. Artists prepare various blacks, which are not sold in the shops. This is accomplished either by the carbonisation of substances not usually so employed, or by reducing to powder certain mineral productions whose peculiar shades in combination result in the black which is required. The subjoined list gives a brief description of some of the principal of these paints:—

Blue-black.—Vine-twigs dried, and carbonised in covered vessels. The ancients made it of wine-lees. Also to be produced by pit-coal, burnt at a white heat, quenched with water, and dried and ground. This is a cheap and excellent black for ordinary purposes, and is of a durable nature.

Composition-black.—The selected portion of the residuum of the process of making prussiate of potash from blood and hoofs. Used as a pigment, and to decolour organic solutions.

Florey-black (Florée d'Indo).—The dried scum of the dyer's wood-bath. A superior blue-black.

Frankfort-black (Noir de Francfort).—Made from dried vine-twigs, carbonised, and ground fine. This pigment is employed by copper-plate printers for making ink.

Ivory-black.—Composed from waste fragments and turnings of ivory, carefully exposed in covering crucibles, excess of heat and over-burning being carefully guarded against. When cold it is reduced to powder. The first quality is ground with water on porphyry, washed in a filter with warm water, and dried. This produces a beautiful black, and is free from the reddish tinge of bone-black. Mixed with white-lead it supplies a rich pearl-grey.

Lamp-black.—From large, spongy, mushroom-like concretions, of a black, very light, carbonaceous matter, formed at the summit of a conical funnel of tin-plate, suspended over a

lamp fed with oil, coal-tar, or crude naphtha, the wick being so arranged as to burn with a full, smoky flame. There is a patented process for producing lamp-black for commercial use. The *Russian Lamp-black* is soot produced by burning chips of resinous deal. Spontaneous combustion is to be apprehended from this preparation when left for some time moistened with oil.

Newcastle-black.—From the richer varieties of pit-coal, by grinding and elutriation. Brown-black, or, in thin layers, deep brown. One of the most useful pigments to the artist; clear, and not so warm as Vandyke brown. Used as a shadower over blues, reds, and yellows.

Peach-stone-black.—Made from cherry-stones also, and other similar fruit-stones; producing a bright rich black, and working well with oil. It makes cold-grey when mixed with white-lead.

Soot-black.—From coal-fires, ground and sifted. Used in common paint, and to colour whitewash. It makes also chocolate-colour, mixed with Venetian red and oil. It is employed to make grey mortar.

Spanish-black.—Carbonised moist sugar. Has little body. For washing drawings it is equal to Indian ink in mellowness, as also to bistre.

Wheat-black.—Carbonised wheat, which dries hard and quickly with oil, and has a full body and good colour.

Black Pepper. (*See* PEPPER.)

Black-puddings are made of pig's blood mixed with groats, bread-crumbs, suet, onions, herbs, and spices. They are boiled in skins, and are hung in a cool larder till wanted. When they are to be served they are simmered for a short time, and then either broiled or toasted before the fire. These puddings are not much used in England, excepting at Christmas and in certain localities. The middle classes amongst the French are very careful to eat them on Christmas Eve on their return from midnight mass. A perfect stranger to these puddings would scarcely be able to touch them, but those who have been "brought up to them" regard them as a delicacy. They are perhaps best when eaten with baked apples, which is the Flemish style of serving them.

Black-rents, or Black-mail, anciently signified rates or rents paid in provision and not in specie. This custom prevailed in some of the northern counties, as Durham, Northumberland, &c., where men of position allied with others known to be great robbers and spoil-takers, in order to be by them freed and protected from pillage. This was rendered illegal by Statute 43 Eliz. c. 13. The origin of the word is much contested. The word black was probably a corruption of blank or white, and consequently signified a rent paid in small copper coins called "blanks." There is a phrase still used in Picardy to describe a person who has not a single halfpenny, "Il n'a pas une blanque maille."

Black Reviver.—This is used to restore the colour to faded cloth, stuffs, or silk. The material to be cleaned must first be thoroughly brushed and beaten before the reviver is used. It is generally applied with a sponge to the surface of the materials, but according to some recipes they must be boiled in it. An excellent foreign recipe, in use amongst the Jews of Frankfort, is the following:—Boil two ounces of logwood in a copper with one gallon and a half of water for about half an hour, and put the clothes to be renovated into the mixture, having previously washed them through warm water, and wrung them as dry as possible. Boil them for half an hour, and take them out, in order to add to the logwood water a drachm and a half of sulphate of iron. Then return the clothes to the copper, and boil again for half an hour, after which hang them out, without wringing, for a few hours. The final process is to rinse them in several cold washes, and dry them well.

Another method:—Take of green vitriol half a pound, logwood two pounds, bruised galls one pound; mix with five quarts of water, boil for two hours, and then strain. This mixture is applied to the entire surface of the clothes with a sponge, after which they are hung in the air to dry. The first recipe may be also used for reviving the colour of a faded black silk, proceeding in the same manner as recommended for cloth, but substituting for the sulphate of iron a little blue vitrol or green copperas.

A handful of green fig-leaves boiled in two or three quarts of water till reduced to a pint, and then strained, and used when cool to sponge black silks, has been found an excellent method of reviving their colour and brightness.

Black Silk, To Clean.—Black silk is best cleaned with ox-gall (*see* GALL), which is put into boiling water. The silk is laid out smoothly on a table, and both sides are sponged with the liquor. It is then rinsed out in clean water. In order to re-stiffen it, a weak solution of gum arabic or glue is used; after which it should be stretched out with pins to dry. Another method is to use weak beer and water, or gin and water, to be applied with a sponge. Amongst the negresses of the Southern States of America, the following recipe had much repute:—Take a large-sized black kid glove, and boil it in a quart of water until the water be reduced to less than half. Allow it to remain until cool, when, having stretched the silk to be cleaned on a flat surface, the glove is used to apply the liquid—being careful to put it on the long or selvage way of the silk. By this method the silk is stiffened, while the colour is cleaned and restored. The last process is to roll the silk when damp round a roller, with dry towels or old clothes between, drying slowly and with great care on the rollers. Never use hot flat-irons to smooth silk; mangling being much better.

Black, To Dye.—The substances employed to give this appearance—that is, the colour of lamp-soot—to cloth are red oxide of iron and tan, which have a great affinity to each other. Logwood is used as an auxiliary, to add to the fulness of the black. To render the shade of a better colour in its application to this material, it is usual to dye it blue in the first instance; and if the cloth be coarse, a brown from walnut-peels is substituted. Silk

and wool must be boiled in a decoction of nut-galls, and then kept in a bath of sulphate of iron and logwood at scalding heat. During this operation these materials require to be frequently exposed to the air, on account of the protoxide of iron, of which the sulphate is composed, and which must be changed into sesquioxide, by the absorption of oxygen, before they can acquire a proper colour. Cotton and linen cannot easily receive as full a dye as the former-named fabrics. First dyed blue, it must be steeped for many hours in a decoction of nut-galls, and immersed in a bath prepared of acetate of iron; then wrung out and dried. This process must be continued until the black becomes sufficiently deep in intensity.

Blackberries, Uses of.—The blackberry is a wild fruit which would well repay cultivation. It is common in Britain and most parts of Europe, and is too well known to need description. A fruit very much resembling it is found in the northern parts of Asia, in the Himalaya Mountains, and in North America. At present blackberries are so plentiful that they are not valued so much as they deserve to be, though children seek them eagerly in the



BLACKBERRIES.

hedges and thickets, and they are occasionally offered for sale. Very delicately-flavoured jelly may be made from them, and if a few apples are put with them they may be converted into excellent jam. As to blackberry wine, it is considered by many to be superior both in strength and flavour to any other wine of home manufacture made from similar fruit.

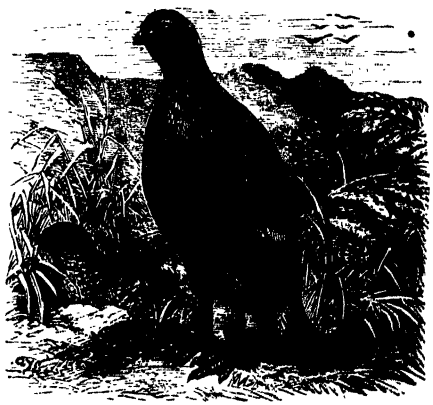
Blackbird.—The blackbird is amongst the best known and best loved of our British songsters. It derives its name from the uniformly black hue of its plumage, which is only relieved by the bright orange-coloured bill of the male bird. Its song is remarkable for its full mellowness of tone. Generally the blackbird sings in the daytime, but now and then it encroaches on the acknowledged province of the nightingale, and makes the night echo with its rich ringing notes. The blackbird feeds usually on insects, but it has a great liking for fruit, and in autumn ravages gardens and orchards in the most destructive manner. It is not a sociable bird, being seldom seen in company with others of its own species, and not often, even, with its mate.

In captivity, the blackbird can be trained to some extent, and has been taught to whistle tunes with great spirit and precision. Even in its native state it is something of a mimic, and will imitate the voices of other birds with remarkable skill, even teaching itself to crow like a cock and cackle like a hen.

Blackcap.—This bird is a true sylvan warbler, and is surpassed by very few in the excellence of its song. In some places, indeed, it is preferred to the nightingale. It visits this country from the south and east every spring, arriving about the middle of April, sometimes rather earlier, depending upon the state of the season, but never, according to Mr. Selby, till the larch trees are visibly green. It leaves us again, with an occasional exception, in September.

In confinement, the blackcap sings throughout the year, and almost all day. It is not very difficult to take in a trap baited with a cherry or a living butterfly or a green caterpillar. It soon becomes familiar in confinement, and will readily feed on bruised hempseed and bread if some currants, raspberries, or other small fruit be stuck in it. To have it always in perfect health, some kind of fruit or berries should be invariably kept in its cage. If allowed to run about a room, a pine bough or a grating with several perches should be placed for it in some warm corner, which it will rarely leave, as it is not fond of hopping about. The blackcap is a real mocking bird, and will catch the note of any bird it chances to hear.

Blackcock is a species of grouse, not very abundant in England, but plentiful in Scotland, especially amongst the moors and bogs.



BLACKCOCK.

The female is called the grey hen. The male is of a bright blue-black colour, the female is of a rusty colour; but the two can scarcely be distinguished until the male is half-grown,

when his black feathers appear. These birds make their nests in a low bush, or amongst the heath. They feed principally on the seeds of plants or berries, and if they can manage it, they make their way into the corn-fields and eat the corn. In winter-time they eat the young shoots of pine and fir. They are highly esteemed for the table, and should be cooked and served like grouse. They need to be hung for a few days, for if not well kept, they are hard and tasteless.

Blackheads (Surgery).—This is that form of acne, called *acne punctata*, which is characterised by tiny black marks occupying chiefly the wings of the nose and surrounding parts, and which, upon being squeezed on both sides, yield a small worm-like body, which is nothing more than the contents of the sebaceous follicle which has been blocked up, and become blackened at the extremity from exposure to the air and dirt. This affection is most common at the age of puberty, and is best treated by pressing out this matter; by using warm water, without soap, for washing purposes, and friction with a rough towel afterwards; by pure air, sea-bathing, and active exercise; by attention to the bowels; and by the use of one or other of the two following applications:—1. Perchloride of mercury, two grains; spirits of wine, one ounce. Gently rub the parts affected with a piece of cotton wool saturated with this lotion every night at bed-time. 2. Rub flower of sulphur and spirits of wine together so as to form a paste, which may be applied every night at bed-time. A tea-spoonful of fresh yeast or barm in a glass of beer in the morning has been recommended, but its efficacy is doubtful, and in some cases it would be positively injurious.

Blacking is the material employed to impart a shining surface to boots and shoes. There is no doubt that it was in common use among the ancients. It is said that in digging the foundation of the Royal Exchange, the workmen discovered several pieces of leather which bore traces of the presence of a substance very similar to it. Blacking, as known to us, was brought to England from Paris about the time of the Restoration; but it was not in common use until the middle of the last century. The ingredients which most usually enter into its composition are bone-black, sperm oil or pale seal oil, sugar or treacle, and sulphuric acid. The substances are mixed to a thick paste, and this is diluted with vinegar till it is of the proper consistence. Blacking is sold both as a liquid and as a paste, and very often liquid blacking is only paste blacking diluted with either beer, vinegar, or water. The enormous consumption of blacking has rendered its manufacture a most important branch of commerce, and large fortunes have been realised by some who have engaged in it. It is more largely made in England than anywhere else, and the blacking of no other country can exceed hers in excellence and brilliance. Blacking varies considerably in character. Some blackings dry quickly, and impart a brilliant polish with comparatively little labour; others dry slowly, and require a good deal of polishing. All kinds improve with keeping. It is said that the West-end shoemakers never use blacking which they have not stored for at least twelve months. Blacking should be kept in a cool cellar, and if in liquid form should on no account be left uncorked.

Blacking-box, Brushes, &c.—A box suitable for holding the blacking-bottle or cake of blacking, boot-brushes, a piece of coarse sponge, a duster, and wooden knife used for cleaning boots, is a very simple article needing no special description.

Bladder, Complaints of.—These are very numerous, and from their great importance merit a detailed description. 1. *Irritable Bladder:* This is characterised by frequent desire to pass urine, with more or less pain in doing so. In young people, especially the very young, this irritability is frequently caused by small thread-worms in the lower bowel, which may be got rid of by an enema of equal parts of lime-water and infusion of quassia; it also arises, both in young and old, from an excessively acid or alkaline state of urine, the former condition being due, as a rule, to indigestion, and the latter to debility, and must be treated in the one case with alkalies, as soda and potash, and the mineral aperient waters; and in the other case with the mineral acids and bark or iron. Irritability of the bladder is frequently a symptom of hysteria, and is the result of nervousness only. 2. *Inflammation of Bladder (cystitis)*: This does not often occur idiopathically, *i.e.*, as a distinct disease, but is generally excited by some irritating cause, as gravel or stone in the bladder, or by some disease of the urethra, as gonorrhœa or stricture. The symptoms are, pain at the bottom of the back and adjoining parts, also over the lower part of the abdomen; there is frequent desire to pass urine with considerable straining at each effort, the urine being alkaline, and containing a considerable quantity of ropy mucus which adheres to the vessel when being emptied in a stringy mass. The treatment of this complaint consists in applying, in severe cases, a number of leeches over the region of the bladder, giving diluent drinks, as barley-water or linseed tea, and for medicine some bicarbonate of potash, in infusion of broom or buchu or bearberry (*Uva ursi*). Opium or belladonna will be necessary when the pain is severe. 3. *Chronic Catarrh of the Bladder:* A less acute form of the previous complaint requiring the same treatment, with the addition, if necessary, of injections of warm water into the bladder, to which dilute nitric acid may be added if the urine is ammoniacal. 4. *Stone in the Bladder:* This is a gradual formation from the deposit of the solid constituents of the urine, which takes place under certain conditions of that secretion. Stone may be crushed into small fragments by means of an instrument passed into the bladder through the urinary passage, the pieces coming away separately in the urine. This is called lithotrity. The stone may also be removed entire by the operation of lithotomy, which consists in making an opening into the bladder in the space in front of the anus, and removing the stone by means of a pair of forceps. Those persons who suffer from

any special form of gravel should carefully avoid such errors of diet as cause or increase this complaint, thereby exposing them to the greater danger of stone. 5. *Paralysis of the Bladder:* This may take either the form of retention or incontinence. The former arises most frequently from the sphincter or neck of the bladder retaining its power, whilst there is a paralysed condition of the organ generally, the latter from loss of power in the sphincter, and consequent incapability of retaining the urine. This complaint is generally the result of disease going on in the brain or spinal cord, for which little can be done. In cases of retention, the bladder should be relieved daily with the catheter, and tonics, such as iron and nux vomica, given. In incontinence, an instrument should be worn, and small doses of tincture of cantharides, taken only under medical advice, may be found useful. 6. *Nocturnal Incontinence:* This condition continuing after childhood is often very troublesome. If it proceeds from irritating or excessive urine, the result of unwholesome food, or too free use of saccharine drinks, these must be corrected and avoided. Blisters may be applied to the bottom of the spine, if the urine is natural, and tonics, as iron and nux vomica, may be given with advantage. If habit only is the cause, it must be vigorously attacked until it is broken. Waking the person at a certain hour in the night to pass urine, and preventing him from sleeping on his back, with other well-known devices, will be found useful, aided by cold baths and tonics. Small doses of tincture of cantharides have been given, but it is a dangerous remedy, and should only be used under medical advice. 7. Cancer and other abnormal growths, as polypi, &c., attack the bladder; but for these no useful advice can be given here, as they require the treatment of the physician or surgeon.

Blanc-mange is literally "white food," and is so called from its white appearance. It is a jelly made of isinglass, gelatine, or calf's-foot stock, strongly flavoured with almonds and any additional flavour that may be wished. When properly made, it is both agreeable and nourishing. Sometimes ground rice or arrow-root or similar ingredients are used instead of isinglass, and then the preparation is called rice blanc-mange, West Indian blanc-mange, &c.

This is what blanc-mange is now, and Carême, the French *chef*, declared it was to be preferred to all other creams. In olden times, it was understood that a fowl was to enter into the composition of blanc-mange. In the days of Richard II., it was simply a roasted fowl cut into neat joints, and served in white sauce flavoured with almonds. In the days of Madame de Maintenon—that is, in the reign of Louis XIV. of France—it was prepared almost in the same way. It is probable that if the old method of making blanc-mange were adopted now-a-days, it would scarcely meet with the favour which was awarded to it five hundred years ago.

Blanching is an operation performed in cookery, and is intended to whiten or soften some meats, such as calves' heads or feet, and so facilitate whatever trimming may be required, and sometimes to give firmness to meat, that it may be the more easily larded. With vegetables, the end aimed at is either to remove their acrid taste, or to preserve the colour. Blanching is generally performed by plunging the article into boiling water, slightly salted, for a few minutes. Vegetables, when taken out, are thrown immediately into spring water, and left till cold. Ox-tongues, almonds, &c., are said to be blanched when through the action of the boiling water the skin has been peeled off.

Blankets are soft, lightly-woven woollen articles which are principally used for covering beds. They take their name from Thomas Blanket, who in A.D. 1340 first set up in Bristol the looms for weaving them. They are made chiefly at Witney, in Oxfordshire, at Dewsbury, in Yorkshire, and at some places in the south of Scotland. They are sold by their length and width, and should be chosen for their weight, softness, and thickness. The best blankets—"extra supers," as they are called—have almost, if not quite, as much "fluff" on the one side as on the other, and this fluff is short, thick, and very soft. They will cost from 35s. to 50s. per pair. Inferior blankets can be had for less than half this cost, but they are not the most economical, as the better the quality of the blankets, the fewer will be required, one good blanket affording as much warmth as three common ones. When expense is a consideration, Aldershot blankets, made of dark-coloured wool, are better than common white blankets, as they are both warm and soft, and do not shrink so much in the washing.

As a cheap substitute for blankets, it is said that sheets of thick brown paper, stitched loosely together, make a very warm covering for a bed.

Blankets should be washed in a soapy lather of lukewarm water; if the water is too hot, the blankets will "felt" or mat. The same effect will be produced if much water be left in them when they are hung up to dry. They should be kneaded with the fists, and should be dried as quickly as possible after they are washed and rinsed. They should be wrung very dry, and after being hung in the open air for about an hour, should be pulled on every side by two persons. They can scarcely be dried and aired too thoroughly, first in the wind and sun, and afterwards before the fire. A great secret of washing blankets properly is to give them plenty of water, and to change the water frequently. The best and most economical way of making the lather is to cut soap into small pieces, and boil these in a little water until dissolved, then use the soap thus prepared instead of ordinary soap. The water in which the blankets are rinsed should be a little soapy, otherwise the blankets may feel harsh when dry. It is, perhaps, scarcely necessary to say that blankets should on no account be boiled, neither should soda be put into the water with them, as this would spoil their colour.

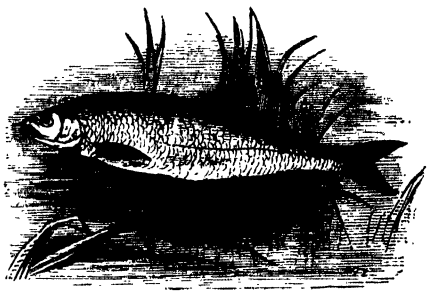
Blasphemy.—A contempt or denial of the

Christian religion as by law established, punishable at common law. By Statute 9 & 10 Wm. III. c. 32, sometimes cited as 9 Wm. III. c. 35, any professed Christian who denies the Holy Trinity, or, generally, the Christian religion, is subject to indictment, and upon conviction may be deprived of office and incapacitated for holding future office; but the prosecution must be commenced within four days after the blasphemy spoken, and is to be desisted from, and all the penalties are to be removed, upon the defendant's renunciation of heretical opinions.

Bleaching Processes.—Bleaching is the process by which the colour of bodies, whether natural or acquired, is removed, and by which they are rendered white or colourless. The principal substances to which bleaching is applied are wool and silk in the animal kingdom, and cotton, flax, and straw in the vegetable kingdom. The colouring matter in these bodies is not essential to their texture, and fortunately can be removed by chemical agents without injury to the structure of the material. Bleaching is effected by the action of various solvents, aided by exposure to air, light, and moisture, upon the bleaching-ground; or by the use of chlorine. The bleaching of cotton is more easily managed than that of linen, cotton being originally whiter, and having a less powerful attraction for the colouring matter. The colour of manufactured wool depends partly on its own oil and partly on the applications made to it in the loom. These are removed in the fulling-mill by the joint action of soap and fuller's earth; the cloth is then well washed and dried, and is tolerably white. If the slight yellow tint which it retains is objectionable, it is improved by adding a little stone-blue to the washing-water, or by exposure to the fumes of burning sulphur. The worst of the latter method, however, is that it imparts a harsh feel, and if afterwards soaped, the yellowishness of the cloth returns. The colour of raw silk depends upon a natural yellow varnish, which is got rid of by boiling it in white soap and water, and rinsing repeatedly. Certain articles of wove cotton, such as stockings, are bleached in the ordinary manner, and finished by the action of sulphurous acid or the fumes of burning sulphur. Straw is whitened in much the same way, and this gives bleached straw hats a disagreeable sulphurous odour.

Bleaching and dyeing-works are now regulated by the Factory and Workshop Act, 1870, the 33 & 34 Vict. c. 62, which contains most useful provisions regarding the employment of women and children in such establishments.

Bleak.—A fish of the carp genus, abundant in most of our rivers. It is about five or six inches long; in general form it resembles the dace; the colour is bright silvery, with the back olive green. The tail is forked for half its length. The bleak is an active little fish, and may be seen constantly playing about the surface of the water in search of small flies and other food. It is not only a handsome little fish, but good eating. A dish of well-cooked bleak is not much inferior to gudgeon. They should be cooked just like sprats. On the inner surface of the scales of the bleak, as of whitebait, dace, roach, &c., there is a silvery substance, from which they derive



BLEAK.

their beautiful lustre. This is in considerable demand for making artificial pearls, the white beads so common in ladies' head-dresses, and such-like ornaments. That obtained from the scales of the bleak is superior to that of the roach and dace, but it is not so good as that of the whitebait.

Bleeding, or Blood-letting.—There are three well-known methods of abstracting blood from the human body—viz., venesection (*i.e.*, opening a vein), cupping, and leeching. Venesection, or bleeding, is most frequently performed at the bend of the elbow, on a large vein (*median cephalic*), which at that point runs from the centre of the arm in an outward direction from the body. The operation is thus performed:—A ligature of ribbon or tape, an inch and a half broad, is tied round the arm two inches above the bend of the elbow. This must not be so tight as to stop the pulse at the wrist. The vein soon fills up and becomes prominent, when the operator, placing his left thumb a little below the point he intends to puncture, and holding the lancet in his right hand, pushes it obliquely into the vein, making it cut outwards. A vessel should be in readiness to receive the blood, and when a sufficient quantity has been taken, the ligature above should be removed, and the thumb placed on the bleeding aperture until a pledget of dry lint or linen can be applied, which must be kept firmly in its place over the wound by means of a bandage rolled round the joint in the form of a figure of 8. Rest and quietness are necessary after the operation, in order that the patient may recover from the shock, and that the bandages may not be disturbed. Venesection may also be performed on the external jugular vein of the neck; likewise on the internal saphenic vein which runs from the great toe in front of the inner ankle, where the vein is opened, and then up the inner side of the leg. The vein at the outer ankle may also be opened if, as sometimes happens, it is the larger of the two. It is usual to encourage bleeding from the ankle veins by placing the foot in warm water; but care must be taken not to abstract too much blood.

Cupping.—This operation consists in drawing

the blood to the surface by means of a cup-shaped glass, which is first dipped in warm water, and drained—not dried—then held, mouth downwards, whilst the flame of a spirit lamp is fairly introduced into it for the purpose of exhausting the air. This must then be withdrawn quickly, and the glass as rapidly applied to the surface to be operated upon. The blood soon rushes to the part, when the glass must be withdrawn by inserting the nail of the fore-finger beneath the edge, and the scarificator instantly applied. This is followed by the immediate re-application of the glass, the air having been previously exhausted, as before described, by means of the spirit lamp. When the glass is full of blood, it may be removed, and a fresh one applied if necessary.

Leeching.—The application of leeches has always been a popular remedy in many diseases, especially those of children. They may be applied singly in a glass tube made for the purpose, or two or three at a time by simply reversing the box in which as a rule they come from the chemist (having previously removed the lid), and placing it thus reversed over the part to be leeched. The leeches soon bite, and when sufficiently gorged drop off, and are usually placed in a saucer containing salt, which in a short time kills them. Leeches should, if possible, be applied over a bone, so that any undue bleeding may be controlled by pressure. For troublesome bleeding from leech-bites, *see* BLEEDING, TO STOP.

Bleeding in all its forms has been for many years unpopular, owing, probably, to the former great abuse of the remedy. It is, nevertheless, a most powerful curative agent, and is so recognised, though not adopted, owing to popular prejudice, by the greatest medical authorities of the day. There is very little doubt that the next generation will see some return to an old system—divested of its abuses—as there can be no doubt that in certain head affections, obstruction of circulation through failure of heart or lungs, abdominal inflammations, and other acute diseases, blood-letting, either generally or locally, when the system can bear it, is a most valuable remedy, that can scarcely be spoken of too highly.

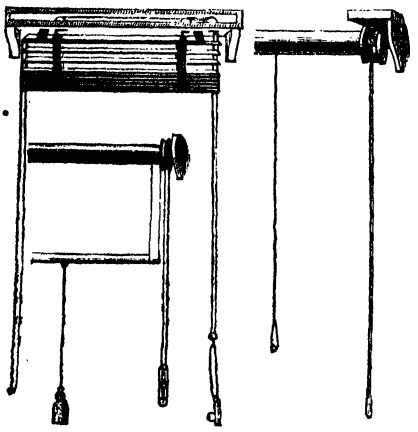
Bleeding, To Stop.—When blood comes from a wound in jets or spurts, and is of a bright red colour, then it may be concluded that an artery has been injured, and immediate steps should be taken to stop the hæmorrhage until skilled assistance can arrive. The first and best thing to do is at once to press the finger or thumb firmly down upon the spot from which the jet of blood proceeds, and then to tie a handkerchief knotted in the centre over the main artery higher up, in such a way that the knot will press upon the vessel. This may be tightened at will by slipping a small ruler or smooth piece of stick beneath the handkerchief, and giving it a twist or two, thus making it act as a tourniquet. If the wounded vessel is large, it will require a ligature both above and below the injury, but if small it may be cut across, when it will retract within its sheath, and the bleeding will stop. A pledget of lint should then be applied and fastened with a few turns of a bandage. If an artery has not been injured, and the bleeding is still considerable, as from a large wound, then the injured part should be freely exposed to the air, washed with cold water, and kept, if possible, in an elevated position; the edges should be brought together with adhesive plaster, and the application of a pad of lint and bandage, with rest afterwards, will be all that is necessary. In slight wounds, certain styptics are useful, as German tinder, spider's web, &c.; these act mechanically in preventing the exit of blood: others, as alum, cold water, &c., act by coagulating the blood; whilst tincture of iron, nitrate of silver, turpentine, &c., act by exciting a certain amount of adhesive inflammation. The actual cautery (hot iron) may also be mentioned as perhaps the most powerful of all agents in stopping hæmorrhage, but the latter is apt to recur when the eschar comes away. In bleeding from leech-bites, which is often troublesome, tiny portions of lint or cotton wool saturated with tincture of iron should be pushed into the bite, and overlaid with other dry pieces until a pad is formed, which may be secured by two or three pieces of adhesive plaster. The application of a pointed piece of lunar caustic is also useful, and if these fail, a fine stitch of silk drawing the edges of the wound together will at once prove efficacious. If the bite is over a bone, simple continuous pressure with the finger or thumb is generally sufficient if kept up long enough. Bleeding from the nose must not be stopped suddenly in the case of plethoric people, as it is frequently beneficial. If excessive, the nostrils may be plugged with lint saturated with tincture of iron, or the latter mixed with water may be injected into them. The head should be elevated, the blood being received on a sponge or towel, cold water or ice applied to the forehead and back of the neck, and small doses of Epsom salts, with sulphuric acid, given for two or three days. It is sometimes necessary to plug the posterior naris; but this operation requires the assistance of a surgeon. Bleeding from the gums after the extraction of a tooth is sometimes severe; it may be stopped by plugging the cavity with lint above the margin of the gum, so as to be pressed by the opposite side when the mouth is closed. Collodion has been used to stop bleeding; it is thus applied:—Grasp the wounded part with the finger and thumb so as to blanch it, carefully dry the wound until no moisture is apparent, then paint on the collodion, allowing a considerable margin, and retain the hold until the collodion is quite dry.

Blenheim Spaniel.—The Blenheim spaniel is even smaller than the King Charles, but bears a close resemblance to it in general characteristics. It should have a very short muzzle, long silky hair without any curl, extremely long and silky ears, falling close to the head and sweeping the ground. The legs should be covered with long silky hair to the very toes, and the tail should be well "feathered." "Although," says the Rev. J. G. Wood, "these little dogs are anything but formidable, they are terrible foes to the mid-

night thief, who cares nothing for the brute strength of a big yard-dog. Safely fortified behind a door or under a sofa, the King Charles or Bleinheim spaniel sets up such a clamorous yelling at the advent of a strange step, that it will disconcert the carefully-arranged plans of professional burglars with much more effect than the deep bay and the fierce struggles of the mastiff or the bloodhound. It is easy enough to quiet a large dog in the yard, but to silence a watchful and petulant little dog within doors is quite a different matter. Many 'toy' dogs are equally useful in this respect, and the miniature terrier, which has become so fashionable, and the Skye terrier are most admirable assistants in giving timely warning of a foe's approach, although they may not be able to repel him if he has once made good his entrance."

Blight.—Blight, rust, or mildew, is a mouldy appearance on the leaves of plants produced by innumerable microscopic fungi. The most commonly attacked plants are the hop, wheat, and choice garden trees. Blight is said to be caused by excess of moisture, the absence of sunshine, and the want of free circulation of air. As a remedy, finely-powdered sulphur is occasionally dusted over the parts affected.

Blind Cords and Fittings. — The rollers of blinds are fitted into little brackets fastened on each side of the window, and are furnished with different contrivances for letting them up and down. Some have racks fastened at the lower end of the window, and a cord passing round a wheel at the end of the roller is made fast to another connected with the rack. Other blinds are managed with springs, and others again by two cords so



BLIND FITTINGS.

contrived that by pulling one the blind is drawn up, and by the aid of the other it is let down. Perhaps the old rack-and-cord arrangement, though troublesome, is the most certain. The spring blinds get frequently out of order, and those worked by the two cords require frequent renewal of cords. At the bottom of all rolling blinds there should be a lath of metal or wood, with a ring fastened in the centre to support a cord and tassel. (*See* BLINDS.)

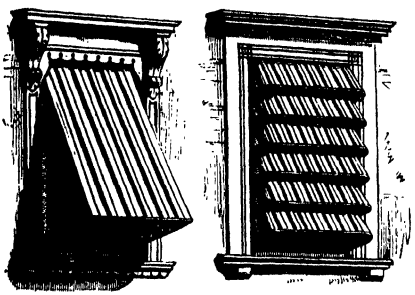
Blind Hookey (Card Game).—A game of chance only, demanding no skill, judgment, or science whatever. It consists solely in cutting the cards, and speculating on what card may turn up.

Blind Man's Buff.—This game is well known to children and young people, with whom it is a universal favourite. Whenever on holidays or festive occasions a "thorough romp" is to be indulged in, blind man's buff is sure to be one of the first amusements thought of. The following is the order of the game:—One of the company is chosen by lot, and, after being blindfolded, sets to work diligently to catch the others. The first one captured becomes "blind man," and in his turn attempts to catch the others. A good deal of fun may be had in this way, especially if the "blind man" is energetic and quick in his movements. When blind man's buff is played in-doors in a room where there is a fire, care should be taken to cover the range, as otherwise mischief may ensue.

This game is of very ancient origin; indeed, it is nearly 900 years old, and was introduced into England from France about the time of William the Conqueror. The following is said to be its history. In the year 999, in the days of Robert the Devout, King of France, there lived in the province of Liège a gallant chief who was almost a giant in size and strength, and who was named Jean Colin. This gentleman was in the habit of knocking his enemies on the head with a mallet, and in this way he dealt them terrible blows. He did this so often that at last he came to be known as Jean Colin Maillard. One of his enemies, named Comte de Louvain, who very much objected to these taps, formed the design of putting out Colin's eyes in order to render him powerless, and on one occasion when they were opposed to one another in battle, he succeeded in doing this. But Colin, though in terrible pain, was nothing daunted. He ordered his servants to lead him into the thick of the fight, and according to his old custom he brandished his mallet in every direction, and did such mischief that victory was soon declared to belong to his side. The story of Colin's prowess excited much interest. It was acted in the theatre, and from thence the children began to play it in the streets. One of the players was blindfolded, and a stick was put into his hands, and with this he endeavoured to knock his companions. In this way the game was frequently played, but instead of being called blind man's buff, as it is with us, it was known as Colin Maillard. This name it still bears in France and on the Continent.

Blinds (Various).—Different opinions are held concerning these window screens. Some persons prefer white linen for the purpose, while others make choice of yellow, green, blue, or red, either plain or striped with white. When the rooms are sunny, coloured blinds are useful to soften the glare: of these crimson

gives the prettiest glow, and dark green affords the most agreeable shade. Yellow and blue blinds look especially ugly when the house is of brick. Venetian blinds are effectual in keeping rooms cool and dark, but the effect is dismal. The preferable plan is to have outside blinds, which keep the sun from heating the glass, and yet do not exclude light and air. These blinds, in the form of bonnets, *i.e.*, with sides added, are much more expensive in the apparatus required than those of ordinary form. All blinds should be at least half an inch narrower than the rollers on which they are nailed, or they will not be easily drawn up. When the material is too wide, strips must be cut off each side, and the edges very evenly turned down and basted, for blinds with selvage on one side only will not roll evenly. It is usual for



SUN BLINDS.

all the blinds in a house to be of one description; at any rate, all that can be seen outside from one point of view. In towns, where blinds soon become yellow and smoke-begrimed, the most economical plan is that of buying linen which is not expensive, and renewing it when soiled, instead of getting that which is a better quality and having it cleaned, for blinds soon look dilapidated when the original stiffness has been taken away. For short blinds, small sprigged book muslin is the best: they should be drawn on a cord at the top and bottom, and be very full in folds. Two thicknesses of black muslin, plain, and without any fulness, or the cane window-screens now sold for the purpose, are more suitable for sitting-rooms. (*See* BLIND CORDS.)

Blisters.—Blisters are substances which, when applied to the skin, first irritate and inflame, then vesicate, viz., cause a serous fluid to exude between the cuticle and true skin, and lastly, by further implication of the latter, induce suppuration and discharge. The agent most used for blistering purposes is cantharides (*Cantharis vesicatoria*), a beetle imported in a dry condition from Hungary and Russia. There are several preparations in the Pharmacopœia made from this beetle, and used for blistering purposes, a few of which may be mentioned.

1. *Cantharides Plaster* (common blistering plaster).—This is composed of cantharides, yellow wax, suet, lard, and resin, and is spread with the thumb on a piece of adhesive plaster of the desired dimensions. It should be applied at night, and allowed to remain on from eight to sixteen hours, when, if no blister is apparent, a warm linseed poultice should be applied. This will generally cause the blister to rise. It should then be pricked at its lower margin in such a way as to allow the serum to escape, but not to touch the surrounding skin. A warm bread poultice should then be applied for an hour, then gently removed, so as not to disturb the loose skin, and the whole well dusted with violet powder, and protected from the air.

2. *Acetum Cantharidis* (vinegar of cantharides) is composed of cantharides, glacial acetic acid, and acetic acid. This is applied with a camel-hair brush, but is neither very strong nor effective.

3. *Liquor Epispasticus* (blistering liquid).—This is four times stronger than the preceding, and is a most suitable vesicant for children, as well as for insane and delirious patients, who are apt to disturb the ordinary plaster. It is composed of cantharides, acetic acid, and ether, and when applied for a short time with a camel-hair brush, soon raises a blister. There are other substances which will blister if kept on long enough, but which are more correctly described as irritants or rubefacients. Of these, glacial acetic acid, mustard, compound camphor liniment, ammonia, turpentine, capsicum, and iodine are the most important, and are all more or less used for this purpose.

Blisters, Treatment of.—If blisters do not heal within a few days, they must be dressed with zinc ointment, and treated as ordinary sores, with aperients, cooling salines, &c.

Bloater. (*See* HERRING.)

Block Tin. (*See* TIN.)

Blockade (from the German *blochus*, or blockhouse, or bulwark, or house of wood).—A sort of siege carried on by blocking up the place. It is no regular siege, as there are no trenches or attacks. A port is blockaded when a squadron is in the vicinity, for the purpose of preventing ingress and egress, and not when it is merely declared to be under blockade. A violation of blockade requires the following three incidents—

1. That the blockade be effective.
2. That the accused had notice.
3. That he made ingress or egress in disregard of the blockade.

This term is also sometimes used to describe the beginning of a siege, when forces are sent to seize the principal avenues, where the besiegers intend to fix their quarters.

Blonde (Complexion).—This is a French word used to denote a fair skin. The Polish word for pale and wan is *blady;* the Italian word is *biado.*

Blonde (Lace).—This gossamer-like fabric was first made at Caen, in 1745. At that time the silk of which it was fabricated was used in its natural colour, *écru;* after a while whiter blondes were made. The silk for the black blonde was dyed at Lyons. The "Blondes de Caen" were celebrated for their delicate beauty of fabrication. In summer the lace-workers carried on their occupations in the open air, and in winter in lofts over cowhouses,

in order that warmth could be obtained without any risk of smoke soiling the silken lace. When machine-made lace was introduced, the sale of many kinds of hand-made lace greatly decreased; but the demand for the productions of the blonde lace makers remained the same. Imitation blonde lace is made by machinery in Nottingham and its neighbourhood.

Blood. — Blood is that vital fluid which is formed from digested food, and which, propelled by the heart, and carried by the arteries to every part of the body, renovates, strengthens, and sustains it, withdrawing from it at the same time all that is useless and effete, and carrying to each excretory organ the peculiar matter which it is that organ's function to eliminate from it. When blood is examined with the microscope, it is seen to consist of an immense number of red globules and a certain number of white globules, floating in a fluid which is called liquor sanguinis. These red globules are rounded bodies flattened on both sides, and each one is about $\frac{1}{3200}$th of an inch in diameter. They are composed of an albumen called globuline, and a colouring matter called hæmatine. The white globules are much fewer in number than the red, being in the proportion of about one in every hundred; but they are rounder and larger, and are remarkable in having in the centre of each a kernel, which is supposed to be the parent of the red globule. Both globules are larger in man than in sheep, oxen, and deer; whilst in birds and fishes they are oval, not round. This is a point of great importance in legal investigations, when murder is suspected, and there are blood-stains which can be examined, the character of these globules frequently determining the innocence or guilt of the accused. Healthy blood is composed of seventy-nine parts of water, fourteen parts of globules, four parts of albumen, two and a half parts of various salts, and half a part of fibrine. It is the last-named substance which, by separating from the liquor sanguinis and entangling the globules, forms what is commonly called the clot. Blood, it is well known, frequently undergoes certain alterations of condition, and this is due generally either to a diminution or excess of its natural constituents, or to the presence of matter foreign to its composition. For example, there may be simply a deficiency of red globules, which is called anæmia, or bloodlessness, and when there is a greenish tinge of the skin, chlorosis. There may also be a great excess of white globules, which is called leucæmia, or white-bloodedness. In this condition the spleen and other organs are generally enlarged. Blood may also contain pus, or matter, a disease which is called pyæmia, or *blood-poisoning*, and is characterised by the formation of abscesses in different parts of the body.

Bile or sugar may also be present in the blood in excess, causing, in the former case, a jaundiced or yellow tinge of skin, and in the latter a condition called glycæmia. Excess of urea, a substance which should be eliminated by the kidneys, is often present in the blood, having been re-absorbed through the failure of these organs to fulfil their functions, and its presence is generally a precursor of death. Cyanosis, or blue blood, is caused by a defect in the heart, which allows the pure and impure blood to become mixed, and thus to circulate.

Blood as Food.—By the Levitical law, blood was prohibited as an article of food; and commentators differ as to whether this prohibition was a sanitary precaution necessary in a hot climate, where blood rapidly decomposes, or whether it was due to the fact that, from its connection with sacrifice, blood was to be held as a sacred thing. Be that as it may, blood has been at all times and in almost all countries used for the purposes of food, and there is no doubt as to its power of sustaining life. The Esquimaux drinks the warm blood of the seal, and enjoys it. The Irish peasant in hard times mixes it with meal, and makes a savoury dish which wards off starvation. The Englishman appreciates its delicacy in the form of black pudding, the more dainty in hare soup and various sauces. So that in some form or other this fluid is in request, and eminent physiologists have, especially in late years, discussed its merits, and thoroughly investigated the whole subject. It may not be out of place to mention here that it is now no uncommon practice, when life is in danger from great loss of blood, to transfuse this fluid from the vein of a strong healthy man into that of the dying one, and that the operation has been, in some cases, very successful. This is called transfusion.

Bloodhound. — The name of a hound celebrated for its exquisite scent and unwearied perseverance. A true bloodhound—and the pure blood is rare—stands about twenty-eight inches high; it is muscular, compact, and strong; the forehead is broad, and the face narrow towards the muzzle; the nostrils are wide and well developed; the ears large, pendulous, and broad at the base; the aspect is serene and sagacious; the tail is long, with an upward curve when in pursuit, at which time the hound opens with a voice deep and sonorous that may be heard down the wind for a long distance. The colour of the true breed is stated as almost invariably a reddish-tan, darkening gradually towards the upper parts till it becomes mixed with black on the back. In the "good old times" the bloodhound was largely used by thief-takers for the purpose of tracking and securing the robbers who in those days made the country unsafe and levied black mail on travellers. Sheep-stealers were also often captured by its means. Now-a-days the bloodhound is chiefly employed in deer-shooting.

Bloodshot Eye. — This is a congested condition of the vessels of the eye, and is generally due either to cold or injury. When it arises from cold, the eye should be bathed three or four times a day with a zinc lotion containing three grains of zinc to an ounce of water; and a pad of lint or soft linen, wet with cold water and covered with oil-silk, should be placed over the eye at bed-time, and retained there all night by means of a handkerchief or bandage. An aperient may generally be given,

as it often happens that cold is not the only cause, but that the liver also is at fault. When the congestion is due to injury, the foreign body, if there, must be removed, and the eye treated as just described, with the addition of a poultice or leeches if necessary. Should lime have been the offending body, then vinegar and water should be used as a lotion instead of the zinc. There is a form of bloodshot eye, viz., iritis, which is a frequent accompaniment of syphilis, and which may be recognised by the blood-vessels running in straight lines from the circumference to the centre or pupil, like the spokes of a wheel, and differing materially from the network and interlaced appearance which the vessels present in the ordinary bloodshot. Iritis is a dangerous affection, for which medical assistance should be immediately procured.

Bloodstone.—Bloodstone is a hard compact variety of hæmatite used for making burnishers. The name is also given by lapidaries to the heliotrope.

Bloomer Costume derived its name from Mrs. Amelia Bloomer, of New York, who endeavoured to introduce a change in the female costume in America, in the year 1849. It consisted of a tight-fitting bodice, or jacket, very short skirt, and loose trousers. A hat, similar in shape to a man's, but with a low crown, was to be worn with it.

Blotches (Cutaneous).—These comprise all the diseases to which the skin is subject, and cannot be mentioned in detail here. Their most common forms are acne (pimples), pityriasis versicolor (liver-spot), herpes (shingles), urticaria (nettle-rash), eczema (scald), and freckles (ephilis or lentigo), most of which will be found described under their respective headings.

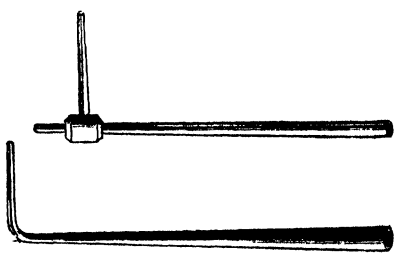
Blotting-case.—This is a most useful adjunct to the writing-table. One of large size is preferable to a small size, as the paper is not so liable to be displaced. These cases vary in price with the quality of the covers. It is economy to buy a good one, as the blotting-paper can be continually renewed. Soft limp covers are more convenient than cases made of wood or ivory. Russian leather is the most expensive; Persian is the next in price. Blotting-pads made of a great many layers of that paper are especially useful to those who have much correspondence. When the outside sheet is useless, it can be raised with a penknife and taken away, and thus the pad is again equal to a new one.

Blotting-paper.—When the pulp of paper is made, the next process is that of pressure, in order to dispel the water. A piece of felt is previously placed between each sheet. When paper is pressed without being thus interleaved with felt, it remains in a state unfit for writing upon, and is what we call "blotting-paper." The best paper of this kind is made absorbent by a free use of woollen rags; the thicker the paper, the more quickly it imbibes the ink. The best pink paper is more expensive than the best quality of white.

Blouse.—A loose light coat which was at one period worn by Englishmen in hot weather, but has now passed out of use. Many of the artisans of France are clothed in a short frock made of bluish material, which also bears the name of blouse. It is supposed that the colour, which is invariably blue, has given the name to the garment.

Blowfly.—This insect (*Musca vomitoria*) is of the same family as the common house-fly. It is common in Britain, and its larvæ are sometimes to be found upon meat, which then quickly decomposes. The insect also is in the habit of settling upon sheep, and the maggots, if not quickly removed, eat into the skin of the animal, which, after suffering great torment, soon dies. Of course the blowfly is regarded as a great pest, and its entrance into the larder is very much dreaded, as unpleasantness and waste are sure to follow in its path. The most effectual means of keeping it from attacking meat is to dust the meat over with black pepper or powdered ginger, or to skewer a piece of paper containing a drop or two of creosote upon it. The spices can be washed off before the meat is dressed. In hot weather meat should be examined daily in order to discover any traces there may be of the obnoxious insect, and these should be at once removed.

Blowpipe.—An instrument by which a stream of air is directed against a flame so as to blow it out into a point against the object to be acted upon, and at the same time to increase the intensity of the flame. The greatest heat will then be obtained just at the tip of the outer white flame. Here the substance subjected to it will be burnt or oxidised; but by shifting the substance to the interior blue flame, which is wanting in oxygen, this element will be abstracted from it, and hence this is termed a reducing flame. Thus minerals can be either



BLOWPIPE.

oxidised or reduced at pleasure, and the blowpipe forms a ready test in the hands of the mineralogist. A small fragment of mineral to be examined is placed in a little cavity made in a piece of charcoal; the charcoal not only keeps the heat more regular by its own incandescence, but its affinity for oxygen reduces the metallic oxide of the mineral under investigation to the metallic state. In cases where deoxidation is undesirable, it is usual to hold the substance in a platinum support. When fluxes are needed, borax is the most convenient to use; it melts into a colourless transparent bead in the char-

coal. The solubility of the mineral in borax, whether with or without effervescence, the colour imparted by it to the bead or to the flame itself, the smell emitted, the form it assumes on cooling, are all indicative of the nature of the mineral under investigation. In the arts the blowpipe is employed when great heat is wanted at any precise spot; thus it is used in soldering together the different parts of metal pots and vases, and by the goldsmiths in making trinkets. The chemist and scientific instrument maker use it in making the complicated glass vessels and apparatus needed in physical research. When only moderate heat, and that for a short duration, is required, the simple mouth blowpipe is used, and after a little practice a steady flame can be thus produced. When greater heat and a longer duration are necessary, a gas-burner is used, just above the orifice of which the nozzle of the blowpipe is fixed, and the stream of air is supplied from a bellows worked by a treadle. The blowpipe of the glass-blower is a hollow iron rod, on one end of which he takes up the molten glass that is to be made into a bottle, and then he blows through the mouth-piece at the other end until the glass is distended to a sufficient size by the air thus forced into the middle of it.

Blue Inks.—A permanent blue is made by taking Prussian blue and mixing it with oxalic acid, and then dissolving up the mixture in such quantity of water as shall be necessary to bring it to the depth of colour required. A brilliant light blue is made of indigo, but as the dye-stuff is merely held in suspension in the liquid, the colouring matter gradually sinks to the bottom, and unless shaken up prior to use the effect is poor; the indigo, moreover, is very liable to clog the pens, and the ink is at all times deficient in fluidity; while the greater portion of the colouring matter can easily be removed from the paper by the application of water.

Blue Paints.—For the purposes of street decoration and house-painting, use Prussian blue, ground in oil; lighten the shade with white-lead. Mix with linseed oil, turpentine, and dryers. A large quantity of white-lead will be well coloured by a small amount of the Prussian blue.

Blue azure, or blue verditer, or English ultramarine, may be substituted for Prussian blue, with the addition of oil or varnish; but these latter have less body than the former.

Artists' Paints.—All the colours above named, and also real ultramarine.

Artists' Water-colours.—Indigo, cobalt, Antwerp blue, French blue, and most of the other colours before named.

Distemper.—In this method of colouring, damp blue—a paste made of indigo—is mixed with whitening, size, and water. (*See* ANTWERP BLUE, COLBALT, &c.)

Blue Pill.—*Pilula hydrargyri* (mercurial pill) is made from mercury or quicksilver, confection of roses, and powdered liquorice. The dose for an adult is about five grains, and is usually followed by a black draught. (*See* BLACK DRAUGHT.) Blue pill, like all other preparations of mercury, will produce salivation if taken continuously for some days. This condition is known by tenderness and sponginess of the gums and mucous membrane of the mouth, and by a greatly-increased flow of saliva. When this occurs, or when even the first symptoms of it appear, the mercury must be at once discontinued. Blue pill was for a long time supposed to increase the secretion of bile, and was consequently in great request in all cases of biliousness. Experiments upon animals have, however, shown that this is a fallacy, and that, on the contrary, bile is diminished by the action of mercury; and besides, there is now every reason to believe that the salutary effects of this drug are due to its power of removing some morbid matters which obstruct the different organs in the fulfilment of their functions. Blue pill is useful in acute and chronic inflammations, and in congestion of the liver, kidneys, &c., when the patient is not in a low state of health. It is also a valuable remedy in syphilis and pericarditis, and in certain forms of dropsy. Its use is prohibited when there is great weakness, or exhaustion, or very advanced disease. In overdoses, blue pill is liable to be followed by very profuse salivation, amounting sometimes to several pints in the day, excessive purging, anamia, skin affections, as eczema mercurialis, and certain affections of the nervous system, as tremors, convulsions, paralysis, &c.; and it must not be forgotten that some persons are so peculiarly sensitive to the influence of this drug that salivation may result from even one ordinary dose. It must therefore be used with caution, and carefully watched as to its effect.

Blue Stocking.—A not complimentary epithet applied to a lady given to literary pursuits, especially if she is somewhat of a pedant. Dr. Brewer, in his "Dictionary of Phrase and Fable," observes that a society whose members were distinguished by the colour of their stockings was formed at Venice in A.D. 1400. A similar fancy obtained in France at a later date, and in 1780 "Mrs. Montagu displayed the badge of the *bas bleu* club at her evening assemblies." The clique were known as "blue stockings," and the last of them died in 1840.

Blue, To Dye.—One of the primary colours. There are several methods of dyeing silk, linen, cotton, and wool of a blue colour. Having given the materials a mordant of alum, they should be well rinsed, and then boiled in a bath of logwood, a small quantity of blue vitriol having been added. Another process is to boil them in a bath of logwood, and then add tartar and verdigris in the proportion of one ounce each to every pound of logwood employed. Bilberries, elderberries, and other blue vegetable substances may be employed in lieu of logwood.

Blue, Washing.—A mixture of powdered starch and indigo, in impalpable powder, to give the colour, and then made into a stiff dough with starch paste. Cakes being then made, they are dried. Such is the ordinary "washerwoman's blue." The various names given to the blue used in laundries, depending on the form, as well as the quality, of each kind respectively, are as follow:—Thumb blue, cake

blue, crown blue, fig blue, knob blue, Mecklenburg blue, queen's blue, and stone blue.

The compound as above described is that by which thumb blue is made. Cake blue varies from it by the substitution of cæruleo-sulphate of potassa, or blue carmine, for the powdered indigo of that in ordinary use. This quality is very fine. Crown blue is made by the substitution of whiting for the powdered starch, and weak size, or a decoction of Irish moss, in place of the starch paste. This quality is of an inferior kind. The common forms given to washing blue are small balls of about three-quarters of an inch to an inch in diameter; also similar balls pinched with the thumb and finger in three directions, so as to leave depressions, for which reason it is styled thumb blue; and cakes cut out of the mass by a suitably-shaped cutter, having been previously rolled into a flat sheet.

In washing linen it is employed to counteract the tendency which always obtains in white materials to turn of a yellowish hue, by the constant application of soap, and from other causes in the course of wear, as well as to impart a faint blue tinge, which is supposed to increase its apparent whiteness. The material, which has previously been washed and wrung out, is dipped in a solution of water and blue, prepared in a basin or tub for the purpose, and which must be cold; it is then again wrung, and hung out to dry.

Bluebell.—This little simple flower is one of the chief ornaments of our shady English lanes and open fields. In the early spring it may be seen in the hands of cottage children forming a nosegay, with the early primrose, violet, &c., to decorate the cottage window. It is a bulbous plant, and grows best in marshy situations, being more abundant by the sides of rivers, or in woods and shady places. It grows in various parts of the world, but is most luxuriant in Great Britain. It is propagated by offshoots from the parent bulb, which, when carefully broken off, will root itself.

Blushing.—This heightening of the natural reddish hue of the skin is due to a sudden increase in the speed and amount of blood in the capillaries. It is caused by sundry mental emotions of an exciting character, such as confusion, surprise, vexation, and anger. Depressing emotions, on the contrary, lead to paleness or pallor (*which see*). With some, blushing is a habit, and it is better resisted by endeavours to retain self-confidence and presence of mind. Nothing is more unjust than to assume the guilt of one who blushes when a reflection or suggestion of an unfavourable character is made, for the most innocent and sensitive are often the persons most prone to blush. In its consequences blushing may be frequently unpleasant, but it is never injurious to health.

Boa.—This name was given to long round coils of fur, made to wear round the neck, which resembled the serpent boa in their appearance. They were in fashion some forty to sixty years ago, and were made of the fur of the Isabella bear, of squirrel, and of sable. The use of them was discontinued, and victorines and tippets of fur were substituted, because the boa resembled its namesake in the agility with which it glided down to the ground. Their length and thickness made them costly comforters.

Board.—An office where business is transacted—accounts taken, payments ordered, and the like, as the Board of Health, Board of Works, &c. It is also used to describe a collective body of officials, as the Board of Directors, &c.

Board of Health.—By the Public Health Act, 1848 (11 & 12 Vict. c. 63), the Local Government Act, 1858 (21 & 22 Vict. c. 98), and subsequent Acts, certain local boards known as "Boards of Health" are constituted throughout the country for better securing the public health, for which purpose they exercise considerable powers in regard to sewers, drains, buildings, slaughter-houses, &c.

Board of Works.—A Board appointed for the local management of the metropolis. It has the management of the grounds dedicated to the use of the inhabitants. It also superintends the drainage, the regulation of the street traffic, and last, but not least, the construction of the buildings of the metropolis.

Board Wages.—By this term is understood an allowance made to servants for their victuals instead of their being supplied to them. This is a very usual arrangement when families go out of town or leave their residence for any lengthened period.

Boarders.—There are many kinds of boarders, but all are known as such by taking a part or the whole of their food and paying for it in a house or establishment which is not their own. In schools there are half-boarders and day-boarders, as well as weekly boarders, full boarders, and parlour boarders, and they are so designated according to the arrangements which have been made for them. Half-borders and day-boarders take meals at school and go home at night. Weekly boarders return home for Sundays. Full boarders continue during the school term in the house, and so do parlour boarders, but the latter sit at table with the principals. In a general sense, boarders are persons who pay for their meals in a house which is not their home, especially a boarding-house.

Boarding-house.—A house in which strangers are received, usually as lodgers, and who have their food in the house. The French call it living *en pension*—the house itself being called a *pension*. Such houses are very common, and are a great convenience in cities, watering-places, and elsewhere. The arrangements made are various, but in all cases a fixed sum is charged for the accommodation agreed upon. The proprietor of such a house is bound to take ordinary care of the goods of his guests, and will be liable for negligence, but his liability is not so great as that of an innkeeper.

Boarding Schools.—Much has been said and many opinions directly opposed to each

other have been expressed by wise men as to the desirability or non-desirability of sending children to boarding schools. On the one hand the friends of home education argue that children should be governed through the affections; that the parent is the proper guardian of the child; that each child possesses an individuality and a peculiarity of temperament which need to be specially studied, but which are apt to be overlooked in a school; that in a well-ordered home the powers can be developed gently and gradually, while at the same time the purity of the child can be preserved, and he or she can be kept from evil associates; more than all, that the memory of a happy home has again and again proved a mighty influence for good in after life. On the other hand, it is urged that few parents are qualified to bring up their children at home, that they are too indulgent, that they judge their children's attainments by the standard of their own education, whereas progress is the law of nature, and culture is a word which has an ever-widening meaning. As to the temptations which are met with away from home, it is declared that every one must face them sooner or later, and the longer the trial is deferred, the greater is its power and its danger. Besides which, the sooner a child finds his level the better. He can only do this by comparing himself with others, and can only learn self-discipline and self-control by being thrown upon his own responsibility and his own resources.

The result of the discussion is that the question is an open one. Some parents decide in one way and some in another. Very frequently circumstances arise which render home education impossible, and a boarding school becomes a necessity; then arises the duty of selection. The kind of education to be obtained is generally regarded as most important, and so it is; but besides this there are other considerations which must not be overlooked. The school premises ought to be built in a healthy situation, and they ought to be well drained. The room should be lofty, spacious, and well ventilated; a playground of some sort should be attached to the house. Comfortable chairs with sloping backs ought to be in use, the forms or straight-backed chairs which are too often found in schools being likely to produce slight deformity. Wholesome and sufficient food should be provided, and a separate bed should be given to each pupil. It can scarcely be expected that these accessories should be within the reach of all, but when they can be obtained they are most valuable; for attention to health is perhaps more important just at the time when young people are in the transition state between boyhood or girlhood and maturity than at any other. Supposing all physical requirements to be met, there are other considerations which require attention. Every parent who has his child's welfare at heart will be anxious that his companions should be pure-minded and high principled, that refined habits should be inculcated, and that there should be nothing coarse or degrading in the associations. A good deal of trouble must be taken before these questions can be satisfactorily settled, but when it is remembered that the child's future life, mental, moral, and physical, will be affected by the choice, it cannot be regarded as unimportant.

Boards, To Scour. — Boards that are in good condition and are washed regularly should be scoured with cold water and a little fine sand. The constant use of soda and soap both have a tendency to give a dark appearance to the boards. Floors that are only washed occasionally should be dealt with as follows:—Take a pennyworth of lump fuller's earth, break it up, and pour boiling water upon it till it forms a thick paste; mix with it a third of its bulk in very finely-sifted sand. Sprinkle this mixture on the boards, and scrub them well with a scrubbing-brush and cold water in the direction of the grain of the wood, but not across. The boards should be washed over with cold water afterwards. To remove grease-spots from boards, mix half a pound of pearlash with a quart of hot water, and scrub the floor with this and a little sand. A mixture made of equal proportions of vinegar and of spirits of salt will also remove stains out of boards.

Bobbin Lace. (*See* LACE.)

Bobbin Net.—In the year 1770, the first attempt to make net by machinery was made by the adaptation of a stocking-frame, but not until the year 1810 was success attained. Net is made by means of a frame across which are stretched a set of threads in parallel lines, while another set of threads on bobbins are made by the aid of machinery to twist themselves in and around the straight threads. The beauty of bobbin net depends upon the regularity with which the little holes or meshes are made, the smallness of their size, and the quality of the cotton used. This cotton is mostly spun in Lancashire. The best made net has elongated meshes near its selvage.

Bobbinet.—The net formerly made by hand bore this name, as it was made by the aid of bobbins.

Bobbins.—These are circular pins of wood, which have a broad notch round their centre, used for the purpose of holding cotton, linen, and silk thread. The word has been adopted from the French word *bobine*.

Bodice.—The bodice of a dress may be either high or low, or half-high-tucked, laid in pleats, full, plain, or a basque. It consists of five, or even eight pieces—two fronts, two side pieces at the back, and one in the centre of the back; or two fronts, four side pieces, and the back cut in two parts, with a seam down the centre. In the last way of making, the back has five seams. The lining for the bodice is usually of linen, twilled cotton, or silk, and may be black, white, or grey in colour. The basques should be lined with some of the same material as the dress, cut on the bias, to prevent the calico lining showing, if it should accidentally turn up. If this be not done, they should be faced with silk; and all thick materials, such as velvet, must be lined with silk. A dress laced up the back has a whalebone on either side of the lace-holes, which are a row of small eyelets worked in sewing silk to match the dress. Low

bodices, also, are generally laced, and are either made with round waists or with basques. They are finished with a double piping at the edge. High bodices may open in a V shape in front, or be cut square both back and front. With the assistance of a good pattern (*see* PATTERNS), and accurate tacking and cutting, no home dressmaker need despair of producing a well-fitting bodice.

Bodkin.—One of the instruments most essential in the appliances of a lady's work-box. It is usually made of steel, is about two inches in length, and has two eyes at one end—a long one and a small oval-shaped one—and at the other extremity a knob. It is by means of this small instrument that tape, cord, or bobbin is passed through a double running or hem in any article of needlework, the knob at one end serving to prevent the piercing of the material on either side in its passage through the hem. They can be procured of white-metal and gilt, of different sizes.

Body Linen.—A hundred years ago linen and cambric were the only materials used for under-garments, but now the introduction and cheapness of calico have brought that material into almost universal use. Calico is a much warmer material than linen, and considered by the majority of persons safer for personal wear on that account. Body linen does not wear so well when made by machinery as when stitched by hand, for the edges of seams are apt to become ragged and worn by the close pricking of the machine needle, which, of course, is thicker than that used by hand. Under-garments will wear longer when they are of good shape and fit the wearer. More particularly is it necessary that they should be sufficiently large in size. In the olden days, when linen was expensive, it was usual to mend, patch, and darn; but these thrifty customs have lapsed, now that material is cheap and making is easy. Nevertheless, in the case of shirts especially, repairs of wrist-bands and collars are worth the trouble of undertaking. When body linen is trimmed, the embroidery should be good of its kind, otherwise the linen is better without. Valenciennes lace, either real or patent, is the only kind of lace which should be used, and then only when the material is fine, and of very good quality. Cambric frills hand-made, or Coventry frilling machine-made, are neat trimmings. Crochet edgings or braid never look so suitable as embroidery, either open or close.

Bog Alder.—This is one of the commonest of our indigenous trees, being found upon the margins of all our rivers and streams, as well as in damp and swampy places. It sometimes grows to a great altitude, when the soil and situation allow it freedom to do so, and the trunk becomes of timber-like importance. It has been known to attain the height of fifty or sixty feet; but the alder-tree to the general observer is of stunted growth, rarely exceeding twenty feet high. It has a dark and dusky foliage, giving it rather a melancholy aspect. It retains its leaves till very late in the year, and is one of the first to gladden our eyes with the green of spring. The nature of the alder-tree when planted is to suck up all the moisture from the huge mass of fibres around it which compose its roots, and thus prevent the escape of any water in its proximity. The wood of the alder is soft, and lasts a long time when under water, and in ancient times was much used in the foundations of bridges. A celebrated writer states that the Rialto of Venice is founded on piles of the alder. It can be propagated from seeds, which should be gathered in autumn. After being in the ground five or six weeks, the plants will show themselves, and by the end of summer will attain a height of four or six inches.

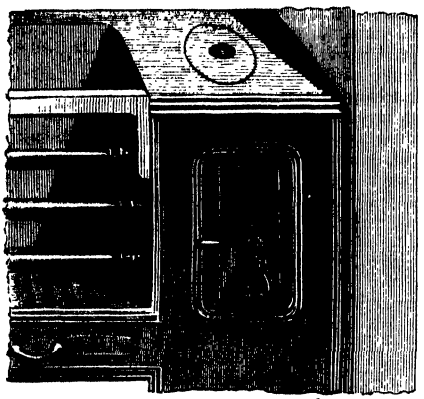
Bog Oak.—The remains of primæval forests of oak, discovered embedded in the Irish bogs. This oak is often in sufficiently good preservation to be utilised by upholsterers for considerable works; and many of the objects in the Irish Furniture Bog Oak Department, at the Great International Exhibition of 1851, were said to have rivalled the most beautiful specimens of Swiss and German manufacture. Much that is sold for bog oak is counterfeit, the genuine being recognised by the greater coarseness of the grain. It would be impossible to carve it as delicately as they represent it to be in some of the small trinkets sold in the shops, which are made of a commoner wood, reduced by some process of great heat to a soft pulp, and then cast in moulds, not carved.

Bohea Tea.—It was supposed for a long time that all black teas were produced from one variety of the tea-plant, which was called by botanists *Thea bohea*, and all green teas from another plant, *Thea viridis*. Therefore Bohea was the general name given to all black tea. Now it is known that the description of the tea does not depend upon the plant from which the leaves were gathered, but from the way in which they are prepared; and so black tea can be made from the green tea-plant, and green tea from the black tea-plant. Bohea tea is the lowest quality of black tea, and is named from the country in which it grows. It consists of a mixture of small and large leaves. As these are picked from the plant they are put into baskets and placed in the sun, after which they are thrown a few at a time into very hot cast-iron pans, and are stirred about, and afterwards taken out and rubbed in the palms of the hands. After this they are roasted again, and when the tea is sufficiently dried it is spread out, the leaves that are broken or spoilt are picked out, and the rest is packed for sale. In the present day the original samples of tea are not preserved. The names are given to them by the dealers, who buy their teas, mix them, and describe them as they please.

Bohemian Glass.—The celebrated glass-works of Bohemia are very numerous and extensive, and afford employment to thousands of persons. The glass manufactured in them has been in repute for its cheapness, lightness, and durability ever since the thirteenth century. It was from the Venetians that

Bohemia gained its first insight into the mysteries of glass-making, and the origin of the craft is shown to this day in the reticulated pattern, the Eastern forms, the taper stem, and the variety of colours. The colours, and engraving, and imitations of precious stones are all very beautiful, but at best they are but an imitation of Venetian art. In modern times Bohemian glass has been specially celebrated for the beautiful variety of colours. When well made, Bohemian glass is sufficiently hard to strike fire with flint, and is scratched with difficulty.

Boilers, Kitchen.—The attachment of boilers to kitchen ranges is one of the greatest of modern domestic conveniences, as by their means a continual supply of hot water is ensured. The ordinary kitchen boiler, supplied from a small cistern with a ball-cock attached, is perfectly safe, so long as the ball-cock works freely, but if this gets out of order, or becomes



KITCHEN BOILER.

too stiff to work, the water overflows and floods the kitchen. It is the boiler which is made on what is called the circulating system that is dangerous and liable to explosion. These boilers are connected with a cistern placed overhead, sometimes in an upper floor. This is done by means of two pipes, through one of which, when the fire is lighted, the steam and heated water rise, whilst the cold water descends through the other. So long as the pipes are free, and the supply of water kept up, a thorough circulation is maintained; but when, as during a sharp frost, the water is frozen, and the pipes become choked with ice, the boiler, unable to withstand the accumulated pressure of the steam within, as a natural consequence, bursts. All such boilers should be fitted with a safety-valve, which will allow the surplus steam to escape when the pipes are obstructed from any cause. These valves should be fixed in the front of the kitchen range so as to be easily seen, and they should be kept clean and bright; in fact, they ought to be treated as ornaments, and then they can be depended upon. Boilers should be regularly and systematically cleansed, as there is a tendency in almost all water to deposit layers of incrustation, by the separation of the lime salts which it contains. Rain-water is highly corrosive, but when mixed with hard, spring, or river waters, can be used with safety and advantage. A little sal ammoniac thrown into the boiler is useful in carrying off deposits. Carbonate of soda also answers the same purpose. Nothing, however, will ensure freedom from incrustation, except thorough and regular cleaning. Copper is used for large boilers intended for boiling clothes. This metal is less cohesive than iron, and a greater thickness is required to ensure an equal strength.

Boiling is one of the most ordinary modes of cooking meat, and yet it is very rarely done properly. The method to be adopted depends entirely upon the answer given to this question: "Is this meat to be eaten or not?" If it is to be eaten, it is desirable that the juices should be kept in it. To effect this, the meat should be plunged into the hottest boiling water. This will cause the liquid to cease boiling for a short time, but it should be made to boil again as quickly as possible, and be kept boiling for from three to five minutes. Then either the saucepan should be lifted off the fire, or a little cold water should be added to the water to reduce its temperature, and afterwards the meat should be gently simmered until done enough. The five minutes' quick boiling will coagulate the albumen on the surface of the meat, and so will completely surround it with a thin rim of hard meat, through which the gravy and flavour cannot escape. If, however, the meat is not to be eaten, and it is desired that the juices should be drawn out of it to make broth or stock, the meat should be cut up small, put into cold water, gradually heated, and gently simmered as long as necessary. In cookery, the only instances in which quick boiling is required is at the beginning of the process for a few minutes only, and when it is wished to reduce sauces or similar preparations by causing the water to evaporate. Then the brisker the ebullition the better.

It should be remembered that when meat begins to boil, the impurities rise to the surface of the water in the shape of scum. This should be skimmed off carefully as it rises, otherwise it will quickly sink again, and cannot be easily removed. Almost all vegetables should be put into boiling water, and should be kept boiling until done enough. As to the time required for simmering different articles, no general rule can be given, because so much depends upon the age, the freshness, and the quality of the ingredients. The following table may, however, be used with modifications:—

	Hours.	Min.
Beef, Round of, 30 lbs.	6	0
Beef, Round of, 8 lbs.	3	0
Beef, Round of, 5 lbs.	2	0
Beef, Brisket of, 10 lbs.	3	0
Beef, Aitchbone of, 14 lbs.	3	0
Beef, Thin flank rolled, 10 lbs.	5	0
Pork, Leg of, 8 lbs.	3	0
Pork, Hand of, 6 lbs.	2½	0
Ham, 12 lbs.	4½	0
Ham, Piece of, 6 lbs.	3	0

	Hours.	Min.
Bacon, 2 lbs.	1½	0
Pig's cheek	2½	0
Pig's feet	3	0
Ox tongues, fresh	3½ to 4	0
Ox tongues, dried and soaked	4 to 4½	0
Mutton, Leg of, 9 lbs.	2½	0
Mutton, Neck of, 7 lbs.	2	0
Veal, Breast of, 7 lbs.	2½	0
Veal, Neck of, 5 lbs.	2	0
Veal, Knuckle of, 7 lbs.	2½	0
Calf's head	3	0
Calf's feet	3	0
Turkey, small	1½	0
Turkey, large	from 2	0
Chicken	0	20
Fowl	0	40
Fowl (large) or Capon	1	0
Partridge	0	20
Pigeon	0	20
Rabbit	0¾	0
Greens kept boiling	0	25
Cabbage „	0	25
Asparagus „	0	25
Artichokes „	0	35
Artichokes, Jerusalem	0	30
Spinach	0	12
Sprouts, Brussels	0	10 to 15
Beetroot	2½	0
Cauliflower	0¼	to 20
Sea Kale, young	0	20
Sea Kale, large	0½	45
Parsnips	0	35
Onions, moderate size, whole	1	0
Broccoli	0¼	to 20
Kidney Beans, young	0¼	0
Kidney Beans, large	0½	0
Turnips	0¼	to 45
Carrots	0¼	to 45
Green Peas	0	10 to 20

The liquor in which fresh animal food has been boiled should on no account be wasted, but should be used for making stock for soups and sauces.

Boils, Treatment of.—Boils are round, hard, and very painful inflammatory swellings of the skin, due probably to perverted nutrition, and occurring both in those who by excess in the matter of food and drink embarrass digestion—starving, so to speak, in the midst of plenty—as well as in those whose diet is insufficient in quantity or defective in quality (the latter more frequently), or who from debility or disease cannot assimilate even the little they take. They are best treated in the acute stage by hot linseed poultices and fomentations of hot water frequently repeated, and by the use of the lancet if they do not break spontaneously. When suppuration is fully established, the best dressing is the *Ceratum resinæ* (basilicon), with occasional poultices. Some persons recommend painting with iodine, or dressing with basilicon from the very first; but the efficacy of this treatment is somewhat doubtful. The constitutional treatment must, of course, be adapted to the particular case. If there is evidence of over-indulgence either in eating or drinking, then all errors of diet should be corrected, and the digestive organs attended to; if, on the the contrary, insufficient nutrition is the cause, and there is evidence of great debility, then the system must be supported by tonics, and even wine, if necessary. Aperients will be found useful, especially the natural waters of Friedrichshall and Hunyadi Janos; tonics, especially the mineral acids, with bark or sarsaparilla. These, with change of air and sea-bathing, will generally effect a cure.

Bolster.—This should be the exact width of the mattress it rests upon, otherwise the appearance of the bed cannot be made neat. The tick of which bolsters are made should be linen and not cotton. They should not be filled quite full with feathers, for that makes it hard and uncomfortable. Bolsters look better with round ends than with square ones. This is managed by cutting off the corners of the tick cover at each end, and putting in a circular piece. The white cases should be made in the same manner. Some persons do not use outer cases, but roll the bolster in the sheet; this arrangement is not so comfortable as when the bolster is left free. Bolsters are comforts which were added to bedsteads in very early times; both Romans and Anglo-Saxons made use of them. The latter people considered the addition of a pillow was a luxury only allowable to the sick.

Bolting.—The rope to which the edges of sails are sewn to strengthen them are termed "bolt-ropes," and the process of attaching them is commonly termed "bolting."

Bolts.—These are long cylindrical pins or bars of brass, iron, or copper, used for a variety of purposes, as fastenings for doors, for securing plates of iron together, for planking, &c.

Bolus.—This is a compact mass of medicinal matter, a large pill, in fact, which is only now administered to animals by veterinary surgeons and others. The term was formerly applied to pills which were made very large, and which people had considerable difficulty in swallowing. Hence the current jokes of the period in which the bolus flourished were very numerous.

Bombazet.—This material comes into the category of what are called "stuffs," or worsted fabrics, the manufacture of which was first introduced into England in the reign of Henry I. by some Dutchmen, an inundation of the sea in their own country having driven them to seek a home in this. They settled at Worsted, in Norfolk, whence the name; and a charter was granted for the manufacture of worsted stuffs, in consequence of which that city became one of the most prosperous in the kingdom. The stuffs there made attained the greatest perfection. Bombazet is plain twilled worsted, with a warp of single thread, pressed and finished without any glazing. It varies in width from twenty-one to twenty-two inches.

Bombazine.—This fabric is of very old manufacture, for it is said to have been commenced in Norwich during the sixteenth century by the Dutch, who were at that period settled in that city. The material is a combination of silk and worsted: the warp is silk, and the weft is worsted; the latter is thrown on the right side, which has a twilled appearance. In

its early days, bombazine was much worn by all classes, and at that time was made in colours; now it is woven in black only, and mostly used for mourning purposes. Its chief drawback is that it tears easily, and when torn, roves so quickly that darns and repairs are difficult to effect.

Bona fides.—Literally, good faith—*i.e.*, without fraud or deceit. Thus it is usual to speak of the *bona fides* of an undertaking or transaction or of a man's intentions.

Bona Notabilia. (*See* Administration, Probate.)

Bona Vacantia.—Goods to which there is no claimant except the Crown, as royal fish, shipwrecks, treasure trove, waifs, strays, &c. On the death of one intestate leaving personal estate and no next of kin, the Crown becomes entitled "upon office found" (as it is termed) to all such property, and this by virtue of its prerogative, wherein it differs from the title of the Crown to land by escheat.

Bonbons.—This is the name given to ornamental articles of confectionery of various kinds which are used for dessert and to garnish sweet dishes. Liqueur bonbons, which are so beautifully made by the Parisian confectioners, are so called because the boiled sugar of which they are made is flavoured with some kind of liqueur. Bonbons are frequently flavoured with the juice of fruit. They are moulded into the shape of fruits, flowers, hearts, &c. The name bonbon is also given to a sugared almond which is placed in ornamental paper with a cracker and a motto appropriate for festive occasions, or with ornaments or articles of dress cut out in tissue paper. Bonbons of this kind are thoroughly appreciated at children's parties.

Bond.—A bond is a deed, *i.e.*, an instrument under seal, whereby a person binds or obliges himself, his heirs, executors, and administrators, to do any act within a certain time. No technical form of words is necessary to constitute a valid bond. There is usually added what is termed a condition, which is simply a statement that on the person bound doing the act the bond shall become void. A common money bond acknowledges that the obliger is bound to the obligee in double the amount of the debt—the condition states that on payment of the sum actually due with interest on a certain day the bond is to become void. (*See* Foreign Bonds.)

Bone-black.—Known also as animal charcoal, being the bones of animals burnt in a crucible. They are changed by the process into a black substance which is employed in immense quantities in sugar refining, making shoe-blacking, and as a decolorising agent in various manufactories. Its effects are truly astonishing, the most putrid and muddy water becoming through its agency perfectly clear, sweet, and limpid.

Bone Lace.—For a long period of time hand-made lace was known by the name of bone lace. Some writers aver that sheep's trotters were used in lieu of bobbins, and hence the designation; others say that bones of fish were used in the place of pins, and in this way the name became attached. In the eighteenth century, when bobbins of boxwood became general, and the manufacture of pins was on a larger and cheaper scale, the use of bones was gradually discontinued, and likewise the name. In Spain and Portugal bones are still used by lace-workers. (*See* Lace.)

Bone, To Dye.—In staining bone it should be remembered that the colours will take better before polishing. If any dark spot appear after the dyeing, it should be rubbed with chalk, and the bone re-dyed, to produce uniformity in the shade. On removal from the boiling dye it should be plunged at once into cold water, to prevent cracking from the heat.

To dye bone, the following methods will produce eight colours respectively:—

Scarlet.—Boil in Madder dye, or Brazil wood, then in a solution of muriate of tin.

Red.—Immerse for a few minutes in weak aquafortis, dissolve cochineal in spirits of hartshorn, and then immerse in the latter.

Blue.—Boil in a solution of sulphate of indigo with a little salt of tartar.

Green.—Boil in verdigris and vinegar.

Black.—Soak for a few days in a weak solution of lunar caustic or ink.

Yellow.—Soak for twenty-four hours in a solution of sugar of lead, and then in chromate of potass.

Purple.—Boil for six hours in logwood and alum; but not in an iron vessel.

Brown.—Boil in a solution of turmeric, and afterwards boil in pearlash water.

Bones, Musical.—Instruments of percussion, consisting of a pair of smooth bones. These are held lightly by the fingers, and struck together to produce a complex kind of sound, somewhat between a trill and a rattle, in consonance with the rhythm of the music. Bones as musical instruments are favoured chiefly, if not solely, by negro melodists.

Bones, Uses of.—Bones may be put to various uses. When fresh and good, excellent soup may be made from them. They supply gelatine, and thus give a consistency to the soup, but whether this is nourishing or not is questionable. Dr. Lankester says that "although gelatine is not to be objected to when mixed with other substances, *alone* it is not capable of supporting life. The bones of almost all animals are largely used in the arts and manufactures. They serve to make the handles of common knives and forks, penknives, combs, fans, nail and tooth brushes, and buttons. In the last of these articles alone ton-loads are manufactured every year. For these purposes, not only the bones of domestic animals, such as the horse and the ox, are used, but also those of the elephant, the giraffe, the buffalo, and the whale. As a preliminary process they need to be thoroughly boiled, in order to extract the fat from them, and this fat is sold and manfactured into soap and candles. Excellent manure may be made from bones which have been either broken into small pieces, or ground to coarse powder in a mill. The dust is mixed with the seed and sowed with it in a drill. Sometimes bone-dust is

mixed with ashes; sometimes it is dissolved in and becomes liquid manure; sometimes it is applied as other manures are. When the latter plan is adopted, it will remain in the ground for five years or more, and increase its productiveness during the whole time. The application of bone manure has been known to quadruple the value of land. The scrapings and parings of bones are employed to make gelatine for the confectioner. Burnt bones are converted into bone-black and ivory-black. Bone-ash, which is made by calcining bones to whiteness in a furnace, and reducing the ash to powder, is used in the making of cupels, which are employed in assaying gold and silver. The importance of the trade in bones will be realised when it is remembered that independent of the bones collected at home, 100,000 tons, of the value of £700,000, are annually imported into Great Britain.

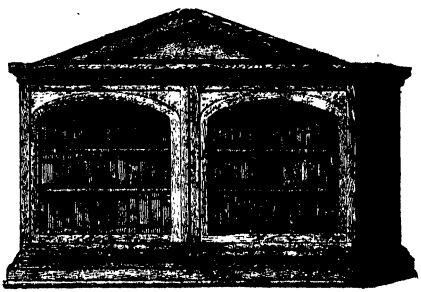
Bonnet-boxes.—These are made of wood, of leather, and of paper. The most convenient kind are the French bonnet-boxes, which are oval in form, and made of thin wood; they are very light in weight, and yet not so liable to injury as paper boxes. If bonnet-boxes are allowed to go in railway vans, they should be of leather and wood, that being the strongest kind. A strap of tape should be stretched tightly across the box, inside, and to this the bonnet should be pinned, in order to keep it steady in its place. The principal number of bonnet-boxes are made in London.

Bonnets.—The style of these should always be in accordance with the rest of the attire worn, but a plain bonnet will not look so out of place with gay attire as a dressy bonnet will if worn with morning costume. The latter combination is considered to be very bad taste. Various fabrics have from time to time been used, such as velvet, silk, satin, felt, crinoline, tulle, crêpe, and straw; of these the first and last in the list are the most durable. The shapes vary as perpetually as the materials: it is always well to avoid extremes, although to a certain extent the prevailing fashion has to be followed. Leghorn and Tuscan were the first kind of straw bonnets worn in England. These were expensive at the outset, but could be cleaned and re-modelled. It was not until the close of the last century that straw plait began to be made in England; it was then made with Tuscan straw, and after the Italian method. The Peninsular war put a stop to the transportation of this straw, and then English straw was used. This is usually split with a wire previously to being plaited. In the counties of Beds, Bucks, and Herts, straw-plaiting is principally carried on.

Bonus.—A premium or advantage. It is a common term to denote the profits from time to time given by life and fire insurance companies on their policies.

Book-binding.—The art of binding books, that is, of sewing together the various sheets of which they may be composed, and of covering them with cloth or other material. Cloth bindings, in which books are now generally published, have only been in common use during the last fifty years, and even now they are almost confined to this country and America, new books on the Continent being issued as a rule in paper covers only. Among other materials used for binding books are vellum and leather of different kinds, such as russia, morocco, calf-skin, and sheep-skin. Russia and morocco, being expensive materials, are used for fine art volumes and the better class of books only; vellum is now but little used, although in former times, books were commonly bound in it; calf-skin or calf is used in a variety of colours, and is almost as expensive as morocco; sheep-skin is seldom used for other than law or school-books, except when prepared to imitate morocco, when it is known as roan. Half-bound books (half-calf, half-morocco, half-roan, &c.) are those the backs and corners of which only are of leather, the sides being covered with some cheaper material, either cloth or paper.

Book-case.—Having dealt with the simpler kind of hanging or other shelves for books on page 164, we may here refer to similar articles of a more elaborate and highly decorative character. Perhaps the style of decorative construction most in accordance with the sen-



BOOK-CASE.

timents and character of a book-case is the Elizabethan, and it is moreover so varied in its features, and lends itself so thoroughly to enrichment, as to be preferable for other reasons. It is usually so constructed as to occupy the entire side of a room, and consists of three divisions, the chief of which occupies the centre. Although twisted pillars are frequently introduced, they occupy more than a profitable share of the space, and are therefore best abandoned in favour of a narrow pilaster (or pilasters), which serves to give the uprights a decorative character, and at the same time hides the racks and shelf-ends from sight. The cornice may be made more or less decorative, but it should never be heavy. Cupboards may occupy the lower part for portfolios, and drawers for pamphlets, magazines, maps, &c. Open spaces are sometimes left between the cupboards for the accommodation of globes.

Book Clubs.—Associations of persons formed with the object of purchasing new books from a common fund, provided by periodical subscriptions — generally annual. The books so procured are read in turn by the members of the association, being handed from one to another in previously-arranged order, settled by ballot or otherwise. The question as to what books shall be purchased is generally

settled either by a committee of the members, or by each member in turn proposing a book. At the end of each year, those works which have been read by all the members are usually disposed of by auction or otherwise. The advantages of book clubs—affording as they do an opportunity for reading the best current literature at a very low cost—must be apparent to all, and it is not to be wondered at that some few years ago these societies were very fashionable. At the present time, however, the wide spread of circulating libraries has done somewhat to diminish their popularity, though they still flourish in the smaller towns and villages. (*See* CIRCULATING LIBRARIES.)

Book-keeping.— In its most primitive form, book-keeping was the art of recording the amounts due to or from a person. When first originated it was merely intended as a substitute for or aid to memory in the matter of cash transactions, corresponding to the tally-stick of the pedlar, or the slate or chalk-board of the small trader of the present day. With the extension of the system of credit, however, without which the vast commerce of the world could not have attained its present proportions, a corresponding progress in the science of book-keeping became requisite; it was therefore in Genoa, Venice, and other cities of Northern Italy—the great emporium of commerce in the Middle Ages—that account-keeping was first reduced to a recognised system, and the science began to assume its present state of comparative perfection. As now conducted, book-keeping is not simply a method of recording debts and cash transactions, but is intended to afford the merchant, trader, or private person a safe check upon his accounts, and to enable him at all times to ascertain the state of his affairs, the total amount of his transactions, the nature and extent of his profit, assets, and liabilities.

The nature of business and commerce is necessarily so complex, that the details of the science of book-keeping vary greatly to suit the special requirements of the transactions to be recorded, but in all cases there are certain general principles which cannot be departed from without endangering to a great extent the accuracy of the accountantcy. There are two methods of account-keeping now in general use, one called book-keeping by single entry, the other book-keeping by double entry. Of these, single entry is mainly confined to the accounts of retail traders and private persons, the system deriving its name from the fact that each item is entered but once in the ledger. Strictly speaking, single entry is limited to *personal* accounts, showing the sums due to or from a certain person, but affording no means of ascertaining the amount of goods, &c., in hand, the profit on such and such transactions, the progress of the business in this or that direction, the nature and extent of the assets and liabilities. The principal books used in single entry are the invoice book, the day book (often styled respectively the bought and sold day books, or the debit and credit day books), the cash book, and the ledger.

Double entry is the extension of the single-entry system, the distinct peculiarity consisting in the fact that all transactions are entered twice in the ledger, *i.e.*, debited to one set of accounts and credited to another. Of these, one is generally a real or personal account, the other a nominal or impersonal account, under the head of the goods, &c., that may have been bought or sold. Thus, for instance, suppose a trader sells cotton to the extent of £100 to John Thomas and Co., he would debit John Thomas and Co.'s account in the ledger with £100, and credit "Cotton" with the same amount. In the same way all purchases of cotton would be debited to "Cotton," and credited to the person from whom bought. In this way the extent and nature, whether profitable or otherwise, of the trader's dealings in cotton would be apparent at the first glance. In addition, the double entry affords a valuable check on the accounts, and it is rarely that errors remain undetected where the books are kept on this system. In double entry, often called, from its originators, the Italian system of book-keeping, the principal books in general use are the invoice or bought day book, the day book, or sales day book, the cash book, the bill book, the journal, and the ledger. The following subsidiary books are also often used for both systems:—The petty cash book, the till book, and the stock book.

Invoice or Bought Day Book.—In this book is entered an account of all goods bought, copied in most cases in full from the invoice. The separate items are afterwards posted into the ledger, the folio of the ledger on which each item is entered being placed in a marginal column. On the right-hand side of each page of the invoice book are two sets of money columns, in the inner one being entered the separate items, and in the outer the total of each invoice. These two columns should be periodically cast, as by this means any error in carrying out an invoice may be at once detected. The outer or total column being cast at the end of each month, will give the amount of the purchases for that month.

Day Book.—In this book are entered all goods sold, the mode of procedure being exactly similar to that already explained for the invoice or bought day book. In this case the "total" column when cast up at the end of the month shows the amount of the sales for that period. When sales are made for cash, they are not usually entered separately in the day book, but in a subsidiary book, called the *till book*, the totals of which are carried daily or weekly into the day book.

Cash Book.—In this book all cash received or paid, and all discounts received or allowed are noted. It should be ruled with treble money columns on the right-hand side of each page, and a date column on the left. All amounts received daily are entered in the middle money column of the left-hand, or Dr. side of the cash book, and discounts allowed are entered in the inner column; at the end of each day the total amount received is carried into the outer column, which, being cast up at the end of each month, gives the total receipts for the month. Similarly with the right-hand or Cr. side of the cash book: in the centre column are entered all payments made, whether by

cheque or cash, and in the inner column are noted any discounts or allowances received on settlement; in the outer column is entered each day the total of that day's payments, and this column when cast up at the end of the month will give the total of that month's expenditure.

Bill Book.—This book contains particulars of all bills of which payment is to be received (termed "bills receivable"), and of all bills accepted, and of which payment has to be made at maturity (termed "bills payable"). Very often, however, two bill books are in use, one being appropriated for bills receivable, the other for bills payable. These books are usually ruled with a number of columns, with a printed heading to each, giving a variety of particulars, such as (for bills receivable) date of receipt, person from whom received, by whom and on whom drawn, date of bill, to whom payable, due date, &c.; and (for bills payable) date of acceptance, drawer's name, to whom and where payable, date of the bill, period at which drawn, due date, &c. &c.

Journal.—This book is used in the double-entry system only, and is a kind of intermediate book between those already mentioned and the ledger, being intended to save the ledger from being over-burdened with details. The entries in the invoice book, day book, cash book, bill book, &c., are collected periodically, and the different items classed in the journal, preparatory to being posted into the ledger.

Ledger. — This is an abstract of all the entries contained in the other books. In single entry it is made up or posted direct from the day book, cash book, &c.; in double entry partly direct, and partly from the journal. In the ledger separate accounts are opened for the various persons, properties &c., the Dr. and Cr. transactions being entered to each account to which they belong, so that the position in which a trader stands to each person traded with may be readily ascertained, and in addition, in double entry, the statement of account of each article traded in, affording the trader a ready means of ascertaining his own position in general.

The *Petty Cash Book* contains an account of all small disbursements, the entries being usually regulated by a certain maximum limit, such as £2 or £5; the *Till Book*, as already explained, is subsidiary to the day book, containing an account of small cash receipts, or receipts from persons with whom no account is kept in the ledger; the *Stock Book* contains an inventory of all stock, &c., in hand at each periodical balancing of the books.

Book-plates.—Separate plates inserted and bound up with the sheets which form a book. (*See* Books.) These plates may consist of steel, copper-plate, or wood engravings, lithographs, &c., and are generally printed on thick paper, superior to the text paper of the book of which they form a part.

Book-post.—Under the book-post regulations are included not only books, but paper, whether plain or printed or written upon (provided the writing be not of the nature of a letter), printed matter of every description, circulars, photographs, &c. Unregistered newspapers must be sent by book and not by newspaper post. The postage rate is one halfpenny for every two ounces or fraction of two ounces. No book packet may contain anything sealed or closed against inspection. Every packet must therefore be sent either without a cover, or in a cover open at both ends, so as to allow the contents to be removed for inspection, if desired by the postal authorities. Circulars, if sent by book-post, should not be fastened down with gum, wafers, &c., or they will be considered as letters, and charged with double the deficient postage. No book packet may exceed five pounds in weight, or eighteen inches in length, or nine inches in width, or six inches in depth.

Books.—The word "book" is of Anglo-Saxon origin, from *boc* (beech), the earliest writings among the Teutonic races having, it is said, been inscribed on the inner bark of the beech-tree. The books of the ancients, notably the Egyptians and the Israelites, took the form of rolls, either of papyrus or parchment. The writings of the Romans were generally inscribed on rolls of papyrus, wound round a cylinder; leaves of various materials called tablets were also sometimes used. It was not, however, until the Middle Ages that rolls were discarded, their place being taken by flat leaves of parchment sewed together and enclosed in boards. The monks were the great book-producers of the time, and they spared no pains in embellishing their handiwork, the pages being adorned with illustrations and illuminated letters, the whole book being bound in thick boards, covered with velvet or leather, and ornamented with precious stones and devices in gold and silver. Although the art of paper-making was known in the ninth century, the new material was little used until the invention of printing (*see* PRINTING), from which time books, as we know them at the present day, date. The dimensions of printed books are now regulated by the size and manner of folding of the sheets of which they are composed. Thus if each sheet be folded in two, making four pages, the book is called a folio; if the sheet be again folded, making four leaves, or eight pages, it becomes a quarto; if it be again folded, to make eight leaves or sixteen pages, we have an octavo. A sheet folded to make twelve leaves or twenty-four pages forms a duodecimo, and if it make eighteen leaves or thirty-six pages, an octodecimo. These sizes are generally abbreviated thus:—4to, 8vo, 12mo, 16mo, 18mo, 32mo, 48mo, &c.

Books, Arrangement of.—All books, whether they be many or few in number, should be systematically arranged, thus affording easy means of reference. The method of this arrangement must, of course, differ greatly in various cases, according to the number and nature of the books to be dealt with. Speaking generally, however, we would suggest subdivisions somewhat as follows:—Works of reference, (encyclopædias, dictionaries, gazetteers, &c.), histories, biographies, scientific works, school-books, poetry, novels, magazines, &c.

Books, Care of.—Books should never be allowed to lie about, but should be replaced on the shelf or in the book-case as soon as done

with. Dust is very injurious to books; they should therefore be exposed to it as little as possible. To this end, if the book-cases are open ones, and without glass folding-doors, they should be provided either with long hanging curtains, or with dwarf curtains of leather, &c., extending from the shelf above each row of books to just below the tops of the volumes. A roller-blind in front of a row of bookshelves will also be found useful. Books that are constantly being read or carried about should be covered either with brown paper or some other cheap material; in this way the binding will be well preserved. The pages of books should never be turned down; if it be required to mark a place or places, slips of paper should be used. In the case of magazines, it is always advisable to have the different parts bound up as each volume is completed; cheap cases are usually issued by the publishers, in which the numbers may be stitched at a small cost. A quantity of unbound magazines is always in the way, and in addition, numbers are liable to be lost, a whole volume being thus rendered incomplete.

Books are very liable to the attacks of a little insect known as *Aglossa pinguinalis*, which deposits its larvæ in them, generally in the pages nearest the cover. The small wood-boring beetles are also very destructive visitants. Mineral salts afford the best preventive against all such insect depredators. Powdered alum dusted over the books will be found very efficacious; and a solution of alum and vitriol mixed with the paste used in binding is a common remedy.

Ink spots may be removed from books by applying a dilute solution of spirits of salts, which must be washed off with clean water a few minutes after application; or a solution of oxalic, citric, or tartaric acid may be used if preferred. None of these will affect the printing. Iron-mould spots may be removed by the application of a solution of sulphuret of potash, followed by one of oxalic acid. To remove grease spots, lay powdered pipe-clay on either side of the paper, and press with an iron, as hot as possible without scorching the leaves. Or moisten the spots with ether, and place between sheets of blotting-paper; then apply the hot iron as before. If a slight stain be left after the grease has been extracted, brush over with rectified spirits of wine, and it will disappear. If the leaves of a book be dog's-eared, and the paper have become weak and flimsy, take a solution of isinglass and alum, in the proportion of one ounce of isinglass and four ounces of alum to a quart of water. With this damp the weak parts, smoothing out the creases, &c.; then place a sheet of clean paper between each leaf, and when somewhat dried, press them. If the leaves of a book be torn, they may be mended with paste and slips of paper.

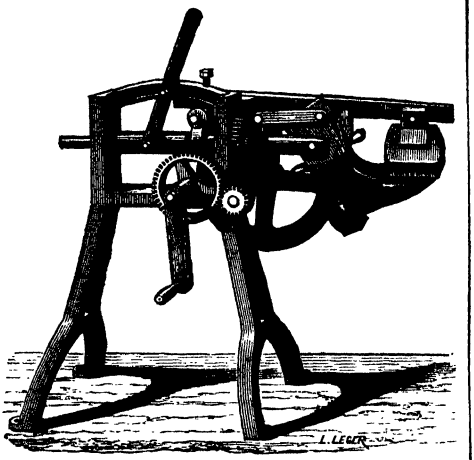
Books for Household Accounts. (*See* Account Books.)

Bookseller.—One who trades in books, whether printed by himself or by others. At Rome, the Argiletum was the mart of books, as Paternoster Row still is in London. Booksellers in many places are ranked among the members of universities, and entitled to the privileges of students. Formerly, the offices of bookseller and printer were united in the same person, and many booksellers were authors as well; but in modern times they have left the labours of composition and printing to others, contenting themselves with the trading part only. They have thus been, and are, very important and useful agents between authors and the public, and have contributed much to the encouragement of genius, literary industry, and the diffusion of knowledge. There are few authors who have undertaken the printing and publishing of any work likely to be transmitted to posterity, without being connected with some bookseller or booksellers eminent in the trade. (*See* Copyright.)

Bookshelves.—A few nicely-planed pine boards such as can be obtained from most timber-yards may be very readily used as bookshelves. The prices range from 2½ to 3d. per foot, and the usual length is twelve feet. In cutting the board into the requisite lengths, care must be taken to make the ends perfectly square, and with this end in view it will also be as well to mark the sections with a pencil-line accurately ruled on both sides of the board as a guide for the saw. When the boards are cut for the sides and shelves, the latter should be less wide than the former, in order that the shelves may be set about an inch farther back. Use screws (about one inch and three-quarters) for fastening the shelves to the upright supports, and cut away the wood under the heads of the screws, so that when the screw is in its top may be flush with the surface of the board. When you have completed the shelves, they may be further decorated and finished with mouldings such as may be purchased in lengths ready for use, varying in design and size, a larger one being selected to act as a cornice, and smaller ones to fasten to the edges of the shelves. These may, if you prefer the effect, be gilded, or may be stained and varnished with the entire set of shelves, or simply varnished. Brads may be used for the plain wood, but for the gilded mouldings the brass pins used by upholsterers are to be preferred.

Boot-brushing Machine. — Amongst the many machines invented of late years to lighten household labour, one of the most ingenious is a self-acting boot-brusher. It is represented in the accompanying engraving. The action of this machine is just like that of the human arm and hand. Every part of the boot to be polished is in turn presented to the action of an ordinary flat brush that moves backwards and forwards with sufficient rapidity. Frequently, when boots are cleaned by hand, the linings are soiled by the dirty hand of the operator, and so the stockings of the wearer get a share of the blacking. This is impossible, however, when the machine is used, for the boots are held on a clean wooden expanding last made to fit all sorts and sizes. Children's boots, so troublesome to hold by hand, are polished as easily as those of grown-up people. The machine is very easily worked—in fact, a child could clean all the boots of a large family with-

out fatigue, and every bachelor might—without previous education in domestic operations—be his own boot-cleaner.



BOOT-CLEANING MACHINE.

Boot-hooks.—These are hooks having handles, and by inserting the hooks into the stout webbing loops attached to the boots, the handles enable you to draw them on with greater ease and quickness.

Boot-jack.—This is an instrument used to assist in removing boots, and is commonly merely a piece of board, having projecting parts or horns at one end shaped to receive the heel of the boot, and hold it while the leg and foot are withdrawn from the boot.

Boot-laces.—These are made of silk, mohair, and leather. The qualities of each kind are various. It is economy to buy the best of its kind, for constant friction quickly wears away a thin, loosely-woven lace, and also the tags come off common laces, which are then useless. Small articles such as laces are sold cheaper by the dozen than singly. For strong boots, like those used for shooting and fishing, laces made of porpoise-hide are the most serviceable; their cost is 6d. each.

Boot-stand.—A stand in which boots are placed when not in use, and so arranged that the different sizes or kinds are perceivable at a glance.

Boot-tops, To Clean.—The first process should be that of thoroughly cleaning the leather from dust and mire. This can best be done with cold soft water and a brush. After this, scrape finely a little bath brick on the leather, and then pour on a little of the subjoined preparation, and brush the leather well. When the whole surface has thus been treated, take a sponge and wipe the leather, which, when it has gradually dried, will look like new.

Put a gill of water in a bottle, add a quarter of a pint of vitriolic acid and half an ounce of salts of lemon. When these have amalgamated, add a gill of skimmed milk. Shake the bottle occasionally, and in a few days the liquor will be ready for use.

Boot-tree.—This is an instrument shaped like the foot and leg, with a screw passing through it, which serves to stretch the boot when placed within it, and thus keep it in shape. It also serves to distend new boots when they are too tight, until the elasticity of the leather is slightly increased. The article is sometimes made more simply in two parts, with a groove in the middle to receive a wedge, which is driven in by main force. The former instrument, which is the more modern, is preferable.

Booths.—This is the term usually applied to such temporary buildings as are used for stalls and shows at fairs and markets. They are generally constructed very rudely and expeditiously of a few poles and planks, with canvas for sides and roofs.

Boots.—A covering for the feet, being a lengthened variety of shoes. Boots are among the most ancient articles of dress, having been in common use among the Egyptians and classical nations. Boots should be well-fitting and shaped to afford support to the foot; they should on no account be worn tight so as to cramp the foot in any way, many serious deformities resulting from this foolish practice.

Boracic Acid is obtained principally from the volcanic district of Tuscany. It is much used as an ingredient in pottery glaze.

Borage.—This plant is very useful, serving in two ways to please the palate. First, its young leaves may be made into a salad, or cooked as spinach; and secondly, being of a slight aromatic flavour, its flowers are frequently put into negus or cooling drinks. This plant is propagated by seeds, which should be sown in March and April and at the end of July for a summer and autumn crop, and again in August for a winter supply. The plant, like many others, should be sown in drills about five or



BORAGE.

six inches apart, and when large enough should be thinned, leaving about six inches between each plant. It requires a light soil and open situation for spring sowing, but for the winter crop a light dry soil is preferable, and sheltered from the north-east winds; a very rich soil

makes it too luxuriant, and materially affects its flavour.

They begin to flower about June, and the seed-pods, when perfectly ripe, must be well dried before being rubbed to collect the seed.

Borax, or biborate of soda, also called tincal, is a native salt, found in Thibet and Persia, and derives its appellation from the Arabic *bourak*, a name given by the Arabians to the nitrum (saltpetre) of the Greeks and Romans. It is also manufactured in Tuscany by treating carbonate of soda with boracic acid. Borax occurs in flattened six-sided prisms, without colour, and semi-transparent. Saturated with hot water, and treated with any of the mineral acids, it throws down crystalline scales of boracic acid, which burn with a green flame when dissolved in spirit. It has an alkaline taste, and re-acts upon turmeric paper like an alkali. The medicinal properties of borax, as an internal agent, are not very great. It is an antacid, and may be useful in dyspepsia, especially of a gouty character; it is also said to be useful in affections of the womb, as painful menstruation, &c., but its efficacy is very doubtful. The dose is from 10 grains to 60. Mixed with honey or glycerine, it is very much used as a local application and gargle in certain feverish and ulcerated states of the mouth, and here it certainly does good. In the form of a lotion containing 30 grains of borax in an ounce of water, it has been found very serviceable in the treatment of liver spot and some skin diseases. As an ointment also, consisting of one drachm of borax and an ounce of lard, it has been applied with advantage to painful piles and cracked nipples. Borax, when heated to a very high temperature, fuses into a transparent glass, called glass of borax, which is used as solder.

Bordeaux Wines.—Excepting the wines of Champagne, no French wines are better known in foreign countries than those grown in the districts of Bordeaux, known as Bordeaux wines. Some of them are red—known in this country as claret (*which see*)—others are white. Of the former one of the best known is the Medoc. The red wines obtained from the vineyards of Lafitte, Latour, Château-Margaux, and Haut-Brion are particularly celebrated for their quality. The white wines of Graves, and those of Sauternes, Barsac, Preignac, and Langon are in highest repute.

Borders, Garden.—The term border is that applied to the narrow strip or division of the garden which is generally formed on each side of a walk or under the garden walls, and in the latter case the walls are most used for fruit-trees, such as peach, apricot, nectarine, and a south border is mostly selected for growing the more delicate flowers. To have a flower-border in a good and fit state for cultivating plants, it should be well drained. To do this, it should be raised some eight or ten inches higher at the back than the front, thereby allowing the superabundance of water from heavy and continuous rains to run down to the front, where it is carried away by the gravel-paths. Where box edging is used, or, indeed, any other, it is a good plan to make a little channel immediately at the back of the box edging and at the bottom of the earth border. By this the rain, instead of coming on to the gravel and thus leaving a deposit of mould, is carried away by the general incline of the path. There are various ways of planting out flower borders, and many still adhere to the old-fashioned mixed perennial style, though the introduction of designs is creeping gradually into favour. It would repay any one to visit some of the public parks, and there see the way borders are laid out, but to do which in similar style would entail great expense. A good border, and a very showy one, can be cheaply and simply made by small clusters of pyrethrum, lobelia, and pansies, alternately planted, with red geraniums behind, and these backed by calceolarias. In fact, the arrangement of a border chiefly depends upon the taste of those who are their own gardeners.

Borders (Work).—In setting on borders of embroidery or frillings of any description, it is advisable to take exact measurements, and to be particular that equal quantities of the border are distributed along the allotted spaces, for such trimmings lose their proper effect if some parts are fuller than others. In sewing borders, whether plain or full, round corners, plenty of fulness must be allowed, otherwise the outer edge will not lie flat. In instances where the border is of broad embroidery or lace, it is often necessary to mitre the corners, that is, to plait the border until it fits the corner, and then cut away the plait. This entails the work being neatly and firmly joined.

Borough (from the original Saxon *borge* or *borgh*) is a town—not a city—usually distinguished from other towns by the right and privilege of returning a member or members to Parliament. The earliest instance of such representation was in the Parliament summoned by Simon de Montford, in the year 1265; but the Parliament summoned by Edward I., in 1295, is considered of greater historical value, questions having been raised as to the authority to issue writs in the previous instance. Boroughs may be incorporate or not, there being many of our English boroughs not incorporated. The boundaries of boroughs are at present regulated by the Statute 2 & 3 Wm. IV. c. 64, and 6 & 7 Wm. IV. c. 103. (*See* Representation in Parliament.)

Borough-English.—An ancient customary tenure of land, still prevailing in Stafford and some other cities and boroughs and districts adjoining, under which the estate descends to the youngest son in exclusion of all the other children. The custom does not in general extend to collateral relations, but by special custom it may, so as to admit the youngest brother instead of the eldest. This custom has been by some considered to have originated in this way: that as the older sons of a family migrated from the paternal home to seek a residence elsewhere, the youngest son usually continued with his father, and thus became his heir. The custom was, however, never prevalent in England to any great extent.

Borrowing, Advice on.—Borrowing, it is perhaps needless to say, should be avoided as far as possible. Still, occasions may arise when to borrow becomes an imperative necessity. In such cases, if you are provided with security for the repayment of the loan, never borrow of a friend, for nothing is so detrimental to friendship; and when a man once begins to borrow systematically of his friends and acquaintances, he will find that their number narrows very rapidly. Money may always be borrowed through a lawyer, banker, or other, on the security of houses or lands (*see* MORTGAGE), or on deposit of the scrip or share certificates of stocks, &c. When a person's credit is good, he will generally find no difficulty in procuring a loan on his personal security. (*See* I.O.U., LOANS.) When it is desired to borrow money for the purchase of houses, land, &c., it may generally be procured through the medium of a building society (*see* BUILDING SOCIETIES), which will lend the money on mortgage, retaining the title-deeds, &c., as security until repayment has been made in full.

Boston (Card Game).—Boston, or, in older parlance, boaston, is played by four persons with a complete pack of cards, dealt as at whist, with the exception that the last card is not turned up. Each player puts a certain fixed number of counters (generally eight) into a pool, the dealer contributing in addition half as many again. That player of the four who will undertake to win most tricks has the privilege of leading, and is called "Boston." If he has not undertaken to win more than seven tricks, he may say whether he prefer to have a partner; and if so, any person engaging to get a number of tricks less by two than Boston has undertaken, may answer "Whist," the right of so answering commencing with Boston's left-hand neighbour. This settled, the play continues as at whist, except that the partners need not sit opposite to one another, and that each player takes up the tricks he may win. If Boston and his partner are successful in getting the tricks they undertook to win, they not only take the counters in the pool, but also receive so many counters from the other players, according to a recognised scale. If, however, they fail in their undertaking, they are mulcted in a like proportion.

Botanical Specimens.—This is a term used in reference to a collection of dried specimens of plants, or what may be called a dry garden. Those who have time and a taste for forming a collection will be well repaid. Specimens ought to be collected when perfectly dried by the sun's warmth, and carefully placed in a box if gathered from home. The plants should then be placed between pieces of blotting-paper, great care being used to lay them smoothly out, and then ironed with a tolerably hot iron. Specimens may be preserved also by being placed between the leaves of books. Plants that are collected while green and containing a large amount of sap should be laid out carefully upon three or four thicknesses of blotting-paper, so that when pressed it will absorb all the moisture that exudes. When the specimens are ready for arrangement, they should be laid on sheets of clean white paper, and the edges or corners of the leaves or stems fixed down by means of a little gum. This will save them from being broken, which in their dry crisp state might happen. Of course, in order to make the collection more interesting, some kind of arrangement should be adopted before being put into a box or folio. (*See* HERBARIUM.)

Botany, The Study of.—Botany may be described as that branch of natural history which treats of plants. Much preliminary knowledge of the science must be acquired from books. Botany is to be studied systematically, and with regard to the arrangement and classification of the different vegetable productions, according to the relations they bear to each other. This is called "Systematic Botany." What is called the "Organology of Plants" has reference to the general life-work of plants, including the study of stem and leaf and root, and their relations to the animal kingdom. The "Histology of Plants" embraces the study of the vegetable tissues and cells, and a knowledge of how these are built up to form the different organs in the plant. We have again another branch of study, termed the "Morphology of Plants," including the history of the origin and growth of stamen, pistil, flower, fruit, and seed; and still another, which is termed "Chemical Botany," and embraces a knowledge of the chemical and physical properties of the vegetable secretions. It is, however, the study of Systematic Botany which will be found most profitable and pleasant to the general reader. The process of grouping or classification, it must be remembered, has not merely for its aim and object the pleasure of being able to call a plant by its proper name, and know the family to which it belongs. Classification is exceedingly useful in enabling us to discover the properties of vegetable production, for it is a well-known law of nature that the qualities, medicinal or otherwise, of any given plant have only to be studied in order to give us a general notion of the qualities of the whole natural family to which it may belong. This law was first discovered by Linnæus, and it makes the study of the nature and properties of plants much more simple, for while months may suffice to give us a general knowledge of the qualities and virtues of groups or families, the longest lifetime would be found far too short to learn the properties of plants had we to study them individually. The botanical amateur will do well to procure the best books on the science, and if he be not a classical scholar, he will at least find it very advantageous in many ways, not only to make himself master of the technical terms used in botany, but also the Latin and Greek roots of the more difficult words so employed. If he does so, he will find it far easier to remember them.

Bottle-brushes.—Bottles ought, of course, to be washed inside as well as outside if they are to be kept bright and clear. Those which are made with narrow necks are sometimes a little difficult to clean, and small narrow brushes with a bunch of bristles at the end are made for the purpose of meeting this difficulty.

There are two or three ways by which bottles may be cleaned without brushes. Small pieces of soft brown paper or blotting-paper may be moistened with water, soaped well, and introduced into the bottle, which should then be filled to one-fourth of its depth with warm but not hot water. After standing for a few minutes, the bottle may be thoroughly shaken, emptied, rinsed with clear cold water, and drained. When dry inside, the outside may be polished with a soft cloth. If the bottle is very dirty, a little silver sand or a handful of ashes with a small quantity of water may be put inside it instead of paper; the bottle will need to be thoroughly rinsed afterwards. Tea-leaves are often used to clean bottles, and are excellent for bottles which have been cleansed regularly and thoroughly, but they are not very effectual in removing discoloration from the glass.

Bottle Cement.—A coarse kind of sealing-wax used for the corks of bottles which have been filled with wine, spirits, &c., the object being to preserve the corks or to protect the contents of the bottles. Various recipes are given by Mr. Cooley—*e.g.*, resin, one pound; tallow or suet, a quarter of a pound: melt together, and stir in the colouring matter. Another is—resin, five pounds; beeswax, one pound: melt and colour as before. To colour the above red, add to each pound weight three ounces of dry whiting and four ounces of burnt ochre in fine powder. For black, as much ivory-black as is needed is stirred in. Other colours, blue, green, yellow, &c., may be made in a similar way.

Bottle-crate. (*See* Bottle-rack.)

Bottle-jack.—This is a convenient little machine used in roasting meat and poultry before the fire. It is wound up like a watch, and keeps the meat turning round and round, thus causing it to be equally cooked in every part. In former times, before the bottle-jack was invented, the spit used to be turned by dogs. An old writer, alluding to this custom, says, "They (the dogs) go into a wheel, which they turn round about with the weight of their bodies so diligently . . . that no drudge . . . can do the feate more cunningly." Very poor boys were employed for a similar purpose; and it is said that Lambert Simnel, who in the reign of Henry VII. claimed to be the son of the Earl of Warwick, the grandson of the Duke of Clarence, and therefore to have a title to the throne, was, after he was discovered to be an impostor, degraded to fill the position of turn-spit in the royal kitchen. The name, a "turn-spit," passed into a proverb, and was understood to mean any one who has all the trouble of an undertaking without any of the pleasure of it.

Bottle-rack.—A term of somewhat loose application to denote any open framework of wood or iron for containing bottles, especially when empty. One old-fashioned bottle-rack was a slight framework of wood for stowing away empty bottles in a horizontal position, the object being simply to keep them together. A good bottle-rack, also called a bottle-crate, is a movable wooden frame with cross-pieces on the sides and bottom to prevent the bottles from falling out. This is more used for draining and keeping washed bottles clean. They stand with the neck down, the first course inserted in the apertures at the bottom, the second course in the spaces between the bottles below, and so on. A common size is made to hold six dozen. Most of the contrivances known as bins, crates, and drainers are really bottle-racks. (*See* Racks.)

Bottles, To Clean. (*See* Bottle-brushes.)

Bottomry Bond is a form of instrument used for the purpose of hypothecating a vessel by the master when in foreign parts, for the purpose of raising money for the necessary repairs of the ship. The bottom or the keel of the ship (which implies the whole vessel) becomes pledged for the repayment of the money. If the ship be totally lost, the lender loses his money, but if she returns safely he recovers his principal, together with the interest agreed upon. Such bonds are treated as valid by all trading nations for the benefit of commerce &c.

Boudoir.—This is a French word for a lady's apartment. Usually a boudoir is up-stairs, and communicates with the bedroom. It is considered to be strictly private, and no one is shown or ventures to intrude into this sitting-room without the express invitation of the owner. Boudoirs are furnished in a pretty and elegant style, and are ornamented with all the little niceties shown by feminine taste.

Bouillonné.—The exact meaning of this French word is "bubble." The term *bouillonné* is now much used in dressmakers' phraseology, and it is meant to convey the idea of puffs in a lady's dress. Thus tulle, gauze, tarlatan, and other light and transparent materials are often arranged so as to form puffs, and this arrangement is spoken of as *bouillonné*.

Boulinikon for Floors. (*See* Floor-cloth.)

Bounty of Queen Anne.—A royal charter confirmed by Queen Anne (2 Anne, c. 11), whereby all the revenue of first-fruits and tenths (tithes) is vested in trustees for augmentation of poor livings, advancing money to incumbents for erection of parsonage houses, &c. This has been still further regulated by Statutes passed in the reigns of Anne, George I., George III., William IV., and Victoria.

Bouquet of Wine.—What is known as the bouquet of wine is the peculiar flavour yielded by the better class of wines, and which is owing principally to the presence of œnanthic ether.

Bouquet (Perfume).—Odoriferous compounds, essences, *ésprits* adapted for the handkerchief, are thus designated by perfumers. Highly rectified spirit is employed in their preparation, on account of the great amount of essential oil and other odorous substances which many of them contain. All the compound essences and *ésprits* suitable for the handkerchief may be made into bouquets by proportionately increasing their strength. Some require strong alcohol to clear them, added carefully drop by drop. Coloured substances should not enter into their composition which could pro-

duce any lasting stain. There are eight varieties of bouquet—viz., Bouquet d'Amour, Bouquet de Maréchale, Bouquet de Millefleurs, Bouquet de la Reine, Bouquet de Patchoulie, Bouquet de Suave, Bouquet Royale, Victoria Bouquet.

Bouquets.—This word, of French origin, has become naturalised in England, and is used in place of "nosegay," or the still more ancient word "beaupot," which was in vogue in Queen Elizabeth's day. Hand, table, and the tiny button-hole bouquets are the chief kinds made, few gentlemen at present considering themselves completely dressed without this last. Much taste and not a little skill are required in the arrangement of a bouquet. Too many flowers of the same colour, and too many colours, must be avoided. Some of the most charming contain only two or three kinds of flowers; for instance, camellias and violets, white roses and heliotrope, scarlet and white geraniums, &c. With them as a border are used the leaves of the sweet-scented geranium, maiden-hair fern, and sometimes mignonette. The largest flowers, such as roses, camellias, &c., are placed in the centre. Florists usually fix the petals of these by running a fine wire directly through the flower and bringing the ends down on the stalk, winding them securely round, and generally mounting them on a second stalk, to give firmness to the whole. The rest of the flowers of which the bouquet is composed are usually mounted also in small bouquets before being made up into the large one. Indeed, the method is best learnt by unmaking a faded nosegay and taking a lesson from it. Florists' bouquets are also ornamented with lace-papers, which are made circular for the purpose, with a hole in the centre for the insertion of the stems. Bouquet-holders are sometimes used, furnished with a chain and ring, by which the flowers may be carried without trouble. These are of gold or silver, and are sometimes ornamented with precious stones. A bouquet is one of the few gifts which a gentleman is always permitted to offer to a lady, and in all civilised countries flowers have had a recognised signification of their own.

Bourbon Tea, or Faham tea, as it is frequently called, is made from the dried leaves of *Angræcum fragrans,* a plant which belongs to the orchis family. It is used in the Mauritius to make a decoction somewhat resembling ordinary tea. It is often regarded as one of the substitutes for tea, but it ought really to be looked upon as a medicine.

Bow. (*See* ARCHERY.)

Bow China.—This is supposed to have been made at Bow, near Stratford, as early as 1730, and the manufacture ceased about 1775 or 1776. Specimens are much prized by collectors, and large sums have often been paid for them. Many of the pieces have peculiar marks, for which we must refer to the works of Mr. Chaffers and others who have written on the subject; but many examples are not marked, and can only be identified by competent judges.

Bow Legs are the result of constitutional weakness, and are also brought on by allowing children to make efforts to walk before the bones of the legs are firm enough to bear the weight of the body. Children who suffer in this way should be fed with the most nourishing food, especially such kinds as make bone. A little lime water mixed with milk may be taken by them with advantage. Bandages or straps intended to support the leg may be judiciously applied, but the best remedy is to keep the child from standing upon its feet as much as possible, until strengthening food and attention to the general laws of health have done their work. If bow legs are neglected in young children, they rapidly develop into what may prove a deformity for life.

Bowel Complaints.—Complaints of the bowels are very numerous, and vary in character and degree from simple distension with discomfort to acute and dangerous inflammation or fatal strangulation. It will only be possible to mention a few of those most commonly met with, and to give some advice respecting their treatment.

1. *Flatulence.*—This is an undue collection of gas in the stomach and bowels, and is generally the result of excessive fermentation of the food during the process of digestion. It produces an uncomfortable feeling of distension and difficulty of breathing, with occasional palpitation through pressure upon the diaphragm and heart; it also causes great depression of spirits, and what is generally described as a sinking feeling, through pressure upon the sympathetic nerves. Flatulence may also be the result of air introduced from without, as in the case of infants sucking their thumbs, an empty bottle, or a breast; it may also be due to the secretion of gas from the vessels of the intestines; and, lastly, it may be the result of certain diseases. To relieve ordinary flatulence, a few drops of sal volatile in water should be given, or a draught containing a scruple of carbonate of soda, half a drachm of liquor of bismuth, three or four drops of tincture of capsicum, and an ounce and a half of peppermint water. This may be repeated two hours after each meal until the discomfort is removed. The bowels should be relieved with an occasional compound aloetic pill, and, if necessary, flannels wrung out of hot water and sprinkled with turpentine may be applied over the whole abdomen. In the flatulence of infants, gentle rubbing with the hand will generally be sufficient, supplemented, if necessary, with a few drops of peppermint water or syrup of ginger in water. If the eructation is of an offensive character and the result of disease of the stomach or bowels, it is best treated by one or two drops of carbolic acid, or from five to twenty drops of dilute sulphurous acid, in a wine-glassful of water after meals.

2. *Painful Griping or Colic.*—This complaint is a painful twisting and distension of the bowels, due either to the presence of undigested or irritating food passing along, or to the absorption of some mineral, as lead, into the system. The symptoms are in both cases very much alike, with this exception, that when lead is present in any quantity, a blue line or mark will be visible along the edge of the gum where it joins the teeth. When pain or colic is the result of simple irritant matter in the bowels, the latter

must be at once relieved by castor oil beaten up with hot coffee and a lump of sugar (*see* CASTOR OIL); but if lead is present, then it will be necessary to give a draught containing two tea-spoonfuls of Epsom and the same quantity of Glauber salts in an ounce and a half of peppermint water, followed by full doses of iodide of potassium (ten grains) in an ounce of cold water, two or three times a day.

3. *Diarrhœa* is an affection of the bowels characterised by pain, sickness, and purging. It is a troublesome complaint in infancy and during hot weather. (*See* DIARRHŒA.)

4. *Choleraic Diarrhœa* (English Cholera).—This is a violent form of the preceding, and is known by severe cramps of the bowels, and sometimes of the legs, blueness and coldness of the surface of the body, with light, rice-coloured, watery evacuations. (*See* CHOLERA.)

5. *Asiatic Cholera* is epidemic in this country at varying intervals only. The symptoms are those just described, but in a more violent form, and frequently prove fatal. (*See* CHOLERA.)

6. *Dysentery.*—This is a complaint affecting the large bowel, which is frequently found ulcerated. (*See* DYSENTERY.)

7. *Inflammation of the Bowels.*—Under this head may be described two diseases, viz., peritonitis and enteritis. Peritonitis is an inflammation of the serous membrane which encloses the bowels, and is generally the result either of a chill or wound, or a sequence of child-birth. It is characterised by pain so severe that even the pressure of the bed-clothes cannot be borne, and the sufferer instinctively draws up the legs to avoid it. Intense feverishness, accompanied with cold shivering and great depression, is generally present. To relieve the pain, we should have recourse to hot linseed-meal poultices and fomentations of hot poppy water. Leeches and ice drinks are most useful; but this disease is so dangerous that medical assistance should be at once procured. Enteritis is an inflammation of the inner lining of the bowels, and is generally the sequence of swallowing an irritant poison, or of typhoid fever. When it occurs as a special disease, the symptoms closely resemble those of peritonitis. The pain and tenderness are great, and should be relieved by poultices, hot stupes, and, under advice, opium. There is a great desire on the part of impatient but unskilled persons to administer purgatives in these cases, and many lives have been sacrificed in doing so. It must be manifest that to swallow irritating drugs when the inner coating of the bowels is in an inflamed condition is a very dangerous practice, and generally results in making an internal rent, which necessarily proves fatal, besides fearfully increasing the agony of the patient. The bowels must be left to act naturally, and not forced until the inflammation has subsided, and then with great caution—an enema being probably the safest agent. In addition to the complaints above mentioned, there are others, such as typhoid fever, strangulated hernia, piles, &c.; but these will be better described under their respective heads.

Bowls for domestic purposes are made of various materials, according to the different uses for which they are designed. In farm-houses and country places, milk is sometimes kept in wooden bowls. They are also used in the kitchen for washing, and are more highly esteemed than earthenware, because they withstand hot water better. For the same reason zinc bowls, and metal lined with enamel, are employed. Great care is necessary to keep these bowls clean. If not regularly and thoroughly washed with hot water and soda, they become unfit for use. Earthenware bowls, although less durable, are more cleanly than any others, and have been used for domestic purposes from time immemorial.

Bowls. — A game which is played upon a fine smooth grassy surface, either square, circular, or oblong, used solely for the purpose, and called a bowling-green. The party may consist of two or more persons. Each player has two bowls having numerical figures indicating to whom they belong. After tossing for right to begin, the winner of the toss sends off a smaller bowl, called the "jack," to what distance he pleases, it being by the toss his privilege to do so; this he follows with his first bowl, getting as near the jack as possible; he is then followed by the others in succession, till all the bowls are played. The two bowls nearest the jack, if those of one party, count two, but if not, the nearest counts one only towards the game; this is continued till one party has scored a certain number (usually twelve), when the match is won; or the game may be played by sides. Much disappointment happens when a ball lying very near the jack is removed to a distance by the strike of an adversary's bowl, which remains nearer the jack than the bowl it has driven away; this is called a "rub," and gave rise to the long-standing adage, "He that plays at bowls must expect rubs." The game of bowls was legalised by Statute 8 & 9 Vict., c. 109.

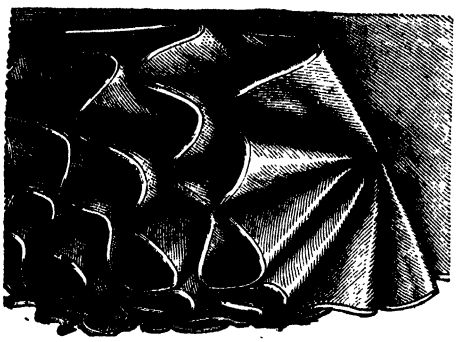
Bows (Work).—The making of these may be considered an art in itself, for so many fingers execute the work in a very clumsy way. A prettier and more elegant bow can be made by tying the ribbon or silk, than by cutting the several pieces and sewing them together in bow form. As a rule, they look prim and stiff when the latter method is adopted. Bows should be fastened to a small piece of stiff muslin; they will then keep better form. When the ribbon is a fabric that quickly roves, the ends should be fringed; if the texture is stiff, the ends should be cut on the bias: ragged, untidy, soiled ends spoil the appearance of the bow and its wearer. "Bought" was the original word used for these slip-knots.

Box Bedstead. — A bedstead which when folded packs away into its upper portion, which is made in the form of a box, and is large enough to hold the bedding. It is very convenient when it is desirable that an ordinary sitting-room should at night be converted into a bedroom, or to use when an unexpected visitor arrives to stay a night or two with you, and finds all the bed-chambers occupied. (*See* BUREAU AND BUREAU BEDSTEAD.)

Box-iron.—This is an iron which is preserved in a cleanly condition during use by the

fact that it has a recess for containing the heater, which is a piece of iron placed in the fire instead of the iron itself. To this extent it is preferable to what is called the flat-iron; but an iron of a different kind, in which lighted charcoal is the heating material, has of late been largely used, and is gradually taking the place of both the flat and the box-iron. (*See* IRONING.)

Box-plait.—This is formed by folding a double plait—*i.e.*, two plaits reverse ways. Double box-plaits are often made, more especially in thin materials such as tulle; these



BOX-PLAIT.

have a second and sometimes a third double plait of smaller size than the one it rests upon. The designation of box-plait is supposed to have arisen from that of box-irons, which were used to iron these kind of plaits.

Boxes.—These are usually constructed of wood, and vary in shape, finish, and fittings to serve a large variety of purposes. Metal boxes are, however, largely in use. The housemaid's box is a useful article, which is a great assistance where habits of neatness and system prevail. It is made to receive the various articles required in cleaning grates, so that they are always ready for immediate use, and are not likely to be left behind, mislaid, or lost, and moreover contains a receptacle for the more cleanly and expeditious removal of dust and ashes. The term box is also used in certain trades as expressive of a given weight or quantity of goods.

Boxing.—Fighting with the fists (which have been previously covered to soften the blows), intended as a manly exercise and to teach a man to defend himself if called upon in a just quarrel. As an athletic exercise, boxing was highly esteemed by the ancients, so much so that several of their gods, such as Pollux and Hercules, were reputed to have been masters of the art. With the Greeks and Romans, however, boxing was anything but a sport, the combatants having leather thongs on their hands, generally loaded with lead or iron, and often studded with iron knobs and spikes. This formidable covering of the hand was called the "cestus." It was a common thing at the great games in Greece, and in the amphitheatre in Rome, for one or other of the boxers to be killed in these pugilistic encounters; and the harmless boxing-gloves of our times, constructed of soft leather stuffed with horsehair or wool, would have been received with scorn in those olden days, when life was held in light esteem. It is, however, highly probable—nay, it is certain, if we are to put any trust in the illustrations handed down to us from those times—that the ancient boxing was very unscientific, consisting entirely of hard hitting, and that the skilled boxers of modern days would achieve an easy victory over the ponderous users of the cestus could they but compete together.

Boxwood.—Boxwood is largely used by engravers, and for their purpose it is required of a firm, even texture, and should be as nearly as possible of one uniform and not too dark colour, devoid of white specks and patches of a redder hue, which chip under the engraver's tool, and cannot be relied upon in the delicate work of the graver. The best boxwood for this purpose is English, rather than Turkish or American, as although it does not cut into such large pieces, it is harder and more uniform in grain. The box tree (the *Buxus sempervirens* of botanists) grows to a small size in this country. Boxwood is also largely used by turners for a variety of purposes in connection with tools, machinery, and decorative objects, for which the beauty, hardness, and general characteristics of this wood render it peculiarly suitable. Box is also used for inlaying furniture with decorative designs.

Boy Servants.—Until lately, householders were liable to pay a tax for every male servant, whether permanently resident, or only employed for a portion of his time. Hence the boy who was engaged to clean knives, boots, &c., early in the morning, before he went to school or some other occupation, was as much liable to be taxed as any male servant constantly in the house. Legislation has now removed this anomaly, considering among other things that such partial occupation was useful to the employed as well as to the employer; and the casual boy servant is no longer taxed. Apart from the convenience of such an arrangement to many families with limited incomes, habits of industry are promoted, and a boy is enabled to earn part of the expense of his support, and the cost of continuing his education. For further details we refer to the article on MALE SERVANTS.

Brabançon Lace.—At one period the people who lived in South Brabant were called Brabançons, hence the lace made at Brussels, the chief town of that province, was known as Brabançon lace. (*See* BRUSSELS LACE.)

Bracelet.—This form of ornament for the wrist is a very ancient one; the Latin word for it is *brachiala;* the Norman-French, *brasselet.* The scriptural mention of it is evidence that it was an Oriental adornment. Greek and Roman men wore bracelets; by the latter they were considered marks of valour, and the form was that of a serpent coiled round. They were worn on the left arm, and sometimes on both arms. They were not adopted by the women of France until the fifteenth century. Bracelets are made mostly of gold and silver, those metals being found to be the most

satisfactory for the purpose. The style of workmanship and form is continually varying. At one period it was the fashion to wear bracelets made of hair, but the friction soon ruffled the plait, however finely woven. Steel was tried, but the heat dimmed its brightness. Cameos, pebbles, malachite stones, &c., have been set in gold or silver, but they are easily displaced and lost from the setting. Jet and pebble beads are uncomfortable, and in some cases heavy. Enamel is apt to break. Gold and silver possess none of these disadvantages. When bracelets are worn with morning dress, they should be plain in character; those embellished with precious stones should be reserved for evening adornment. Indian silver bangles are now much worn: they consist of several thin rings of silver, either plain or twisted.

Braces.—These narrow bands are made of various textile fabrics and also of leather. Some persons prefer a material in which indian-rubber fibre is woven, while others prefer soft leather for the purpose. Whatever the texture chosen, braces should possess elastic pliant qualities, for if hard and stiff they retard the natural use of the shoulders, and are particularly injurious to young boys.

Brackets (Various).—Brackets are useful as pieces of decorative furniture, serving admirably to improve the appearance of the entrance hall, break up the straight parallel lines and formal angles which occur where walls meet, &c. Where they are used in sets, it is well to let them have some degree of relationship either of treatment or subject. If carved or cast, this may readily be done. Thus four brackets may represent the four seasons, either in figures, or in the fruit, flowers, or plants peculiar to each time of year.

Brad-awl. — So called from its use in making holes for the admission of brads—a kind of nail. We have already dealt with this tool under the head of Awls.

Brads.—These are small thin headless nails used in carpentry, for work of the slighter kind, or to serve some temporary purpose. They are cut from sheet-iron by machinery, their prices varying with their sizes, from about 3d. to 1s. the thousand.

Brag (Card Game).—A game at one time much in vogue but now seldom played. There are several different ways of playing it, the more general modes being known as Single Brag, Brag and Pairs, and Three-stake Brag. In all alike three cards are dealt out to each player, and the game mainly consists in each player "bragging" and backing his "brag" with a stake, that his cards are better than his neighbour's. On "bragging" a second time, the person doing so may insist on seeing or "sighting" the next player's cards, and the person having the worst hand is bound to lay it down. The players go on in this way until the braggers are reduced to two, who continue bragging against each other, till one "sights" the other, when the best hand wins the whole of the stakes.

Braiding.—This is very effective work, and is particularly useful for the ornamentation of children's dresses, as it is very strong, and is quickly accomplished. Braiders used to trace their patterns on tissue paper, which was then tacked on to the material; but the preferable plan is to have the pattern marked out on the material, and this work is undertaken at the fancy-work shops, and done for a few pence. The few rules to observe in braiding are these: firstly, follow exactly the outlines of the pattern by taking the braid carefully along the blue lines; secondly, stitch the braid on firmly, use strong cotton, and put the stitches near together; thirdly, let the needle go down and come up in the centre of the braid; and, lastly, see that the corners are turned neatly and firmly. In this last case some braiders turn the braid over, and some turn it sharply round. So long as a neat, sharp point is accomplished, it matters not what method is used.

Braids (Various).—These are made of silk, mohair, worsted, cotton, and of gold and silver thread, and may be considered to be the most useful trimming which has ever been made. Broad braid is soon fixed, and at once forms a trimming, or makes neat the edges which it hides or covers. Narrow braid may be converted into a thousand different forms, and always proves a strong and effective trimming. Silk braid is, with the exception of gold and silver, which are not often used, the most expensive kind. The appearance of mohair, when of the best quality, is so similar that it has in a great measure taken the place of silk, more especially in the wider widths. Worsted braids are almost exclusively used to protect the edges of skirts. Most of the coloured cotton braids will wash, with the exception of pink, which generally fades. As cotton braids shrink when washed, they should not be tightly stretched when run on the material. Braids used for lace work are of two kinds—that made by hand, and that machine-made. The edges of the latter contract and crinkle when washed; therefore, although much cheaper, it is not advisable to use it for lace that is to be much worn. Broad braids are sold cheaper by the dozen yards, and cost still less when a piece of thirty-six yards is taken. Narrow braids are sold by the knot.

Brain Fever, &c.—This name has been popularly applied to all fevers characterised by brain excitement or delirium. Properly speaking, it is synonymous with typhus fever only, and will thus be described. Brain fever, or typhus, called also putrid, jail, and spotted fever, is a highly-dangerous, infectious, and contagious disease. There is still some doubt whether it can spontaneously originate in over-crowded, ill-drained, and badly-ventilated habitations, or whether the germs, being always present in the air and elsewhere, seek only a congenial field for development. Certain it is that this disease has been the scourge of our armies in time of war, causing at least a fourth of the deaths, devastating the crowded thoroughfares of our populous cities, and not sparing even our hospitals and infirmaries. *Symptoms:* The symptoms of brain fever are,

in the first instance, continuous headache, great and increasing prostration, chilliness frequently amounting to shivering, discomfort, and fretfulness; the patient with difficulty gets up in the morning, after an unrefreshing sleep, declaring frequently that he has not slept at all, though his eyes have been closed; he is tremulous in his actions and speech; the tongue, at first white, soon becomes covered with a thick brown coating, and subsequently almost black and glazed. About the seventh or eighth day, sometimes sooner, a rash of a mulberry or measle-like character makes its appearance, and continues throughout the attack, which as a rule lasts from fourteen to twenty-one days. These irregular blotches in a day or two show a black speck in the centre, and this black speck, as the disease progresses, may alone be visible, constituting the true petechial rash. The patient, now unable to leave his bed, becomes more delirious, with intervals of consciousness which soon altogether disappear; the skin is either hot and dry or bathed in profuse perspiration (the latter a bad omen); the eye is glassy and injected, and has frequently a fixed look or stare which seldom falters; sordes collect about the lips and teeth; the secretions pass from the body unnoticed, or the urine may be retained, and require removal with catheter; the muttering becomes more and more indistinct, and in fatal cases death ensues, taking the average, about the fourteenth day. If the disease does not proceed to a fatal termination, recovery takes place generally about the fourteenth or fifteenth day, and the improvement is generally very sudden and most marked. The patient falls into a long sleep, sometimes lasting for twenty-four hours, and awakes bewildered, but perfectly conscious and rational; the eye has become clear, the skin has lost its dryness, and the tongue is now moist—in fine, he is a different being, and from this time his recovery is rapid, and his strength soon returns. *Treatment:* In the first stage, after the stomach and bowels have been thoroughly relieved with an emetic made of ipecacuanha, followed by an aperient of calomel and rhubarb or castor oil, then full doses of nitro-muriatic acid (twenty drops at least for an adult) should be given every four hours, largely diluted, with the patient's drink. Quinine may be combined with the acid if the prostration is great. It will be desirable to give opium combined with antimony if the delirium is fierce and the pulse strong. Brandy or ether must be substituted for the antimony if the pulse is feeble and the patient tremulous. Tea and coffee may be given freely, and beef tea containing a considerable quantity of salt. Wine or brandy will generally be required after the first seven days. The indications for giving stimulants are a dry black tongue, with sordes about the lips and teeth; a soft irregular or a rapid and weak pulse; a tendency to faintness when raised in bed; profuse perspiration without any other sign of improvement; starting of the muscles, involuntary stools, darkness of the spots, coldness, stupor, and complications, as bed sores, pneumonia, &c. As a rule, stimulants, if they tranquillise the patient, are doing good; if they excite, they should at once be discontinued. A large, well-ventilated apartment, a moderately cool atmosphere, and a good nourishing fluid diet under the direction of the medical attendant, are the essentials of treatment in this formidable disease.

Brains as Food.—It is the glory of the culinary art that it has transformed numberless substances which appear in themselves thoroughly uninviting into delicate and palatable dishes. The soft grey matter which is contained in the skulls of animals would scarcely appear to the uninitiated to be fit for human food, and certainly to have no connection with the golden-brown delicacy which tempts the appetite and delights the palate of the epicure. But the cook has been at work, and has clothed the pulpy mass with delectation as with a garment. The brains of a calf are more used than those of any other animal. They should always be soaked for some hours in water, picked clean, boiled for five or ten minutes, and put into cold water to cool before being used. They are generally served with savoury sauce or butter.

Braise (Cookery).—Braising is a process which combines the advantages of stewing and baking. It is performed in a braising-pan or braisière, which is a stewpan with a closely-fitting lid constructed to hold live embers, so that the meat can be cooked from above as well as from below. Braising is a very favourite mode of cookery with the French. It is said to owe its origin to the fact that a Parisian gastronomic society, whose object was to develop the art of cookery, offered a prize of a silver gridiron to the person who would invent a new method of dressing a turkey. The gridiron was won by a young Frenchman named La Gacque, whose method of braising was unanimously approved by the judges. Braised meat is declared by its admirers to possess a peculiar flavour superior to that imparted by any other process. It may be better than boiled meat, but it is not equal to roast meat. The secret of successful braising is to let the work be done slowly, and to be careful that the ingredients are well proportioned. The savoury viands which are put into the braising-pan to be stewed with the meat are usually termed "the braise."

Bran and its Uses.—Bran is the husk or skin of wheat which has been sifted from the flour. It is largely used by calico makers in clearing and brightening goods that are undergoing the process of dyeing. It is also employed in medicine, either in the form of bran tea, when it is taken internally, and acts as a demulcent useful in catarrhal affections, or as a poultice in inflammations, spasms, and rheumatism. A handful mixed with a gallon of warm water is used as an emollient foot-bath. Bran forms excellent manure, and is particularly adapted for potatoes: it is also used in feeding horses, cattle, and poultry.

Bran-bread, or brown bread, is made from wheat ground but unsifted, or from wheat mixed with bran in the proportion of about three ounces of bran to every pound of flour. This bread is considered by Baron Liebig and other chemists to be much more wholesome than white bread, not only because it contains a

greater amount of nutriment, but also because the gritty particles that are present in it produce a slight irritation in the alimentary canal, and so cause it to be slightly aperient in its effect.

Branch (Candelabra). (*See* CANDELABRA.)

Brandy.—A spirit distilled from wine, the fermented juice of the grape, and in some parts from the fermented juice of other fruits, as the cherry, apple, pear, and peach. In the latter case, however, some qualifying epithet is commonly applied to denote the source from which the brandy is obtained. The peculiar taste and aroma of brandy are due to a volatile oil derived from the husk of the grape. Rectification by repeated distillation clears the liquor of this fragrant substance, as also of its water, and converts it into alcohol. The average proportion of the latter in brandy varies from 48 to 54 per cent. The essential oil, when distilled from the husk alone, is so powerful, that a few drops of it are sufficient to taint a large cask of spirit. Besides these ingredients, brandy contains colouring matter, tannin, œnanthic ether, and a little acetic ether.

Brandies are commonly known as pale or dark. When first distilled the liquor has no colour, and the pale amber tint it acquires is derived from the wood of the cask in which it is kept. This becomes deeper by age, and to imitate it burnt sugar is often added to the newly-distilled brandy. The best brandies come from France, the most esteemed being those of Cognac and Armagnac, the preference being ordinarily given to the former.

Brandy is the form in which alcohol is administered medicinally either externally or internally. It is distinguished from other ardent spirits by its light cordial and stomachic properties, and especially when set fire to for a minute or so, forming what is known as burnt brandy, it is in high repute as a household remedy for diarrhœa.

Brandy, Cherry, is a species of cordial prepared by allowing a quantity of crushed cherries to lie for a time in brandy, sugar being added, and the clear portion decanted.

Brass.—Brass is a well-known alloy of copper and zinc, the proportions of these metals varying according to the required colour. It is a metal much used in building. It is a very suitable material for the construction of door-handles, window-shutter knobs, &c. Since the introduction of gas, brasen candlesticks have almost ceased to exist in towns, but the immense number of stopcocks and brass pendants and brackets required have given a considerable impetus to the brass manufacture.

Brass Bedsteads. (*See* BEDSTEADS.)

Brass, To Clean. — Brasses must be cleaned regularly if they are to be kept in good condition. A good many domestics have an idea that bath-brick is the best thing that can be used; but this is a mistake, as the metal when cleaned with it tarnishes quickly, besides which it gives a pale yellow colour to the brass, instead of imparting the true golden hue. The following is the best method that can be adopted:—Rub the brass lightly with a flannel which has been dipped in sweet oil, then rub it briskly with another piece which has been dipped in finely-powdered rotten-stone. Wipe it clean with a soft linen cloth, and polish it with a leather. Brasses thus cleaned will have a lasting polish of the true brassy hue. Pastes for cleaning brasses are sold by most chemists, and may be made. They are composed of rotten-stone made into a paste with either soft soap or sweet oil. They should be applied with a little woollen rag, and polished with wash-leather. If the paste is mixed with oil, it is best to moisten the rag with spirits of turpentine; if soft soap is used, water only will be required. A mixture for cleaning brass is made by putting a pennyworth of powdered rotten-stone into a quart bottle, filling it up with cold soft water, shaking it well, then adding a pennyworth of vitriol. This preparation will keep a long time, and improve with keeping. It also needs to be rubbed on with a rag, dried with a soft cloth, and polished with an old leather.

Brawn (Cookery) is a preparation made from the head and belly piece of a pig, to which ox-feet are sometimes added. It is really a galantine of pig's head. It is rolled, pickled, boiled, squeezed, and pressed, to make it ready for use. It seems to be a very old dish. In Tyndale's version of the Book of Common Prayer, which was revised by Cranmer, and which was published in the latter part of the fifteenth century, in the 70th verse of the 119th Psalm there are the words—"Their heart is as fat as *brawn*." In the authorised version of the Bible, the word *brawn* becomes *grease*. It would appear that in olden times brawn really meant *flesh*; for according to the oldest recipes a galantine is to be made with the "brawn or flesh of a fowl" as well as with that of a pig. Now, however, brawn is always made with the flesh of swine. Brawn is generally purchased ready made. The best accompaniment to brawn is brawn sauce, which is a mixture of mustard, sugar, oil, and vinegar, to which a little of the rind and juice of a sweet orange have been added.

Brawling signifies wrangling or creating a disturbance in a church, chapel, or churchyard. It is an offence formerly punishable in the ecclesiastical courts by excommunication and otherwise, but by the Statute 23 & 24 Vict. c. 32, their jurisdiction, so far as lay persons were concerned, was abolished, and the justices of the peace are authorised to deal with this offence as a misdemeanour.

Brazil Nuts are the seeds of the *Bertholletia excelsa*, a large and handsome tree which grows abundantly and forms vast forests on the banks of the Orinoco, and in the north of Brazil. It frequently attains the height of from 100 to 120 feet. Its leaves are two feet long and six inches across; its fruit is a large woody pericarp, more than double the size of a cocoa-nut, and so strong that it has to be broken with a sledge hammer. This contains the seeds which are the well-known Brazil nuts of commerce. They are of a triangular shape, and

have hard wrinkled shells, but the kernel is pure and white. When it can be obtained fresh it is exceedingly delicious, but it contains so much oil that it soon becomes rancid. This oil is good for burning. A very large quantity of these nuts is annually imported into this country from Para and French Guiana. They are chiefly used as food.

Brazil Wood. — This valuable wood, so extensively used for dyeing purposes, is furnished by several species of trees of the genus *Cæsalpinia*. It is exported partly from Brazil, where the trees which yield it grow in great abundance, and from other warm parts of South America and Asia. It is used to dye fabrics various shades of red. When freshly cut, Brazil wood is a yellow colour, but after being exposed for a time to the air and the light it turns red, and is generally ground to sawdust before it is offered for sale. The *brazéïn*, or colouring matter, is obtained by boiling the wood in spring water for some hours, and then preserving the decoction until it has undergone fermentation. A deeper or a lighter shade of crimson is obtained according to the strength of the dye, to which the addition of a little alum will impart a purple tinge. It is a curious fact that it is more probable that Brazil is named from the wood than that the wood is named from Brazil. It is spoken of under the name "Braxilis," in documents which were in existence long before America was discovered.

Breach of Covenant.—The failure to perform a covenant, which is a contract under seal to do or not to do a particular act. An action lies for damages, or in the case of leases the lessor has generally power to re-enter and render void the lease under the proviso for re-entry. (*See* COVENANT.)

Breach of Privilege.—A contempt of Parliament, whether the House of Lords or the House of Commons. Both Houses declare what are and what are not breaches of their privileges, when the question occurs, and both punish by commitment or otherwise, as the courts of justice do for contempt of court. Resistance to its officers has uniformly been treated as a breach of privilege; so has the presence of strangers at debates and their taking notes of proceedings, though now extensively permitted to newspaper reporters and others on sufferance.

Breach of Promise.—This term is usually applied to the failure to perform a contract or promise of marriage. An action lies at the suit of the injured party, whether man or woman, for recovery of damages, proportioned to the nature of the case and the delinquent's means. The parties themselves are now, under Statute 32 & 33 Vict. c. 68 (the Evidence Further Amendment Act, 1869), competent witnesses in support of their own case. Previously to this Statute they were not.

Breach of the Peace.—Offences against the public, which are either actual violations of the peace, or constructive violations by tending to make others break it. They are punishable summarily by proceedings before the magistrates.

Breach of Trust.—A misappropriation of funds, or other violation of duty, by a trustee, executor, or other person in a fiduciary position. A breach of trust is now a criminal offence under 20 & 21 Vict. c. 54, and punishable as a misdemeanour with fine and imprisonment.

Bread constitutes the chief article of food of all civilised nations. It is made of the flour of different cereal grains; and of all the cereals, wheat is the one most generally employed for the purpose, though barley, rye, Indian corn, maize, and rice are also much used. Bread has been used as food for man from the earliest times. It is probable that the most primitive form of making it was that of moistening the grain, and afterwards subjecting it to the action of heat. The next step was that of pounding, or "braying," the grain, thus forming flour before moistening it; and some etymologists have thought that the name "bread" is merely a corruption of the word "brayed." These simple preparations of bruised grain mixed with water and heated are called *unleavened bread*, because in making them no leaven has been added to the dough, or mixture of flour and water. Unleavened bread in the present day takes the form of *passover cake* amongst the Jews, *oat cakes* and *bannock* in Scotland, *damper* in Australia, and *corn bread* in America. Leavened or fermented bread is bread made light and spongy by the introduction of leaven, which is a mixture of flour and water kept until it has begun to ferment, or of yeast or barm, which is a substance produced by the fermentation of beer. It is believed that the Egyptians were the first to use leaven, and that from them the secret passed first to the Greeks, and then to the Romans and to other nations. The process of fermenting dough with leaven is, however, a tedious one, and besides is not very certain, and the loaves thus prepared are apt to acquire a sour taste. This has led to the employment of yeast. On the continent of Europe, leaven is still largely used, and in some parts leaven assisted by yeast is employed, but in Britain yeast is mostly used alone. Of late years large and increasing quantities of German yeast, or dried yeast, have been imported into England. From the flour of wheat alone can fermented bread be made, and it is so much preferred to unleavened bread that wherever wheat can be obtained the other cereals all give place to it, and this although it does not appear to contain more nourishment than any other. The process of making bread with yeast is as follows:— The baker, after collecting his materials, takes a quantity of tepid water, and mixes with it the yeast and the salt, and afterwards a portion of the flour, as much as will form a thin dough. This is put into the kneading-trough, and is placed in a tolerably warm situation, where it soon begins to ferment. This is named "setting the sponge." When the fermentation is sufficiently advanced, the remaining quantity of flour, water, and salt is added, and the whole is thoroughly kneaded till it forms a tough springy mass, which can be touched with the hand without sticking to it. The dough thus formed is again put in a warm place, and

allowed to swell still further, after which it is again kneaded, divided, and shaped into loaves. The unbaked loaves are placed in tins, and are permitted to lie for a short time, until they are swollen to nearly double their former size, and they are then put into the oven and baked. Whilst there they continue to rise for a short time, but at length become solid, and when sufficiently baked are taken out and allowed to cool. Bread, however, can be made light without either leaven or yeast, by the employment of bicarbonate of soda and hydrochloric acid. This process gives what is called *chemical* bread, and the disadvantage connected with it is that it is generally too salt. Another method which has been adopted is that known as Dr. Dauglish's process. (*See* Aerated Bread.)

Good wheaten bread, when properly made, ought to present a spongy mass, from which slices can be easily taken. If the slices cannot be cut off readily, if the bread cannot be crumbled down by the fingers, and if when soaked in water it turns again to dough, instead of leaving the moisture lightly diffused through it, the bread is not well made. It is also, too, frequently adulterated; but for information on this subject, *see* Adulterations of Food.

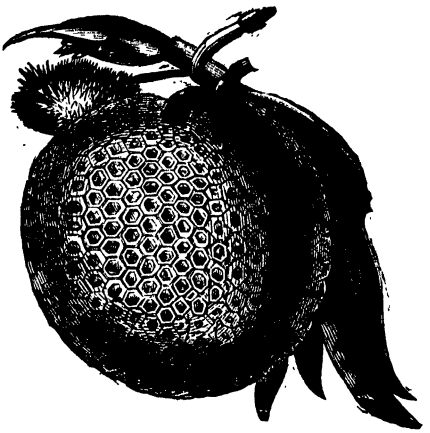
Bread is eaten in all sorts of ways—by itself and as an accompaniment to other food. In medicine, it is used to make poultices, and is highly valued for its power to allay pain and inflammation. Bread poultice is prepared from the crumb of bread which has been soaked in hot water and slightly pressed. If a little lard, oil, butter, or glycerine be put with it, its emollient action will be promoted, and it will not become hard and dry so quickly.

In times of scarcity all sorts of vegetable substances besides the cereals have been used to make bread. Amongst these may be mentioned acorns, beech-mast, bulbous roots, leguminous seeds, brewers' grains, and Icelandic and other mosses.

Bread, Assize of.—Ordinances regulating the price of bread, which are now, however, obsolete.

Bread-cloth.—A small ornamental cloth in common use when bread-trays were in vogue for placing bread upon when brought to table; hence they were often called "tray-cloths," of which they were a variety. They were frequently executed in fancy work, or had simply fancy borders.

Bread-fruit.—The tree from which this fruit is procured (*Artocarpus incisa*) is a native of the South Sea Islands. It is a rather slender tree, about the size of our largest apple-trees, and the fruit, which is nearly spherical, and which grows on the boughs like apples, hangs either singly or in clusters of two or three, and is as large as a penny loaf. It is at first green, when half ripe, brown, and when fully ripe of a rich yellow colour. It has a thick rough rind, and is gathered when green and hard. The ripe fruit has a harsh rotten taste. At the time that it is gathered the pulp is white and mealy, and somewhat resembles new bread. To prepare it for eating, it is either baked or roasted, and when ready the outside is brightly browned, and the inside is soft, tender, and white, like the crumb of new bread. To preserve it, it is sometimes subjected to a slight fermentation, and is then beaten to a paste, and this preparation is much valued when fresh bread-fruit cannot be procured. The baked

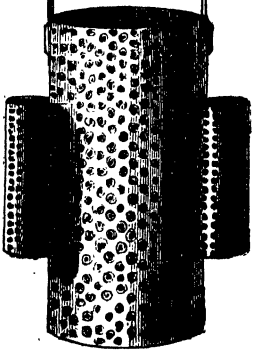


BREAD-FRUIT.

fruit will, however, keep for some weeks, although, when uncooked, it will not keep more than twenty-four hours.

This fruit is in season during about eight months in the year, and during that time the natives eat no other bread. Great pains have been taken to introduce this tree into South America and the West Indies, but these efforts have been attended with only partial success, owing to the preference which the natives have for the fruit of the banana tree. (*See* Banana.) Various preparations of it are, however, highly esteemed.

Bread-grater.—This is a small utensil used in cookery, and is employed to crumble



BREAD-GRATER.

bread for forcemeats, puddings, &c. It is made of tin, and in the form of a cylinder, and is perforated with holes all round. The bread which is prepared with it is much more smooth

and even than when it is only rubbed between the palms of the hands.

Bread Seals, To Make.—Take a small piece of new bread, and knead it well with the hands until it becomes tenacious and like a firm paste; colour it with a little water-colour, no more than enough to give the tint required. With a camel-hair pencil or a little wadding apply very slightly sweet oil to the object from which an impression is to be taken. Then apply the prepared bread, and press it well into the coin or seal which it is intended to copy. Shape the top of the seal and remove it at once, after which it must be allowed to dry gradually. It will set very hard, and impressions can be taken from it; but it is practically a thing of the past, as other substances are found to answer better.

Breakfast.—The first meal of the day is the breakfast, and there is no greater test both of the style of a house and the character of its inmates than the way in which this meal is served and discussed. When people indulge in a dissipated mode of life and keep irregular hours, when the mistress is devoid of taste and energy, and the servants are inefficient and lazy, it is probable that the breakfast will become a merely nominal repast, and consist perhaps of nothing more nourishing than a cup of tea and a "nibble" of dry toast; but when a different order prevails, when the servants are active and clever, when the mistress is dainty and capable, and the inmates are healthy and strong, breakfast is quite an important affair. The prettily-laid table with its snowy drapery and bright china and polished silver, combined with its array of delicacies, tempts the appetite, which scarcely requires tempting, to partake of the food which is necessary to maintain the vigour of the system.

The hour at which breakfast is taken must, of course, be regulated by the time of rising. Food ought to be taken about an hour, or at least an hour and a half, after the bed is left. By that time the inactivity of the system produced by sleep will have been overcome, and the physical and mental energies will require support. If eating be postponed too long, exhaustion will ensue, and a feeling of languor and weariness will be felt, which will very probably remain throughout the day. When from any cause breakfast cannot be taken at the right time, a crust of bread or a biscuit should be eaten, in order to prevent the injurious effects that would otherwise follow.

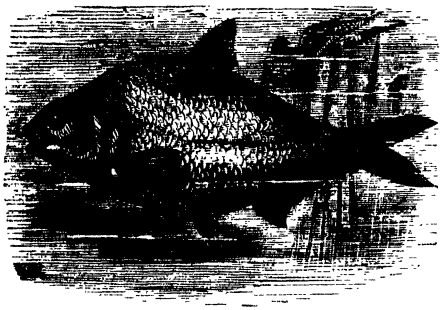
A breakfast-table should be as prettily laid as possible. When practicable, fresh flowers should adorn it. They should be present at all meals, but are especially suited for the morning table. As Leigh Hunt says, "They look like the happy wakening of the creation; they bring the perfumes of the breath of Nature into the room; they seem the representations and the embodiments of the very smiles of the home, the graces of its good-morrow, proofs that some intellectual beauty is in ourselves or those about us, and that some house Aurora is helping to strow our lives with sweets."

According to the ordinary arrangement of a breakfast, the cups and saucers should be placed at the head of the table—the coffee-cups on the right-hand side, and the tea-cups on the left. The urn stands in the centre, with the tea-pot and coffee-pot in front of it. Boiling milk should be put by the coffee-pot, and the cream-jug near the tea-pot. The slop-basin and the sugar-basin may stand one on each side of the urn. The beverages usually preferred are coffee, tea, and chocolate. Coffee to be good should be tolerably strong, bright, clear, and made from freshly-ground berries. The flavour will be brought out more completely if the berries are heated in the oven for a few minutes before they are ground. Coffee is best and most easily made when either a cafetière or a percolator is used in its preparation. Tea should not be too strong, as it is apt to affect the nerves. Green tea is particularly to be avoided. The food chosen must depend upon the health and habits and tastes of those who are to partake of it. It should be sufficient and nourishing, but at the same time easy of digestion. Those engaged in sedentary occupations ought to be particularly careful to make a *good* breakfast, but not a very *heavy* one. The dishes should be *pretty*, and inviting to the eye, as well as acceptable to the palate. They should be pleasantly varied from day to day. A uniform bill of fare for breakfast is particularly to be avoided. Eggs may either be put in their stands or placed in baskets of moss. Minced meat may be served in scallop shells. Hot rolls should be enclosed in a hot napkin. Hot plates should accompany the hot dishes. Butter should either be placed in the butter-cooler, or, wanting this, may be made to look pretty by being stamped into shape or rolled into small balls with Scotch hands and garnished with parsley. The loaf of bread should be put upon a wooden bread-board with the bread-knife by its side. Grilled or fried fish should be served upon a dish covered with an ornamental piece of white paper. Dry toast and hot toast should be sent in after breakfast has commenced, as they should be made the last thing. The rigid economist will make the buttered toast of the remnants of the loaves which have become too dry to be eaten in the ordinary way, remembering always to dip the slices for a moment into warm water, and to toast them gradually before buttering them.

The following is a list of dishes particularly suited for breakfast:—Eggs plainly boiled, eggs poached, egg toast, eggs à la bonne femme, eggs à la Française, omelets aux fines herbes, aux champignons, &c., whiting, trout, and other fresh fish, soles broiled or fried, bloaters, dried haddock, sprats, salmon cutlet, pickled salmon, sardines, kidneys broiled, kidneys on toast, kidneys à la maître d'hôtel, ham and bacon served in various ways with eggs and without, sausages, kidneys devilled, kidneys stewed, broiled steak, broiled chops, anchovy cutlets, broiled partridge, broiled pheasant, salmi of game, cold broiled pickled pork, bath chap, brawn, the legs of turkeys, pheasants, and chickens devilled, scalloped veal, scollops, marmalade, and fresh fruit. In addition to these dishes, joints of cold meat may be placed on the sideboard.

Breakfast Parlour.—In ordinary households the breakfast parlour is a nondescript sort of room, more used than any other for a variety of purposes, and to save the other rooms. It is generally situated near the kitchen, so that the maids may have little trouble in arranging it and the morning meal at an early hour. This is a question of convenience, and cannot be objected to. When practicable, however, the room in which breakfast is taken should be bright and pleasant, warm in winter, and airy in summer. It is best that it should face the east, so that it may have the early morning sun shining into it. It may be plainly furnished, and may boast few ornaments and fewer pictures, but it should always be well swept and dusted, and made quite tidy before the members of the family are allowed to enter it.

Bream.— The bream is an inhabitant of many of the lakes and rivers of the continent of Europe, generally as far north as Norway and Sweden. It thrives best in this country in large pieces of water, or in the deep and quietest parts of slow-running rivers. The flesh of the bream is generally considered insipid, although, on account of the sport it



BREAM

affords the angler, it is a good deal sought after. Spring and autumn furnish the best bream. The flesh can be dried something like that of cod-fish. The colour of the bream is yellowish white, except the gills and gill-covers, which have a silvery lustre without any tinge of yellow. Sometimes the bream attains a considerable size, reaching a weight of twelve or fourteen pounds.

Breath, Ailments of.—Shortness of breath (apnœa) is sometimes due to obesity or excessive fat, but is more frequently the result of such diseases as spasmodic asthma, chronic bronchitis, consumption, and heart disease. When due to corpulence only, it is an indication that more exercise, especially in the open air, is necessary, as well as the avoidance of such things as promote the development of fat; as, for example, beer, whisky, &c., also potatoes, pastry, too much cold water, especially ice water, &c. For shortness of breath due to disease, *see* Bronchitis, Consumption, &c.

Breath, To Sweeten.—Offensive breath is generally the result of either want of cleanliness and decay of the teeth, or bad digestion, sometimes accompanied by organic disease. If from the first cause, all stumps and decayed teeth should be removed, and the areca-nut paste or tooth powder used every morning. If the stomach is at fault, then aperients, such as compound aloetic pill at night, followed by the Hunyadi Janos water in the morning, may be given with advantage, whilst two drops of carbolic acid or creosote, or from five to twenty drops of sulphurous acid, in a wine-glassful of cold water, will be found very serviceable.

Breeches.—This well-known garment, which only reaches to a little below the knee, has been almost wholly superseded by trousers. Breeches are, however, still worn by huntors, and by some men-servants, as well as for certain official and court dresses. For hunting, buckskin is the most approved material, but in other cases the material is cloth, silk, velvet, &c.

Breeches-ball.—When leather breeches were much in vogue, it was customary to clean them with what is called breeches-ball. This was a composition for which the following is the recipe:—Mix one pound of bath-brick, two pounds of pipe-clay, four ounces of pumice-stone powder, and six ounces of ox-gall; colour it with yellow ochre as desired. Rub it over the leather with a little water, allow it to dry, and then remove the loose powder with a hard clothes-brush.

Breviary.—A daily office or book of divine service. In the Romish Church it is composed of matins, lauds, vespers, &c. The breviary of the Greeks is the same in almost all churches and monastories that follow the Greek rites. The Greeks divide the psalter into twenty parts. Their breviary consists of two parts, each divided into matins, lauds, vespers, &c.—*i.e.*, of seven different hours, on account of that saying of David, "Septies in die laudem dixi tibi."

Brewing.—In small houses, when the brewing is performed at home, the washhouse is most often used as the brewhouse; but where it can be afforded, the brewhouse should be a separate building. A practical brewer states that the complete mode of arranging a brewhouse is to have all the parts so disposed that the liquor shall not be carried from one place to another, but shall flow through pipes by descent in the various stages of the processes, so as to occasion as little trouble as possible. With this view, the water-cistern should be in the highest part of the building, and below should be the copper; then, in a descending order, the other vessels, until at last the beer runs into the casks in the cellar. A brewhouse should be erected in an airy situation, detached from the dwelling-house. There should be a plentiful supply of water—soft if it can be had. It is desirable to separate the place for boiling and mashing from that for cooling and fermenting, to prevent the heat of the boiling from affecting the cooling. A yard or an open shed is best for cooling.

Bribery.—The offence of offering reward or remuneration to any public officer of the Crown, or other person entrusted with a public duty, with a view to influence him in its discharge, or of taking such reward or remuneration; also the giving or taking reward for a public office. Bribery at elections for members

of Parliament vitiates the same; but since the Ballot Act, 1872, this branch of the offence has obviously been much curtailed in practice.

Brick Tea is tea which has been compressed during preparation, and which is sold in a moulded form, particularly convenient for transportation. It consists of coarse or broken tea, and sometimes of decayed tea-leaves, which have been made hard with ox-blood. It is manufactured by the Japanese, and is largely used by the Mantchu Tartars. It is sold by this peculiar name in Northern China.

Bridal Favours represent the true lovers' knot, and are intended to symbolise union. They are made of ribbon formed into knots, and are fastened upon the breasts of those in attendance at the wedding. Bridal favours used to be made of ribbon of various colours, but now white ribbon alone is used for the purpose.

Bride and Bridegroom.—These words denote a man and woman who have been newly married. The word "bride" is found in all the Gothic languages. By some it is thought that its radical signification is simply "appropriated" or "owned;" and in ancient times and among savage tribes the mode of getting a wife was the same as that of acquiring property—that is, either by capture, or sale, or gift. Then the marriage ceremony consisted simply in the delivery of the wife to the husband. Others are of opinion that the word "bride" is the past participle of the Anglo-Saxon verb *bredan*, to cherish, and that "groom" is derived from *gyman*, to guard; so that a bride is one who is cherished, and a bridegroom is the one who guards her. However this may be, the assumption of the titles has from the earliest times been accompanied all over the world with ceremonious rejoicings of one kind or another. Amongst the Jews it was customary for the bride and bridegroom to drink wine together, after which the cup was broken, in order to remind them of the transitory nature of all earthly joys. Amongst the Romans the bride was conducted to her home by her friends, who formed in procession. She carried with her a distaff and spindle, symbols of industry, and was received by her husband with fire and water, emblematical of purification. Amongst the Greeks the bride was taken to her home in a chariot, the axletree of which was broken as soon as the journey was accomplished, to signify that she was not to return. Afterwards, by the laws of Solon, the married couple were required to eat a quince together. Amongst savage tribes, bridal customs are sometimes very peculiar. When a marriage is arranged amongst the Kirghiz, the bride mounts a horse and her suitors pursue her, and the one who can capture her becomes her husband. She is armed with a whip, and with this she belabours those of her admirers who are unwelcome to her. When she is vanquished she seats herself in her tent and sings, whilst her friends amongst the women sit on the ground outside, and the marriage ceremony is not complete until the bridegroom forces an entrance into the tent and brings out his bride, who then presents him with feathers, red silk, and cloves, as proofs of her affection.

In our own day a marriage is generally considered a festive occasion. The wedding feast is provided by the family of the bride, and is partaken of by the married couple and their friends after the marriage ceremony. Modern etiquette provides that the bridegroom should meet his bride at church, that her father or some elderly friend should "give her away," and that she should return home with her husband. When the wedding breakfast is over, the bride usually changes her bridal dress for travelling costume, and the newly-married couple start on their journey to the place where they are to spend their honeymoon.

Bride-cake.—The word bride is the root of a number of terms connected with marriage, and amongst these is bride-cake. This is now understood to be an elaborate piece of confectionary which has a rich cake for its basis, covered with sugar icing, and ornamented in various ways. It is cut up at the wedding-breakfast, the bride herself being the first one to put the knife into it, and it is distributed amongst the friends of the newly-married pair. According to an old superstition, if a little piece of this cake is passed through a wedding-ring, the maiden who sleeps with it under her pillow will see her future husband in her dreams.

The bride-cake is really a relic of the confarreatio, a method of marriage practised by the patricians of Rome. It was performed before ten witnesses, and the man and wife partook together of a cake made of wheat or barley mixed with salt and water. The children born from marriages such as these were alone eligible for the highest sacred offices.

In olden times, both in England and Scotland, the bride-cake was broken over the head of the bride as she entered her new home, and this custom was derived from one still more ancient, in which wheat was sprinkled over a bride's head, as an expression of the hope that the lives of herself and her husband might be crowned with plenty. The modern bride-cake should be made three or four months before it is wanted, as it improves with keeping, and if used too soon falls into crumbs when cut into. The sugar icing should not be put over it until the last day or two. When a bride-cake is made at home, an ornamental stand and devices of various kinds may be hired of the confectioner at a trifling cost.

Bridesmaids are attendants upon the bride at her marriage, and it is supposed to be their duty to robe the bride in her gay attire. They have been present at weddings from very early times, and are really a relic of the ten witnesses employed at Roman marriages. (*See* BRIDE-CAKE.) Bridesmaids are mentioned in ancient documents, and appear to have been in use even among the Anglo-Saxons. The bridegroom used to be attended in the same way by bridegroom's men, but at the present day it is customary for him to be accompanied by one friend only, who is called in Scotland the "best man." According to modern etiquette, the bride chooses the dresses of the bridesmaids, and if she is young they should be young also.

Their duty is to wait for her in the church porch, and to cluster round her at the altar. The chief bridesmaid should take the glove off the bride's hand, and should hold it and her bouquet during the ceremony. A widow usually has no bridesmaids. (*See* BRIDE AND BRIDEGROOM.)

Brief.—A writing; a short extract or epitome; a letter patent granting license to a subject to make collection for any public or private loss by fire; to be read by ministers in churches, &c. Also an abridgment of a litigant's case, containing the pleadings, evidence, and affidavits, with a narrative of the matter prepared by his solicitor, and furnished to counsel as his instructions.

Brief (Apostolical).—Letters which the Pope despatches to princes and other notables relating to any public affair. These are distinguished from bulls, which latter are more ample and written on parchment sealed with lead or green wax, whereas briefs are very concise, written on paper sealed with red wax, and with the seal of the fisherman or St. Peter in a boat.

Brill.—This is a fish resembling the turbot in appearance, though it does not attain to the same size, seldom exceeding seven or eight pounds in weight. The colour is reddish brown, mottled with a darker tint of the same colour, and variegated with numerous round white spots of a pearly lustre. On account of these spots the brill is sometimes called the pearl. In Scotland it goes under the name of the bonnet fluke, and in Cornwall and Devonshire it is known as the kite and sometimes as the brett. The flesh is little inferior to that of the turbot; it is, indeed, sometimes fraudulently substituted for that fish.

Brilliant.—Diamonds are cut in various ways, and receive their names from the patterns produced. A double-cut brilliant comprises in the upper half thirty-two facets of different sizes and shapes, and it also has a flat top or table with eight sides. This is the most common form of the diamond at the present day. A single-cut brilliant has a square table, and sixteen facets between that and the edge or girdle. This form is, however, old-fashioned, and seldom seen. The brilliant cut is used for some other kinds of precious stones, both real and artificial.

Brilliolette, or Briolet.—A form of diamond resembling two rose diamonds joined at the base. It is very beautiful, and specially suitable for pendeloques, but it is only rarely met with. (*See* ROSE DIAMOND.)

Brillonette.—A diamond cut as a brilliant on the surface, but having neither culette nor girdle. This is a rare form, and a pair which match are very valuable.

Brimstone. (*See* SULPHUR.)

Brine.—Simple brine for salting meat, &c., is a strong solution of common salt in soft water. For some kinds of meat, saltpetre is added in the proportion of one ounce to one pound of salt. Sometimes bay-salt is used, and also sugar or treacle. (*See* PICKLE, PICKLING.) Red-cabbage brine is made by steeping red-cabbage leaves in simple brine, and is used as a test for acids and alkalies. Violet brine is made by steeping the petals of blue violets in brine; and it serves as a test for acids.

Brioche is a kind of light spongy cake somewhat resembling bath-buns It is made with flower, butter, sugar, and eggs, and fermented with yeast. It is served in various forms, either as one large cake, or moulded in the shape of twists or rings, and used as fancy bread, or as an addition to soup, or as a case for patty meats. When served on refreshment tables at public breakfasts, balls, &c., the paste frequently encloses dried cherries, candied fruits, and similar preparations which have been previously soaked in some fragrant liqueur. Brioche is excellent in any form, and is particularly good when served as fritters. These are known as beignets à la Dauphine—the Dauphiness being Marie Antoinette, by whom they were introduced into Paris from Vienna The origin of the name brioche is unknown.

Briolet. (*See* BRILLIOLETTE.)

Bristles are the strong, coarse hairs which grow upon the hog and the wild boar, and which are largely used in the manufacture of brushes, and also by shoemakers and saddlers. The trade is a large one both in America and England. After wool and silk, bristles form one of the most important articles of British import, and they are brought even from such a distant place as China. They come chiefly, however, from Russia, which has long been celebrated for the quantity and quality of its bristles. In the immense forests of the Muscovite territory, where for thousands of miles the land is covered with trees, such as the oak and the beech, the pine and the larch, where the ground is littered a foot deep with acorns and berries, there are incredible numbers of half-wild swine, which live too far from human habitation to be used as food. From these animals bristles are procured; but even these vary in quality. The best bristles are taken from hogs that grow in cold countries. The thinner the hog, the longer are his bristles. When he is sent to the south and fattened, his bristles become soft, and are then not so valuable. Hogs, however, that are fattened on tallow made from their own fat, yield very good bristles.

French bristles, whether procured from France or only prepared there, are very valuable. They are white, soft, and firm, and are used to make artists' and painters' brushes. They are sent over in bundles, which are carefully packed in casks. They are separated into different qualities and colours. Length, elasticity, firmness, and colour are the distinguishing qualities. The seven-inch bristles are the best. If longer than this, the bristles are not perfectly tough; if shorter, they are not sufficiently elastic. Children are sometimes employed to separate them into different colours. The white, technically termed lilies, go into one class, the grey into another, the black into another, the brown into another. Bristles are often stiffened by being soaked for a short time in alum and water. They are

dyed with any of the common dyes used for cotton and wool.

The importance of this trade may be gathered from the following statistics:—From 1840 to 1854 the average quantity of bristles imported into great Britain was 1,533,000 lbs. Since then the average quantity has been 2,500,000 lbs. The value of the bristles annually imported into the United Kingdom in 1874 and 1875 was declared to be £420,000. Of these about one-half came from Russia, and the rest from the United States, Holland, Germany, Belgium, France, and other countries.

Bristol Boards.—These are a superior kind of fine cardboard, suitable for pencil drawing and water-colour painting where a smooth hard surface is preferable to a rough or granulated one. They are made of the following sizes:—Foolscap (15 in. by 12 in.), demy (18 in. by 14 in.), medium (20½ in. by 15½ in.), royal (22½ in. by 17½ in.), and sometimes super-royal (25½ in. by 17½ in.), but for the larger sizes the London boards must be purchased. The prices vary with the sizes and thickness, the latter being known as two-sheet (the thinnest), three-sheet, four-sheet, and six-sheet (the thickest). For a royal two-sheet Bristol board, the price is usually 6d. The same size of six-sheet thickness will cost 1s. 6d. The thinnest and smallest board costs about 2½d. Bristol board is made by pasting sheets of drawing paper together, and submitting them to the action of a very powerful press. They are frequently used as mounting boards for drawings requiring a white glossy margin.

Bristol China.—The manufacture of this china, which is so precious in the eyes of collectors, commenced in or about 1772. The original works were discontinued a few years later, and it is to specimens of this period that special value attaches. Pottery was made at Bristol both before and after the china. The marks chiefly used were a capital B, or a simple cross.

Bristol Water.—The "Hot Wells" at Bristol have a considerable reputation. The spring has been known for centuries, though it was not till 1690 that it was enclosed by the corporation of the town. The temperature of the spring, which yields forty gallons a minute, is 76° Fahr. As at Bath and Buxton, the predominating constituents are the salts of lime. When drawn into a glass the water emits a few bubbles of carbonic acid gas, and for various conditions of deranged health it is found to be a potent restorative.

Britannia Metal.—Britannia metal is a superior kind of pewter used for tea-pots, spoons, &c. It is an alloy of tin, with a little copper, antimony, zinc, tin, and lead or bismuth. The proportions of these differ according to the judgment of the manufacturer, forming several varieties of metal. The best Britannia-metal tea and coffee-pots, &c., are plated with silver by the electro process. A variety of Britannia metal, known as Queen's metal, is also extensively used for the manufacture of vessels and spoons: this ranks in point of hardness between pewter and ordinary Britannia metal.

British Brandy.—British brandy was long distilled from spoiled wine and the dregs of wine, both foreign and British, mixed with beer-bottoms, spoiled raisins, and similar ingredients. Malt and molasses spirit were afterwards used, as at the present day, for the purpose, but it was at one time thought "an unpardonable and wicked misuse of these articles."

British Gum.—British gum is starch converted by the action of acids, diatase, or heat, into a soluble substance resembling gum. British gum is used by calico printers and others for the thickening of colours, instead of the more expensive gum arabic. It is known chemically as dextrine. It is the substance which is produced by baking in the crusts of loaf-bread, and which imparts to them their agreeable taste.

Brittany Butter. (*See* BUTTER—VARIOUS.)

Britzka, Britschka, or Britzschka.—This is a kind of small barouche, introduced into England from Germany. The head is always a movable calash, and there is a place in front for the driver, and a seat behind for servants. Though in wet weather, when the head and glass frame are up, and the knee-flap down, the body will hold but two persons, yet in fine weather two more can be accommodated by raising the knee-flap, which folds back.

Broach, To.—Strictly, a broach is a spit or iron pin, and is sometimes another name for a brooch (*which see*) which is furnished with a pin. The verb to broach has the general sense of to pierce, and hence comes to denote the insertion of a tap or spigot into a cask to draw off the liquor, the opening of a bottle of wine, &c. From these meanings comes such a phrase as "to broach a question," signifying to open, or make it public. "To broach an opinion" is, in like manner, to give publicity to it.

Brocade.—Formerly this name applied to cloth of gold or silver, a splendid fabric, which exhibited raised patterns of gold or silver, or the two combined. It was worn only by ladies of rank, and was much in fashion at the court of Charles II. Latterly the name has been bestowed on all materials which have raised flowers or foliage embroidered or embossed on their surface. Brocaded silks are handsome and rich in appearance; they are more fitted for the attire of matrons than young maidens. Brocaded materials are mostly in fashion when the style of dress is plain and does not necessitate much trimming, for the beauty of brocade is marred when frills, flounces, or any kind of trimming (except lace) is put upon it.

Brocage.— The profit acquired by promoting bargains; the price given for any unlawful office; the trade of dealing in old things; the transaction of business for others.

Broccoli.—A well-known variety of the *Brassica oleracea* produced by cultivation. It is said to have been brought to Europe from the Isle of Cyprus about the middle of the sixteenth century. It is probable that the name is of Italian origin. Broccoli differs from the cauliflower in having coloured instead of white

heads, and in having leaves of a deeper hue. The owners of small gardens generally prefer broccoli to cauliflower, because it is nearly as good to eat and much more easily grown. It is also more hardy, and can be obtained when cauliflowers are not to be had. Unlike the cauliflower, too, it is not cut off by the first touch of frost. There are many sub-varieties of broccoli, and these differ in size and in the colour of the heads and leaves. Some are sown in the spring, and are intended for use in the autumn; others are sown later, and form a spring crop. Broccoli requires a rich soil, well manured. Each kind should be put in a bed by itself, and should be sown thinly, and covered with not more than half an inch of mould. The beds should be well weeded, and nets should be spread over the young plants to keep off the birds. When they attain to the height of about three inches, they should be pricked out into a richly-manured nursery bed, with six inches between them. They should be well watered every evening, and when they have leaves about three inches wide should be finally planted out, about two feet apart every way, and should be watered and weeded constantly until ready for use. When broccoli plants are to be protected for winter use, they should be laid separately on a slope towards the north with the heads quite near the ground. Mould should then be thrown over the roots, and the plants kept well watered. If snow is expected, a hillock of mould should be raised round each plant, and when snow comes a little should be thrown over the plants to protect them from frost. Broccoli seed goes a long way, as it is best when sown very thinly. It need not be very new when it is sown. When carefully managed, broccoli may be provided for eight months out of the twelve.

Broderie.—This is the word the French use for embroidery, an art in which they excel. At Paris and Lyons there is much broderie executed with silk, wool, gold, and silver threads on various materials.

Brogues.—Shoes worn by the lower class of Irish. They have wooden soles tipped with iron, and leather tops.

Broiling, or grilling, as it is often called, is a simple and convenient mode of cookery, whilst at the same time it is the earliest and most primitive, for it is the one that suggests itself most readily to man. It is very highly esteemed, especially in England, and though it does not call for any particular skill on the part of the cook, it requires more care than almost any other method. The roast and the stew may be left for a time, but the grill needs constant attention.

Broiling is really another form of roasting. The meat or fish to be broiled is laid upon a gridiron over a bright fire. The meat (which in the winter time should be kept in the warm kitchen for an hour or two before being grilled) should be sprinkled nicely with pepper and trimmed neatly. If it is egged and breaded it should be sprinkled with clarified butter before being put over the fire, otherwise the crust which is formed round it will be too dry. The French are accustomed to brush the meat over with oil or butter, whether it is breaded or not, and their plan is to be preferred to our own. Their example is not to be followed entirely, however, for they are in the habit of turning the meat only once, by which means the gravy is kept on the upper side only, whereas it should be turned often, and then the gravy will go into the centre of the meat which will thus be evenly cooked throughout. The meat should be turned with the steak-tongs, and never with a fork, for if a fork or knife be stuck into the meat the juice will escape and the dish will be spoilt.

The gridiron should be scrupulously clean. It should always be rubbed when it is put away, and before being used it should be warmed over the fire for a minute or two and rubbed with clean paper. Afterwards it should be greased with a little mutton suet, and should be placed on the fire in a slanting position, so that the fat may run away as it melts and not fall into the fire under the meat, which would cause a smoky flame. A little experience will soon enable a cook to decide when the meat is done enough. The best plan of ascertaining this that the uninitiated can adopt is to press the meat with the side of a fork. If it feels spongy or flabby it is underdone; if it is hard it is too much done. The point is to hit the happy medium between the two extremes.

The fire for broiling should be clear, bright, and strong, for to this process the words of Macbeth are applicable, "When 'tis done, then 'twere well it were done quickly." A half-burnt-out fire is the best for the purpose. If it is not sufficiently clear, a little salt thrown over it will help to make it so.

When the meat is done enough, hold it high for a few seconds in mid-air, to let the fat drop from it. Place it upon a very hot dish on which a little salt has been sprinkled, and serve it immediately. In appearance it ought to be dark brown, almost black, on the outside, and red inside, which shows that the albumen on the surface has been sealed or hardened at the beginning of the process, and so the nutriment, the flavour, and the juice of the meat have been carefully preserved inside.

Besides chops and steaks, there are many small dainties in the way of fish and meat that are better when broiled than cooked in any other way. Sometimes these are wrapped in oiled paper, and then they are said to be dressed *en papillote*. This method is, however, not a very usual one in English kitchens.

Broken Bones.—Next to wounds, broken bones are about the most common accidents met with, and often result from very slight causes, remarkably so in a disease called *mollities ossium*. They are too numerous and too complex to describe fully in a work of this kind, and it will therefore be possible to give only a very slight sketch of those which most frequently occur. Broken bones or fractures are said to be simple when one or more are broken; compound when the flesh is wounded down to the injury, or the bone protrudes; and comminuted when it has been broken into fragments. The last two conditions are, of course, more dangerous and more protracted as to their treatment than the first.

Examination: When a fracture is suspected after an accident, great care is necessary, when endeavouring to discover the seat of injury, to avoid dragging or pulling the part about. The sufferer will generally say that he has felt something snap, and can probably point to some definite spot where he feels pain. The patient must now be laid on his back, if the injury is to the lower extremity; if to the upper, a chair or seat will do. The surrounding clothing must then not be pulled, but cut away with penknife or scissors, and the boots especially, if the ankle or foot is injured. The clothing having been carefully removed, it will generally be possible to discover the fracture by the surrounding swelling and deformity, as well as by a grating sound which is usually felt when the limb is moved; this is called crepitation, and is the result of the broken ends of bone rubbing against each other. Being satisfied that there is a fracture, it will be necessary, in the absence of a surgeon, either to set the bone, or so to protect it that it will receive no injury until it has been attended to. Setting a bone is frequently a misnomer, as it often happens that there is no displacement. When distortion and displacement are present, then the bone must be set, and to do this two objects must be kept in view—viz., first, to bring the broken parts together, and, second, to keep them so. To bring the broken parts together it will be necessary, whilst an assistant holds and fixes the upper part, gently and firmly to draw down the lower part into position; the corresponding limb, which should be uncovered for the purpose, being the guide as to shape and length. A bandage may then be applied, not tightly (some surgeons disapprove of the bandage altogether), the whole length of the limb, and one, two, or three well-padded splints, according to the seat of injury, applied and kept in position with a bandage. Extemporary splints may be made of thin wood, bark, leather, pasteboard, gutta-percha, or of wheat straw or reeds tied in bundles; and folded handkerchiefs may be substituted for bandages. If the upper arm is broken, it must be supported by a sling carried under the wrist, and not under the elbow, and have perfect rest. If the thigh or leg has been fractured, then the patient must be removed in the recumbent position, and put to bed on a smooth hair mattress, with not too high a pillow. To protect the injured part until the arrival of a surgeon, in the case of a leg or foot, the patient lying on his back, a pillow may be stretched underneath, and made to envelop the part by means of two or three folded handkerchiefs tied tightly some inches apart. If the skin is broken, it should be washed, and a pad of wet lint or linen applied before using the pillow. The best protection in fracture of the thigh is to lay the limb on a pillow semi-bent, and upon its outside, avoiding all contact until skilled attendance arrives. In fractures of the arm below the shoulder, a small pillow or soft shawl folded may be placed between the arm and the body, and the limb kept close to this by means of a handkerchief or bandage passed round and tied underneath the arm of the opposite side. Both in this fracture and in that of the lower arm the latter should be always supported in a sling. Special fractures:—*Broken nose:* The injured nostril must be plugged with lint steeped in olive oil, and the external wound, if any, dressed with cold water dressings. *Fracture of the base of the skull* is often recognised by a flow of blood or clear fluid from the ear. It is a dangerous accident, and the patient must be kept very quiet. Ordinary fractures of the skull are generally accompanied by concussion or compression of the brain. In concussion the sufferer is unconscious, but can be aroused, when he answers hastily, and immediately relapses into insensibility. Vomiting frequently occurs, and after a time he moves uneasily, and soon recovers consciousness, remaining giddy and confused, however, for some time afterwards. In compression there is complete insensibility, heavy breathing with snoring, slow pulse, and tendency to collapse. This condition results from pressure upon the brain, and is very serious. In *broken collar-bone*, the arm is moved only with great pain, the shoulder falls to the affected side, and the inner fragment can be plainly felt underneath the skin. A pad of cotton, wool, or wadding, or a large silk handkerchief folded wedge-shaped, should be placed, the base of the wedge uppermost, in the armpit, and fixed there with a bandage, which should pass over the opposite shoulder, underneath the armpit, over the injured shoulder, and across the pad again, the process being repeated in the form of a figure of 8. The arm on the injured side should be drawn backwards, and kept fastened to the body by a firm bandage, whilst the lower arm is supported from the elbow by a sling. *Fractures of the upper arm* are best treated with a long external splint, well padded, and extending from the shoulder to the elbow, supplemented by one or two short splints, also well padded, to the other surfaces of the arm, and all kept firmly together by bandages. The forearm should be supported on a sling on which the wrist and hand only should rest. *Fracture of forearm* should be treated by the application of two splints, one in front, the other behind. That in front should extend from the bend of the elbow to the tips of the fingers, and both should be well padded, and in such a way that the padding should be thickest in the centre. *Fracture at the wrist* (Colles's fracture) is a common accident attended with much pain and considerable deformity. The treatment consists in applying a pistol-shaped splint, well padded, along the front of the forearm and palm. This accident is very tedious in curing, and very often leaves a permanent deformity and disablement, especially in old people. *Fractures of the fingers and toes* are best treated with a gutta-percha or wooden splint, well padded, and extending up the palm or sole; this must be retained by a narrow bandage. *Fractures of the ribs:* These are known generally by severe pain, difficulty of breathing, and cough. The lungs may be injured, and inflammation may ensue. The ribs generally broken are the fourth, fifth, sixth, and seventh. They are best kept in position by strips of plaster, which should be attached to the spine and pass over the injury as far as the breast-bone. A flannel

bandage should be firmly rolled over this, and the patient should lie on his back. *Fracture of the thigh* generally occurs near the hip, and most frequently in old people slipping and falling. The symptoms are shortening of the limb and turning out of the foot. The treatment consists in keeping the limb in what is called the double inclined plane, or attaching it to a long wooden splint, called Liston's splint, four inches wide, extending from the armpit to beyond the sole of the foot. This must be padded and bandaged at certain points in such a way that the whole limb can be extended. *Fracture of the knee-cap* takes place with an audible snap, and the patient usually falls to the ground. The leg cannot be straightened without great pain, and there is also much swelling. The limb must be kept stretched and steady with sand-bags, and the inflammation treated with cooling lotions and ice-bags. *Fractures of the leg* are known by certain distortion and displacement of the foot, and are best treated with the plaster of Paris or starch bandage. (*See* BANDAGES.) When both bones are broken, an iron splint made for the purpose is most useful.

Broker.—An agent who makes bargains and contracts between other persons in matters of trade, commerce, &c., for a compensation known as brokerage. Where employed to buy or sell goods, he is not entrusted with their possession, and is not authorised to buy or sell in his own name; he is for some purposes treated as the agent of both parties. He differs from an auctioneer in that he may buy as well as sell, whereas an auctioneer only sells; a broker sells privately, whereas an auctioneer sells publicly. Brokers in London must be admitted by the Lord Mayor and aldermen, paying admission fees, and they also become bound to observe certain regulations. If unqualified, they cannot recover compensation.

Bronchitis.—This is an inflammation of the mucous membrane of the air passages of the lungs, and may be acute or chronic. The symptoms of acute bronchitis are in the first instance very much like those of a common cold. There is some feverishness, accompanied by a sense of chill, headache, thirst, cough (generally dry), hoarseness, a feeling of soreness on the front of the chest, discomfort in taking breath, and a general feeling of *malaise*. As the disease progresses, the cough becomes loose, and a thin frothy mucus, sometimes streaked with blood, and which subsequently becomes tenacious, stringy, and semi-purulent, is expectorated. On applying the ear to the chest, certain wheezing sounds are heard, which are called rales, and which are caused by the air passing over the viscid mucus. Sometimes, under peculiar circumstances of exposure or neglect, or in persons of weak health or dissipated habits, this mucus cannot be expectorated sufficiently to allow of respiration going on; the air-tubes consequently become blocked, the proper circulation of the blood in the lung is impeded, the lips become blue, the face livid, with an anxious expression; there is sometimes delirium, and death ensues. *Treatment:* When the first symptoms are felt coming on, the primary object is at once to get into a good perspiration. To effect this the warm bath (or Turkish bath when it can be had without risk of cold afterwards) will be of great service. The patient should have it in a warm room, and should be well dried before the fire afterwards. If the hip bath is used, he should, if possible, sit tailor-like in it, and be enveloped in a large blanket fastened under the chin, and so arranged as to exclude all air. The bath should last twenty minutes, unless there is a feeling of faintness, and after it the patient should be dried and put to bed. A warm drink of mulled wine, or whisky toddy, or flip, should then be administered, with ten grains of Dover's powder in a little gruel, and this should be followed in the morning by a full aperient either of castor oil, black draught, or Hunyadi Janos water. He must keep his bed, or at least his room, for two or three days, until the acute symptoms have subsided. The bedroom should be maintained at about a temperature of 65°, and be kept moist by means of a kettle of boiling water on the fire with a long funnel stretching out into the room. If there is much cough with little expectoration, from five to ten drops of ipecacuanha wine on a lump of sugar, or in cold water, every few hours, will relieve, and may be combined, if feverish, with twenty drops of spirits of nitre. When the expectoration is considerable, accompanied with wheezing, twenty drops of sal volatile (or from five to ten grains of carbonate of ammonia), twenty drops of syrup of squills, and, when advisable, the same quantity of paregoric (compound tincture of camphor) in cold water, to which honey or sugar may be added, will make an excellent cough mixture. Poultices must be applied to the chest, the steam of hot water inhaled by means of a well-constructed inhaler, and in severe cases, where there is danger of suffocation, the abstraction of blood, either by cupping or leeches, will be requisite. Acute bronchitis is very common in children, and is readily recognised by the wheezing which can be heard distinctly. It is frequently advisable in their case to administer occasionally an emetic of ipecacuanha wine (from half a tea-spoonful to a tea-spoonful), to enable them to throw off the phlegm, as well as an occasional aperient of calomel, James's powder, or castor oil. Poultices, or spongiopyline wrung out of hot water, or cotton wool covered with oil-silk, will be found useful applications to the chest and back, and, in severe cases, one or more leeches, according to age, over the breast-bone will be most beneficial. Two or three drops of ipecacuanha wine, with a similar quantity of spirits of nitre and syrup of squills in a little syrup or honey, will greatly relieve the cough; but it must never be forgotten that, for both adults and children, there is nothing so good as the bed, or the warm air of the room, in this disease. Care must therefore be taken not to go out in the cold too soon, and always to wear a complete suit of flannel next the skin. Chronic bronchitis is sometimes a sequel of the acute, but is more frequently the result of declining years and constant exposure. It is often the companion of gout. The symptoms are severe cough, shortness of breath, wheezing, and profuse expectoration of a muco-purulent character, and

sometimes palpitation. The complaint is always aggravated by cold and wintry weather, east wind, fog, &c.; the breathing under these conditions becomes very laboured, and the patient, unable to lie down in bed, has to be propped up in a sitting condition with pillows. Repeated attacks have the effect of causing a more or less congested state of the bronchial mucous membrane, inducing great susceptibility to fresh colds, and the violent efforts to breathe result in dilatation and rupture of the air-cells of the lungs, constituting the condition which is called emphysema. *Treatment:* This must consist in relieving cough and shortness of breath, sustaining the strength, and keeping the body warm and free from exposure. To relieve the cough and breath, ammonia and squills, as just recommended for acute bronchitis, will be useful, but should be taken with an ounce of fresh decoction of senega instead of water. The bowels also should be kept fully relieved, as any disorder of the stomach affects the breathing. Turpentine stupes and inhalations will be found useful. Good nourishing food, warm underclothing, avoidance of getting wet, especially in the feet, keeping to the house if possible when the weather is cold and foggy, and migrating to a warmer climate, as the south of France, when the patient is in a position to do so—these are the chief points to be remembered in the treatment of chronic bronchitis.

Bronze.—A metallic alloy composed of copper, zinc, lead, and tin, the relative proportions of which, as well as the component parts, are dependent on the purpose for which the metal is designed. It is remarkable for its durability and the exactness of the impressions which it is capable of taking in moulding. From the experiments that have been made it has been ascertained that the bronze of which the ancients made their weapons and other articles consisted of eighty-eight parts of copper to twelve of tin; and the same admixture of metals has been employed in countries respectively very remote from each other. Modern bronze is employed for various purposes—viz., statuary, medals, ornaments, utensils and vessels for household use, lamps, cutting instruments, mortars, cannon, &c.

The most extensive manufactory for the casting of statuary is at Munich, where the gates of the capitol of Washington, U.S., were made.

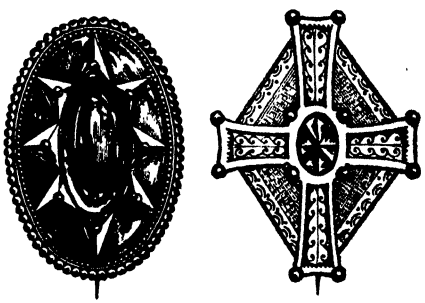
Bronze, To Clean.—To clean and remove stains from bronze, the article should be made very hot by immersing it in boiling water. It should then be cleaned with a piece of flannel dipped in yellow-soapsuds, and rubbed dry with a soft linen cloth or chamois leather. Should the article be an urn or other such vessel, it should be filled with boiling water before the exterior is cleaned.

Bronzing, Casts, Images, &c.—The process of bronzing must be classified under various heads. It is executed with oil-colour, with powders, and with certain liquids produced with mineral and vegetable substances.

Of *bronze powder* there are different kinds, kept ready prepared by colourmen. The *aurum musivum*, or mosaic gold, is a preparation of quicksilver, tin, and sulphur, which is employed for inferior articles. The copper-coloured bronze, procured by dissolving copper in aquafortis, and introducing some small pieces of iron into the solution. The copper being precipitated in the metallic state, the fluid is poured off, and after being carefully washed, dried, and levigated, it is ready for use. Bronze powder is also made from Dutch gold, which can be purchased in books at a trifling cost. A coat of clear varnish should be laid over all these inferior bronzings. A fourth species of bronze powder is composed of verdigris, eight ounces; flowers of zinc, four ounces; borax and nitre, of each two ounces; corrosive sublimate, two drachms. These ingredients should be made into a paste with oil, and melted together, and the compound is employed for japanning tea-trays in a common style.

To bronze plaster figures and other casts, make a solution in water of palm-oil soap; in this mix a solution of sulphate of iron and sulphate of copper, and the result will be a precipitate of a brownish-green colour, which can be changed in colour by the addition of a greater or less amount of either of these salts. After being washed and dried, the precipitate must be re-dissolved in a mixture of wax and good linseed-oil varnish. The objects to be bronzed should then be heated, and painted with this solution.

Brooch.—An article of jewellery, of great antiquity, used by both sexes in their dress, having in all likelihood had its origin in the breast-plate ordained by Divine command for the use of the High Priest of the Jewish nation. Among the Greeks they were called *fibulæ*, and they fastened the flowing mantles of both men



ANCIENT AND MODERN BROOCHES.

and women: from them, and also from the Etruscans and Egyptians, we obtain the most perfect shapes and designs at present worn. The *fibulæ* were usually round brooches; and from the Egyptian jewellery, especially their winged *scarabeei*, we obtain many examples of the radiating style, which is now acknowledged by artists to be the most becoming and successful one for this ornament, the quiet regularity of the circular disc or fan shape contrasting well with the form of the face, and withdrawing no attention from that central object. No

article of jewellery should be worn to display the talents of the designer, or the value of the precious stones in it. If it be not becoming to the wearer, and add nothing to her attractions, it fails in the object for which it was intended—the adornment of the "human form divine."

Brooms.—Brooms are manufactured in a great variety of form and material, according to the manner in which they are intended to be used. A tough whitish-yellow grass, long hogs' bristles, feathers, birch twigs, and the inside of rattan canes, as well as a kind of pine which comes from the Brazils, are the materials used. From the first named, usually called "whisk," carpet brooms are made; and chamber brooms from long hogs' bristles, as well as hearth, hand, and banister brooms. Light feather brooms are used for the careful dusting of pictures, mirrors, walls, and bookshelves. Birch twigs and pine form the kind for out-of-door use, in stables, yards, offices, areas, and the garden and lawn. (*See* Brushes.)

Broth is the liquor in which meat and vegetables have been boiled. It is generally understood to be neither so strong nor so highly seasoned as soup. It contains a good deal of the nutriment of the meat, and affords a wholesome article of diet to the invalid, and to those who have weak digestive powers. It is not, however, so nourishing as is generally supposed, for though it contains much that is necessary for the support of the system, the fibrin, the nervous matter, and the gelatinous tissue, which are such important nutritive materials, are retained in the meat, and are not in the liquor. The form of broth known as beef tea is particularly valuable to the convalescent.

Brown Coal, or Lignite, is wood coal, or coal imperfectly mineralised, and retaining its woody structure more decidedly than true coal. The lignites are generally of a brown colour, and contain but a small proportion of carbon, on which account they burn with little flame and much smoke. The Surturbrand of Iceland, the Bovey coal found at Bovey, in Devonshire, and the brown coal of Germany, are all regarded as varieties of lignite. The last of these is largely used as a source of paraffin and burning oil.

Brown Paint.—In the colours used by artists—in both oil and water-colours—and by house-painters and decorators, the pigments respectively in use are as follow:—

Artists' Oil-colours.—Vandyke brown, rich and warm, used for depth of shadow; umber, much used, apt to darken; burnt sienna, a beautiful transparent amber brown; Capel and Cologne earths; asphaltum; brown of Prussian blue—all favourites. The latter dries quickly; the three preceding it require either drying oil or varnish.

Artists' Water-colours.—Umber; burnt sienna; Vandyke brown; sepia, a liquid secreted by the common cuttle-fish; bistre, or soot-brown; brown-pink.

House-painters' Oil-paint. — Burnt umber, mixed with linseed oil, turpentine, and white-lead; raw umber, for common use; Spanish brown, a brighter and rather redder colour. By the admixture of red and black, brown may always be produced.

A process has been published by Mons. Bouvier, by means of which Prussian blue may be converted into brown or black, by intense heat. This new brown has all the transparency of asphaltum, but with this advantage, that it dries quickly, and is permanent. (*See* Burnt Sienna, Burnt Umber, &c.)

Brown Soap was originally the white variety of Windsor soap, that had become hardened and dark with age. It is now produced by colouring with burnt sugar, or occasionally with umber. (*See* Windsor Soap.)

Brown, To Dye.—This is a compound colour, although it may be given by a single process, by means of several dye-stuffs, such as walnut-peels, the root of the walnut-tree, sumach, and birch-bark. These substances contain tannin, which is both a mordant and colouring matter, and produce a permanent colour by merely boiling the cloth with them. Every shade can be produced by mixtures of reds and yellows with blues and blacks. The following is a list of what are called substantive or direct browns, viz.:—Decoction of oak-bark; infusion of walnut-peels; horse-chestnut-peels; catechu, or *terra japonica;* sulphate or chloride of manganese; prussiate of copper.

For dyeing linen and cotton, a mixed mordant of acetate of iron, followed by a bath of madder, or madder and fustic, is the course pursued.

For silks, one of the mordants is followed by a bath made of equal parts of the decoctions of logwood, fustic, and Brazil wood, mixed. A decoction of walnut-peels, brightened by a mordant of alum, is another recipe adopted in the dyeing brown of silks. Brazil wood reddens, logwood darkens, and fustic yellows the tint; thus it is easy to vary the shades required by altering the proportions of the above ingredients. For dyeing wool, the cloth should be boiled in a mixed mordant of alum, common salt, and water, and then dyed in a bath of logwood, to which a little green copperas has been added. (*See* Mordants.)

Browning (Cookery) is a fluid preparation used to impart a rich brown appearance to gravies, soups, sauces, &c. Various flavouring ingredients, such as lemon-rind, mace, black pepper, &c., are sometimes added, but are better omitted, as they may not always be appropriate. Browning made from sugar is the best, as it is less likely than any other to produce an unexpected flavouring. It should be kept in a stoppered bottle to preserve it free from dust, flies, &c. For the best way of making browning, see "Cassell's Dictionary of Cookery," article "Colouring."

Bruises.—These are injuries caused by external violence, and vary from slight discoloration to prominent swelling and lividity. The discoloration is at first of a blue, red, and yellow colour, which gradually fades into yellow and green, and is due to laceration of the blood-vessels, with effusion of blood and fluid, the latter causing the swelling. In slight

bruises, a folded piece of lint, wet in a little cooling lotion, as Goulard water, to which a little spirit may be added, is all that is necessary. Arnica is a popular remedy in these cases, but experience seems to prove that its vaunted efficacy depends only upon the spirit it contains. In severe bruises the same lotion as above may be used, taking care to re-wet the lint frequently when it becomes dry. The ice-bag, or ice broken and put into a common sponge-bag, or, if this cannot be had, a lump of ice laid on the bruise, will be most cooling, and will greatly relieve the pain. Bruises must never be punctured, unless, as sometimes happens, when the health is bad, the effused blood, not being re-absorbed, excites inflammation, and becomes an abscess. This must be relieved with the knife, if it does not break spontaneously. A black eye is a typical bruise, and is best treated by a pad of lint or cotton, wet with Goulard water, and kept constantly applied to the eye by a handkerchief tied round the head. The application of ice, as just described, or using the coldest spring water when neither the ice nor lotion is available, will greatly hasten the cure. The main point is to keep up the application of cold, and at night a piece of oil-silk laid over the pad will keep it damp until morning. The discoloration of a bruise is, as a rule, directly over the seat of injury; but it is well to bear in mind that this is not always so, and that it occasionally happens that it is some distance from the injured part. Bruises of the scalp, especially in children, are prone to take the form of a large circular swelling made up of clotted blood. This will gradually be re-absorbed.

Brunette (Complexion).—This French term, very commonly used in English parlance, signifies a brown or dark complexion; it is the direct contrast to blonde. Brunette and blonde are terms which refer only to women.

Brunswick Black is used to polish and blacken grates and other ironwork. It is composed of asphaltum (made from gas-tar), oil of turpentine, and boiled oil, in the proportions of one pound of asphalt to half a pint of hot boiled oil, well mixed when cool, to which is added one quart of oil of turpentine. This mixture is more a varnish than anything else, and the smell is very unpleasant, becoming worse when the fire is lighted in the grates or stoves where it has been used.

Brunswick Green is a green pigment—properly, a crude chloride of copper—but a mixture under the name is usually sold in the shops of carbonate of copper and chalk. It is very bright in colour, but has a tendency to darken by time, particularly when exposed to impure and damp air. It is poisonous, and though suitable for house-painting, will be found too vivid for use in painting pictures.

Brunswick Sausages.—A variety of the German sausage, made of meat finely minced, highly spiced, dried, and adapted to keep a long time. They are a useful relish, are smaller than many of the German sausages, and are, we believe, always imported. (*See* GERMAN SAUSAGES.)

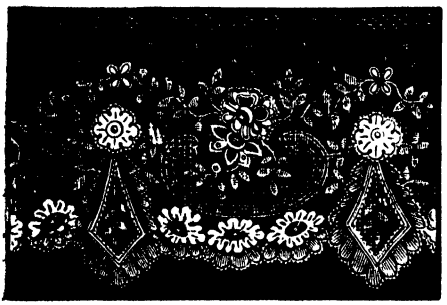
Brushes (Toilette, Household, and Painters').—All brushes should be good and well made of their kind, or else they will be soon useless. The price of toilette brushes is increased or lessened by the description of the stocks or boards in which the bristles are fixed, as well as by the quality of the bristles themselves. These boards are made of beech, oak, chestnut, birch, rose, and satin wood, of ivory, and also of a vegetable composition which closely resembles ivory in appearance, but is not equally serviceable in wear. The backs of tooth, nail, and shaving brushes are usually of bone or ivory. The bristles used for this class of brushes come mostly from France: they are called lily bristles, from their silver appearance, and are fastened into the stocks by fine brass or silver wires, or in the case of the best nail and tooth brushes, the bristles are kept in by small plugs of bone or ivory. The hardest brushes are those which have their bristles cut unevenly, or whose bristles are very short. Hat brushes are made of the hair of goats and horses. Household brushes and brooms are made of hogs' bristles, of strips of whalebone, of cocoa-nut fibre, birch twigs, fibre of heath, of broomcorn, and other vegetable filaments. The hogs' bristles are brought in large quantities from Russia, the broom from America, where broomcorn is extensively cultivated for this purpose. The makers of this class of brush drill holes in the stock, put in the tufts of bristles, and fasten them there with pitch. The hardness and stiffness are obtained by doubling the bristles and then cutting them even when fixed. Very hard brushes should not be used to superior carpets. Painters' brushes are made by taking the bristles the whole length, and tying them to the end of a wooden pronged stick.

To clean toilette brushes, dissolve a small piece of soda in cold water, put the bristles in, taking care not to immerse the back of the brush, or it will be loosened, and also the polish will be spoiled. After a short time take them out, shake them well, and then put them to dry, bristles downwards. If hot water is used, the bristles will be both softened and discoloured immediately. Turpentine will cleanse painters' brushes.

Brussels Carpets.—These carpets, although still called Brussels, are now made principally in England. During the last century the manufacture of them was begun at Wilton, but is now chiefly carried on at Kidderminster. They are very durable, and if of good quality are handsome and expensive. The materials employed are linen and yarn, and usually not more than five colours are introduced, though the best kinds sometimes have six. There is a stratum of each colour throughout the carpet, which accounts for the thickness of this particular kind. When a colour is required to appear on the surface, it is brought there, and when another is wanted in its place the yarn of the first is not broken off, but merely hidden by the others until again required. A number of wires are inserted between the linen and the wool, which are withdrawn when the carpet is made; the loops thus formed are allowed to remain, and this gives the particular corded appearance to its surface by which Brussels

carpets are distinguished. They are made in breadths, three-quarters of a yard wide; their price per yard is from 5s. upwards, but varies according to the fluctuations in the wool-market.

Brussels Lace.—This exquisite fabrication is made in the city whose name it bears. Various attempts have been made to introduce the art into other countries, but these have failed owing to the impossibility to obtain flax, of which the ground net is made, of the same superior quality as that grown in the neighbourhood of Brussels. Great care has to be observed while spinning this gossamer thread. Dry air causes it to snap, and therefore it is spun in dark underground rooms, and the women who spin it receive high wages for their labour. So fine are the threads that it



BRUSSELS LACE.

is estimated that one pound weight of flax will make lace to the value of £700. There are distinct branches in this special art: one person is employed to make the ground net, a second to make the flowers, a third to join the sprigs together by open work, a fourth to attach them to the ground. The patterns vary, and follow the prevailing fashion, whether for Gothic or floral designs. As an instance of the costliness of this lace, the price of a flounce fourteen inches wide and about thirteen yards long was six hundred guineas. At one period this lace was known by the name of *Point d'Angleterre;* but it is positively asserted by the best authorities that it was never made in England, and that the name was conferred on it to deceive the State, who had prohibited the sale of foreign lace.

Brussels Sprouts.—This vegetable is one of the many varieties of the cabbage (*Brassica oleracea*), and is amongst the most esteemed of our culinary vegetables. It is thus named because the seed is generally imported from Belgium, and is thought to degenerate in Britain. In appearance it is like a miniature cabbage, and a number of these grow on one stem, which stem sometimes attains to the height of four feet. Brussels sprouts are in season in the winter and spring. They should be cooked as soon as possible after they are gathered, and should be carefully cleansed from insects, and all dead and discoloured leaves removed. They need to be served quickly after they are taken from the fire, as, owing to their small size, they become cold very quickly. When in perfection, they have a particularly delicate flavour. The seed is sown in February or March.

Bryony.—There are several species of this plant. That best known is the white bryony (*Bryonia alba*), *N. O. Cucurbitaceæ*, found in this country in dry banks under hedges, which has enormous roots of peculiar shape. Bryony has a disagreeable smell, a bitter, acid taste, and the juice is so sharp that if applied to the skin it will excoriate. It is not used medicinally, except in homœopathy, although said to have strong purgative and diuretic qualities.

Bubo.—This is the name usually given to an enlargement of one or more of the lymphatic glands of the groin. It is frequently the result of violent exercise, as jumping, excessive running, or walking, and is more likely to occur to those who carry sundry articles in the breeches pocket, as keys, &c.; also to those who suffer from bad corns, or may happen at the time to have an ulcer of the foot or leg. Bubo also arises from other causes. It commences as a painful, hard, round, or oval swelling in the groin, which in acute cases steadily increases in size, until the skin becomes red and shining. The pain is now intense, and a severe shivering fit generally indicates the formation of matter. In a few days the abscess breaks spontaneously, or is opened with the lancet, to the great relief of the patient. *Treatment:* During the first stage of the disease, when there is simply swelling and pain, a leech, followed by a hot poultice, to encourage the bleeding, and a day or two on the sofa, will often arrest its further progress. Painting with strong iodine, and the application of the ice-bag (ice in any shape will do), will be of great service if persevered in. Should, however, the inflammation continue in spite of these measures, and the surface of the bubo become red and shining, then all cold application must be stopped, and hot poultices and fomentation must be assiduously employed until the matter escapes. The sore which remains should be dressed with basilicon or zinc ointment. Indolent buboes, if the result of a bad state of health or any particular disease, must be painted with iodine, and treated constitutionally with such medicines, &c., as are suitable for those conditions.

Bucellas is one of the best known of the Portuguese white wines. It is made from vines grown in the neighbourhood of Lisbon, but originally transplanted from the Rhenish district. It is a rich dry wine, and is much improved by being decanted several hours before it is drunk, and in the winter time should be kept in the warm dining-room for an hour or more.

Buck-bean.—This plant is said to be more correctly styled bog-bean, but it is also called marsh trefoil, under which name it will be described.

Bucket. (*See* PAIL.)

Buckingham Lace.—It is supposed that

Queen Catherine of Aragon was the means of introducing the art of lace-making into Buckinghamshire and its adjacent counties. During her residence at Ampthill she employed the women who lived there in making lace, and it is believed by some that she initiated them in the art. Another opinion is that it originated with those Flemings who settled in that part of England when they fled from the persecutions of Alva. But it is agreed by all that the patterns are of Flemish character, and that Buckingham lace was first fabricated during the sixteenth century. In some of the early specimens the patterns, which were of a wavy description, were made by running the needle and thread in and out of the ground net —this ground net being often made by men and boys. The specialité used to be what is termed "baby lace," *i.e.*, very narrow edging. After baby caps had vanished from England, a great trade was carried on with America. As much as 7s. per yard is asked for fine edging. During the last forty years lace insertions and excellent imitations of Maltese guipure, also very handsome and wide black laces, have at various times been introduced and successfully made by the Buckingham lace-workers.

Buckram.—This is a closely-woven linen cloth, strong, and greatly stiffened with size. It is used by tailors, who put it between the cloth and the lining to give substance and stiffness, when such are required; it is also used for making bonnet shapes. It is made in England and France.

Buckskin Cloth.—This cloth has latterly taken the place of buckskin leather, and also is more used than corded cloth for riding breeches. It is thick, firm, smooth, and fine, and is a closely-woven woollen texture, cream-white in colour.

Buckskin Leather.—This leather was formerly extensively used for riding breeches, but is now seldom bought for that purpose. The English were famed for their manner of shamoying this leather—*i.e.*, dressing it with oil. Prussia, Austria, and the German States sent to England for it when it was worn by cavalry soldiers. The substitution of woollen cloth was made, it is said, by the advice of the Duke of Wellington, who noticed that the men who wore leather were particularly liable to colds and rheumatism, owing to its retaining moisture. The principal number of deer-skins are brought over from New York and New Orleans.

Buckthorn.—An indigenous shrub, very hardy and prickly, and commonly found in the hedgerows. A syrup is made with the juice of the ripe berries, which is used as a purgative and cathartic—more for cattle and dogs than for human purposes, it being apt to give pain. The juice of the unripe berries, if boiled with a lump of alum, forms a dark-green dye. The buckthorn is propagated by grafts, seed, and layers; it flowers in May, and the berries are fully ripe by the end of September.

Buckwheat is the fruit of *Fagopyrum esculentum*. The seed is employed as grain for food for man and cattle. It is most frequently used in the shape of groats, and makes excellent crumpets and gruel. In the United States thin cakes or fritters are made of it, and are used for breakfast with molasses. Poultry are very fond of buckwheat, and it has been pronounced as good as barley for cattle, and better than oats for horses. When bread made from it becomes a too common article of diet, it is said to produce an injurious effect upon the brain; but when it is regarded only as supplementary to other food it is excellent, and is generally much liked. In England it is cultivated as food for pheasants.

Budget.—The Chancellor of the Exchequer yearly makes his financial statement in the House of Commons. This has for a considerable time been known as the "Budget." The speech made on that occasion generally reviews the state of the income and expenditure of the last as compared with preceding years, shows the financial prospects of the country, and indicates what taxes will be put on or increased, and what repealed, with reasons for the several proposals.

Buff Leather.—This is prepared from the skin of the buffalo, and has a yellowish tinge known as buff colour. It is chiefly used in the form of straps for military accoutrements and other purposes requiring a strong and durable material. Imitations are made from the skins of oxen, &c. Owing to its great powers of resistance, buff was once employed for coats worn by soldiers.

Buff, To Dye.—Linen, calico, and muslin may be dyed a buff colour by the following process:—First wash well, to remove all "dressing," and then dry thoroughly. Boil an ounce of annatto in three quarts of water, add two ounces of potash, stir well for five minutes; then plunge into cold pump-water, and hang up the material without wringing, and fold it when almost dry.

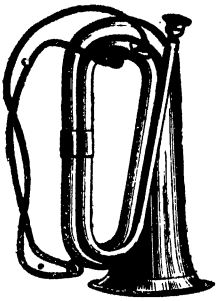
Buffalo Horn. (*See* Horns.)

Buffet.—The buffet, or sideboard, is a piece of furniture of great use in the dining-room, and is usually of a highly-ornamental character. The finest of tropical woods are used in its construction with the best of good workmanship, and it is frequently adorned with rich carved work; its price is consequently never a very low one.

Buggy.—This is the name sometimes given to a small one-horse chaise. Frequently it is so small as to contain only one person.

Bugles.—Musical wind instruments, generally constructed of copper, brass, or silver, used principally for military purposes, such as the calling together or dismissal of a body of troops, the issue of instructions, &c. The ordinary bugle is in fact only used for "calls," the different summonses and notices thus proclaimed being known as bugle-calls. These calls differ very greatly, but the various notes of which they may be composed are all produced by the lips. The bugle-horn, or key-bugle, is

somewhat similar to the bugle, but is improved



BUGLE.

by the addition of keys, which render it capable of all the inflections of the scale.

Bugs, To Remove.—It is much more easy to prevent the entrance of these detestable insects into a bed or a room, than it is to drive them away after they have once made their appearance. When there is regular and thorough attention to cleanliness and ventilation, there need be no fear that bugs will be found; for though they may be and are easily carried from one place to another, they only inhabit dirty houses.

When bugs have once really gained a lodgment, they are not easily got rid of. Various methods have been adopted for this purpose, and the following plan is amongst the best:—Take the bed or piece of furniture to pieces, carefully destroy any obnoxious visitors that may be found there, and be exceedingly particular to remove the eggs if there are any. These are very small and white, and of an oval shape. When there is nothing more to be found, wash the bed in every part with oil of turpentine in which camphor has been dissolved in the proportion of one ounce of camphor to half a pint of turpentine. Afterwards smear the joints thickly with a mixture made of two parts of soft soap to one part of Scotch snuff or strong black pepper.

Furniture-dealers often make a practice of putting a number of articles infested with these insects into a room, then closing tightly every chink and cranny which could admit the air, and burning in the apartment either sulphur or chlorine gas. Boiling water poured into the joints and crannies of a bedstead is said to be an easy method of destroying bugs. When they are present in the walls of a room, oil painting the wall will effectually destroy them.

Bugs effect an entrance more easily into a wooden than into an iron bedstead. In order to keep them away, all beds, mattresses, &c., should be examined carefully at least once a week during the summer, and bedsteads should be taken to pieces and minutely examined once if not twice a year. March and September are the best months for making an attack on bugs. In the first of these months they will still be in a dormant condition, and can therefore be easily captured; and in the last they will be engaged in laying their eggs and preparing to retire for the winter, and if they are not destroyed will cause a good deal of trouble in the following spring.

Building Lease.—A grant of land for a definite term of years, the grantee or lessee covenanting to build certain houses, &c., thereon, according to specification.

Building Societies are associations which have been established throughout the kingdom principally among the industrial classes, for the purpose of raising by small periodical subscriptions a fund to assist the members in acquiring freehold or leasehold property, the general principle of such societies being the repayment by fixed periodical instalments (usually monthly) of the sums advanced to the respective members. In practice, however, the above purpose has been (especially with the larger societies both in London and many provincial towns) in great measure lost sight of, and these societies advance annually very considerable sums on mortgage, without reference to the special purpose mentioned. The origin of building societies is of some antiquity, as institutions of a similar character existed, although in a rude form, in the Greek republics, in our own Anglo-Saxon period, and in the South Sea Islands. The first building society in Great Britain was founded in the year 1815, under the auspices of the Earl of Selkirk, at the village of Kircudbright, in Scotland, and others followed in that country under the designation of "Menages." The system about the year 1830 extended to the north of England, and societies were established in Manchester, Liverpool, and other populous towns; also in Wales. They were afterwards started in London, and soon became general, increasing in number and importance, so that the attention of the Legislature was directed to them, and in the year 1836 the 6 & 7 Wm. IV. c. 32 an Act was passed for their encouragement and protection. This Act was repealed by the 37 & 38 Vict. c. 42 (the Building Societies Act, 1874) so far as regards all societies which come in under it, *i.e.*, are incorporated. It provides for the incorporation of societies, and contains many other useful enactments, consolidating the law concerning them. By this Statute and a subsequent one, the 38 Vict. c. 9 (the Building Societies Act, 1875), building societies are now regulated. *Building Societies* are sometimes associated with Benefit or Friendly Societies, money being advanced to the members of the latter out of the common funds, on mortgage, for the purchase of houses, &c. (*See* FRIENDLY SOCIETIES.)

Bulbs are a species of underground plant, and they retain moisture enough in them to survive the time between their being taken out of the ground one year to be replaced the next, the roots completely dying away. There are various sorts of bulbs, such as the onion, garlic, &c., for culinary purposes; while for the flower garden, crocuses, daffodils, jonquils, narcissus, and the large tribe of lilies and hyacinths are the best known. Every species has some peculiar point in its management, and a few rules of general applicability may be found useful.

Bulbs should never be taken out of the earth

except when the leaves or stems have died or withered for some little time, when they have thus secured a period of rest from growing. This is generally towards autumn, when they should be carefully taken up and all the earth shaken away. When the offshoots appear they should be carefully removed, and it is a good plan to bury the bulbs in dry sand, until the period of putting them in the ground again, which should not be less than two months after they have been taken up. A light rich soil should be used, of sandy loam, leaf-mould, and well-rolled stable manure. Hyacinths form a great adornment for the house, from their beautiful colours and exquisite perfume, but look well planted in beds in the garden.

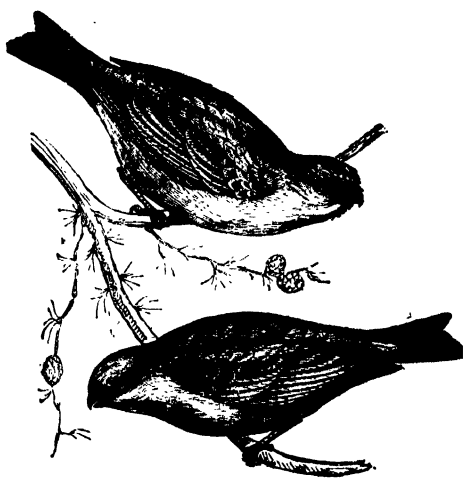
Bull.—In the Church of Rome, a written letter despatched by order of the Pope from the Roman Chancery and sealed with lead, being written on parchment, by which it is partly distinguished from a brief. It is a kind of apostolical rescript, or edict, and is chiefly in use in matters of justice or grace. If the former be the intention of the bull, the lead is hung by a hempen cord; if the latter, by a silken thread. It is this pendant lead or seal which is properly speaking the bull, and which is impressed on one side with the heads of St. Peter and St. Paul, and on the other with the name of the Pope and the year of his pontificate. The bull is written in an old round Gothic letter, and is divided into five parts—the narrative of the fact, the conception, the clause, the date, and the salutation, in which the Pope styles himself *servus servorum*, i.e., the servant of servants. These instruments, besides the lead hanging to them, have a cross, with some text of Scripture or religious motto about it. Bulls are granted for the consecration of bishops, the promotion to benefices, and the celebration of jubilees, &c. (*See* BRIEF, APOSTOLICAL.)

Bull-trout.—The bull or grey trout (*Salmo Eriox*), a fish nearly allied to the salmon, is met with in some of the rivers of this country, and in the Tweed is tolerably common. It often attains a large size, but a specimen weighing over fifteen pounds is not very common. It is not so elegant in form as the salmon; the head and nape of the neck are thicker in proportion, and the tail, beyond the adipose fin, is more bulky and muscular. To anglers, the bull-trout is next to the salmon as a prize, and the former is sometimes mistaken for the latter. The flesh is less esteemed, being paler in colour, coarser, and with much less flavour.

Bullace.—This, the *Prunus insititia* of botanists, is the English name of a kind of plum found in the hedges and banks in many parts of England. It is rare in Scotland. The bullace appears to be closely allied to the sloe as well as to the plum, and it is probably a form intermediate between the two. It differs from both, however, in its downy fruit-stalks, and in being downy on the under side of the leaves. It is larger in all its parts than the sloe, and the fruit is less harsh in taste and is not quite so sour, so that bullaces may be used with advantage for culinary purposes. They are often made into common jam, or when bottled in the same way as green gooseberries may be employed for making tarts in winter. Bullace cheese is an economical substitute for guava jelly.

Bulletin (from the Latin word *bulla*, signifying "a sealed despatch").—An official notice of a public transaction or matter of public importance. It is also used to denote an authorised certificate of the state of a person's health.

Bullfinch.—A well-known bird found in England. It is a bird of very soft and thick plumage, of a delicate bluish grey colour above, the under parts of a bright tile-red, the beak and crown of the head jet black, which colour also appears in the greater wing and tail coverts, in the quills and in the tail feathers, the wings being crossed by a conspicuous white bar. In the female the colours are not so bright as in the male. The bullfinch cares little for open country, preferring woods and copses, and is very fond of orchards and fruit gardens, finding there its greatest supply of food. The general verdict of the garden and



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fruit-loving public goes against the bullfinch. It is particularly fond of flower-buds. Selby says, "I have known a pair of these birds to strip a considerable sized plum-tree of every bud in the space of two days."

The native song of the bullfinch is very soft and simple, but so low that it is almost inaudible. Its call is a plaintive whistle, and when feeding it utters a low soft twitter. It has, however, acquired great celebrity from the facility with which it learns to whistle musical airs, and from its retentive memory when well educated and carefully attended to. A single air, with a short prelude, is generally as much as the bird can learn and remember; but Bechstein, who asserts this, allows that there are some of them which can whistle distinctly three different airs, without spoiling or confusing them in the least. In fact, as the

same author observes, there are different degrees of capacity among the bullfinches as well as in other animals.

The bullfinch is a remarkably amiable and loving bird, and is easily affected by predilection or dislike for different persons, generally holding fast by its first impulse. Its capability of strong attachment is shown by a variety of little endearing actions. It has been known even to repeat words with an accent and tone indicative of sensibility, if, as Bechstein observes, one could believe that it understood them.

Bullion.—Uncoined gold or silver in the mass. When gold and silver are in their purity they are so soft and inflexible that they cannot well be brought into any fashion for use, without being first reduced and hardened with an alloy of some other baser metal. To prevent abuses which might arise from this circumstance, it has been ordained, in most civilised countries, that there shall be no more than a certain proportion of a baser metal to a particular quantity of pure gold or silver, in order to make them of the fineness of what is known as the standard gold or silver of such a country. According to English law, all sorts of wrought plate in general ought to be made to the legal standard; and the price of our standard gold and silver is the common rule whereby to set a value upon bullion, whether ingots, bars, dust, or foreign specie, so that the value of bullion cannot be exactly known without its being assayed that the exact quantity of pure metal therein may be determined, and consequently whether it be above or below the standard. Silver and gold, whether coined or uncoined, are commodities like wine, tobacco, or cloth, and may be exported in the same way. In all great commercial countries a considerable quantity of bullion is alternately imported and exported. The 43 Geo. III. c. 49 regulates the exportation of bullion; the 33 & 34 Vict. c. 10, s. 9, enacts that the Treasury may from time to time issue to the Master of the Mint out of the Consolidated Fund such sums as may be necessary to purchase bullion to provide supplies of coin for the public service. As to bullion marks, see 5 & 6 Vict. c. 47, s. 59, 60; and as to weights used in scales of bullion, 16 & 17 Vict. c. 29. (*See* Assay.)

Bullion Lace.—This is made of gold or of silver thread, and it is fabricated in most countries; it is considered to be the lowest form in the art of lace-making. In the East this lace is used for the adornment of garments; in France and Italy it is used for the decorations of churches. It does not meet with much favour in England, as, owing to the dampness of the climate, it soon tarnishes. Some thirty years ago, gold and silver lace was in fashion for head-dresses, and the price of narrow lace of this description was about 7s. per yard. This lace is also used for the hats of men-servants in livery.

Bulrush.—Bulrush is a popular English name applied to large reed-like or rush-like plants found growing in marshes, but it is not very strictly limited to any particular kind. It is, however, most generally given to *Scirpus lacustris*, a perennial found commonly in clear ditches and ponds, and on the borders of lakes and rivers. From this plant the bottoms of chairs, mats, &c., are made. It is also used for thatching cottages, and by coopers for filling spaces between the seams of casks, for which latter purpose it is well adapted in consequence of its spongy nature.

Bunions.—This is an enlargement of the bursa, which is situated on the prominence of the great toe. It is generally the result of pressure from narrow-pointed boots causing that toe to turn towards the one next it, by which it is usually over-ridden, and thus making a sharp angle at the bursa, which the pressure and friction of the boot sooner or later irritate and inflame, the result of which is the formation of matter and chronic ulcer. *Treatment:* The main object is, of course, to relieve pressure by wearing properly adapted boots, which should have the inner side of the sole straight from heel to toe, and using, if necessary, a steel spring contrivance, by which the toe can be drawn away in an opposite direction. Sometimes it is desirable to divide with a knife the external lateral ligament on the tendon of the *adductor pollicis* or *flexor brevis pollicis*, and to keep the toe in position with a gutta-percha splint and bandage (*See* Fractures.) If there is inflammation in the part, poultices, fomentations, and even leeches may be applied. The skin irritation frequently present will be relieved by painting it with a strong solution of nitrate of silver, and if sloughing sets in, even amputation may sometimes be necessary.

Buns are small cakes, light and sweet, baked upon tins in a quick oven. The name is said to be derived from "boun," the sacred cake, offered at the Arkite Temple every seventh day. There are several well-known varieties of buns, amongst which are bath buns, Madeira buns, penny buns, and hot-cross buns, used on Good Friday. Buns are made light either with yeast or with carbonate of soda and tartaric acid. In order to make them good, the best materials must be used in their manufacture. They are generally preferred when new, but are more wholesome when they are a day old.

Bunting.—This is the common name applied to a number of small birds belonging to the same group. Amongst these are the common bunting, the yellow bunting, the ortolan bunting, and the Lapland bunting. The buntings are distinguished by their sharp, conical bills, with the edges of the upper mandible rounded and slightly turned inwards, and the knob on the palate. They are common in most parts of the world, are gregarious during the winter months, and in some cases grow so fat on the autumn corn that they are in demand for the table. The nest is usually on or near the ground.

The *Common Bunting* is a thick-set and heavily-made bird. Its colour is something like that of the lark. During spring and summer it is generally to be met with in the corn-fields, from which circumstance it is sometimes called the corn bunting. In some parts of England it is captured alive and fattened

with millet for the table. The *Yellow Bunting* is often called the yellow hammer or yellow ammer. It is a lively bird—a frequenter of our fields and hedgerows. It possesses but little song; in the southern counties it is said to repeat, "A little bit of bread and *no* cheese!" the last syllable but one being strongly accented. The yellow ammer is consequently in no demand as a cage-bird. The *Ortolan* or *Garden Bunting* is widely celebrated for the delicacy of its flesh, or rather for that of its fat; the latter being, in the opinion of gourmands, somewhat analogous to the green fat of the turtle. It has only now and then been shot in England, but it is plentiful on the Continent. The *Lapland Bunting*, *Snow Bunting*, or *Snow Fleck*, is one of our winter visitors.

Bunting (for Flags, &c.).—A loosely-woven worsted stuff, which is now almost exclusively used for flags and ship's colours. Its name is said to have originated thus: in Somersetshire the word bunting is used for *sifting* meal. This material was used for that purpose; hence its present designation.

Burden of Proof (*onus probandi*) signifies an important canon of evidence, viz., that the point in issue is to be proved by the party who asserts the affirmative, *i.e.*, that any person who asserts a fact is bound to prove it in order to succeed, and it is not necessary for the person asserting the negative to prove it in the first instance, and it is therefore at a trial generally for the person on whom lies the affirmative to begin. As to criminal matters, it is a well-known principle of law, remarks Archbishop Whately (Rhetoric, part 1, chap. iii.), that every man (including a prisoner brought up for trial) is to be presumed innocent until his guilt is established, not that we are to take it for granted he is innocent, but that the burden of proof lies with his accusers.

Bureau and Bureau Bedstead.—The bureau is an old-fashioned useful piece of furniture outwardly resembling a chest of drawers, but having in its upper portion a contrivance which enables it to be used as a writing-desk, with interior fittings of drawers and pigeon-holes for the classification and preservation of letters, papers, &c. It is sometimes made with a folding bedstead inside it, so that it may form a bed by night and a chest of drawers by day in rooms which are occupied day and night by the same inmates, and in this case the writing-desk contrivances are done away with, the upper portion of the bureau forming a kind of low tester to the bed, which itself is low.

Burgess.—A representative of a borough in Parliament; an inhabitant of a borough or walled town, or one who possesses a tenement therein. The word is also applied to part of the corporation of some towns, as the bailiff and burgesses of Leominster. Anciently, burgesses were held in great contempt, being reputed servile, base, and unfit for war, so that the gentry were not allowed to intermarry in their families or fight with them, but were to appoint champions instead. A burgess's son was considered of age when he could count money, measure cloth, &c.

Burglary (*Burgi latrocinium*), or nocturnal housebreaking, has always been considered a very heinous offence, not only because of the terror it causes, but also because of the forcible invasion and disturbance of the night of habitation, against which the laws of civil society have scrupulously guarded. Whilst they allow the possessor to kill the aggressor who attempts to break into a house in the nighttime, they also protect and avenge him in case the assailant should be too powerful. Such regard, indeed, has the law of England to the immunity of a man's house, that it styles it his castle, and will never suffer it to be invaded with impunity; for this reason, no outward doors can in general be broken open to execute civil proceedings, though in criminal cases the public safety supersedes the private. The definition of a burglar, as given by Sir Edward Coke, is "he that by night breaketh and entereth into a mansion-house with intent to commit a felony." "In this designation," says Judge Blackstone, "there are four things to be considered:—1. The time must be night and not day, for in the daytime there is no burglary, and night in the perpetration of this offence is to be considered as commencing at nine in the evening, and concluding at six in the morning (24 & 25 Vict. c. 96, s. 1). 2. As to the place. It must be a mansion-house, or dwelling-house, or some building connected therewith. Section 1 of the above Statute enacts 'that no building, although within the same curtilage with the dwelling-house, and occupied therewith, shall be deemed to be part of such dwelling-house, unless there shall be a communication between such building and dwelling-house.' 3. As to the manner of committing this offence. There must be both a breaking and an entry to complete it. But they need not be done at once, for if a hole be broken one night, and the same breakers enter the next night through the same, they are burglars. Slight acts will be sufficient as a breaking; for instance, picking a lock, or lifting the latch of a door, or unloosing any fastening. 4. As to the intent. It must be felonious (otherwise it is only a trespass), as to commit robbery, murder, &c. And it is the same whether such intention be actually carried out or only demonstrated by some attempt or overt act, of which the jury is to judge." By the above-cited Statute, this crime is punishable with penal servitude for life, or for any term of not less than three years, or by imprisonment.

Burgomaster.—A German mayor or magistrate; the chief magistrate in the great towns of Flanders, Holland, and Germany. Their power and jurisdiction are not the same in all places, every town having its particular customs and regulations.

Burgundy.—Burgundy wines are principally obtained from vineyards situated in the hilly district known as the Côte d'Or between Dijon and Chalons. In richness of flavour and in perfume, and all the more delicate qualities of the juice of the grape, the wines grown here unquestionably rank as the finest in the world. The most noted of the *red* wines of Burgundy are the Clos-vougeot (near Beaune), Nuits, Chambertin (the favourite wine of Louis

XIV. and of Napoleon), the Romané-Conti, Richebourg, Volnay, and Pomard. The white wines of Burgundy are produced in less quantity than the red, and so are less known, but they are the finest in France. By the addition of a little lemon-juice and a "streak" of orris or orange-flower water to British port, the ingenious wine-maker converts it into "British Burgundy." It is also manufactured by mixing together equal parts of "British port" and claret.

Burgundy Pitch.—Burgundy pitch is chiefly used in plasters. The importation of this substance has fallen off of late years in consequence of the introduction of a factitious pitch made by melting common resin with linseed oil, and colouring the mass with annatto or palm oil. It is to be observed, however, that there is a considerable difference between the physiological action of the two articles, since Burgundy pitch acts on the skin as a powerful local irritant, exciting a slight degree of inflammation, and not unfrequently producing a pimply eruption, and an exudation of purulent matter. It is noted for its effects when employed as a plaster in all cases where warmth, support, and long adhesion to the skin are desirable; and in the latter quality no substance equals it. The factitious Burgundy pitch has similar properties, but in a greatly inferior degree. The latter is manufactured in the manner referred to above. When the ingredients are melted, the mixture is allowed to cool considerably, and is then pulled or worked with the hands, after which it is placed in "bladders" or "stands" for sale.

Burial.—The interment of a deceased person. The rites of burial are considered in all countries and at all times as a debt so sacred, that those who neglected to discharge it were thought accursed. In the Christian Church, though good men always desired the privilege of interment, yet they were not like the heathens, so concerned for their bodies as to think it any detriment to them if either the barbarity of an enemy or other accident deprived them of this privilege. The 4 Geo. IV. c. 52, abolished the barbarous mode of burying persons found *felo de se*, and directs their burial without any marks of ignominy in the parish churchyard, between nine and twelve at night, under the direction of the coroner. The burial of dead bodies cast ashore is enforced by 48 Geo. III. c. 75. The later Burial Acts are 20 & 21 Vict. c. 35, 81; 22 Vict. c. 1; 23 & 24 Vict. c. 64; 25 & 26 Vict. c. 100; and 27 & 28 Vict. c. 97 (the Registration of Burials Act). By 33 & 34 Vict. c. 33, the various Burial Acts are explained, and in certain respects amended. The 36 & 37 Vict. c. 50, facilitates the acquisitions of new sites for burial grounds.

Burial in some part of the parish churchyard is a common law right, enforceable by mandamus; but a faculty must be obtained or assumed for residence in the parish for burial in any particular vault.

Funerals are exempt from tolls.

Burial Customs. (*See* FUNERAL CUSTOMS.)

Burners. (*See* GAS-BURNERS.)

Burnett's Fluid. (*See* DISINFECTANTS.)

Burning-glass.—The burning-glass consists of a double-convex lens of glass which, when exposed directly to the rays of the sun, collects all those which fall upon it into one point known as the focus, producing intense heat in that particular spot. If any combustible matter, such as paper, tow, &c., be placed in the focus, it will be ignited immediately, and if the lens be sufficiently powerful, metals may be melted, and other substances made red-hot and reduced to a state of vitrifaction. Burning-mirrors differ from glasses in that they consist of *concave* mirrors, generally of polished metals, which, when they are exposed to the rays of the sun, reflect all that fall on them in such a way as to make them all converge to one focus, thus concentrating all the heat in that point. Burning-glasses do not *reflect* but *refract* the rays. The effect of the burning-mirror is similar to that of the glass already described, but, for equal magnitudes, is very much more powerful in its action.

Burnishing.—A hard, rough substance when polished and made smooth and bright with another hard substance, is said to be burnished; and both the instrument used in the process and the person who undertakes the work are named burnishers. Polished steel, ivory, and agates are used in this way.

Burns and Scalds.—Burns and scalds are the result of the application of excessive heat to the body. When this injury is caused by a solid body or by fire, it is called a burn; if by a hot or boiling fluid or liquid, it is then called a scald. Burns and scalds vary extremely in degree and extent from simple congestive redness and pain without much injury, to charring and death of flesh, muscle, and even bone. As a rule, the more extensive a burn is, even though it be only superficial, the more dangerous it is to life. As, for example, a wide-spread scald over a large surface, like the chest or abdomen, is more serious in its consequences than the complete destruction of a part, as the hand or foot. The constitutional effects of these accidents are very serious, and the patient is for some time liable to the danger of certain complications, as congestion of the brain, pneumonia, ulcer of the duodenum, lockjaw, &c. After a severe burn or scald, there is generally a fit of shivering, indicative of great nervous shock, and this is followed by a state of quiescence, which, in children especially, ends frequently in death from congestion of the brain. Pneumonia, when it occurs, generally sets in during the period of reaction, and irritative fever and death may then result from either this disease, or from inflammation of the bowels, or from the perforating ulcer of the duodenum already mentioned. A complication peculiar to this accident, tetanus or lockjaw, generally occurs during the process of healing. *Treatment:* This must be constitutional and local. If the burn or scald is severe, and there is shivering, with other indications of great nervous shock, then hot brandy and water should be freely administrated; to this some

sedative solution of opium may be added, under medical advice, and subsequently ammonia and bark may be useful. The clothes must be very gently removed from the injured parts, soaking them when necessary in tepid water. The burns or scalds should then be thickly dredged with fine wheat flour, and thoroughly enveloped with soft cotton-wool, which must not be removed until it has become offensive. The resulting raw surface will be best treated with the common chalk or zinc ointment, and great care must be taken in certain parts, as the neck, &c., that the natural position should be maintained, and that no deformity should result from too rapid healing. If the fingers are injured, they must be carefully separated and kept so by the dressings, and it is usual to apply splints in the neighbourhood of joints, to keep the parts extended and to prevent contractions. Although the flour dredging and the cotton-wool have been recommended as the best remedies because most simple and attainable, it is only right to name a few of the other applications, each of which has its advocate. Amongst these may be mentioned painting the part with a mixture of collodion and castor oil two parts to one, with a solution of nitrate of silver fifteen grains to the ounce, wrapping in soft wool, dressing with carron oil (a mixture of linseed oil and lime-water), applying turpentine and stimulating liniments, &c.; but in all, the main object is to exclude air from the injured part. It may not be out of place here to give some directions how to act in case the clothing takes fire. The first impulse of the sufferer is to rush anywhere, and this movement by causing a draught increases the flame, and must therefore be restrained. If the burning clothes cannot be immediately torn off, the person should be laid on the ground, and anything at hand, as rug, blanket, carpet, table-cover, or shawl, should be thrown over the flame, and the person rolled about quickly from side to side. Water of course, if it can be had, should be freely used. When the fire is extinguished, the burnt clothing must be cut away piecemeal, or soaked with tepid water before removal, and the patient treated as already described. Burns or scalds of the throat internally must be treated with ice and cool drinks, and if there is danger of suffocation, the operation of opening the larynx will be necessary.

Burnt Sienna (for Paint), or Terra de Sienna, the ochre of that vicinity, burnt, forms an orange-russet colour. It has all the properties of raw sienna earth, but in addition is richer and deeper in colour, and works and dries better. It is permanent and useful, and is very valuable in graining woods. (*See* RAW SIENNA EARTH.)

Burnt Umber is the fossil pigment called umber, deepened by burning to a russet hue. It is very drying in oil, and contains manganese and iron. It may be recommended as a perfectly durable and eligible pigment, either in oil or water. It was called by the old Italians *falsalo.*

Bury Simnel.—This is a cake which derives its name from Bury, in Lancashire. It is a compound of dried fruits, chiefly currants, almonds, candied peel, and a little flour. These ingredients are thoroughly incorporated, and the cake, when well baked, will keep good for a very long time. The cake is often made in a circular form, about three inches thick, and weighing several pounds. It bears a strong resemblance to the new year's cakes which are made in Scotland and known as "buns."

Bushel.—A dry measure of capacity used in Great Britain for grain, fruit, &c. It contains four pecks, eight gallons, or thirty-two quarts. The imperial bushel, with which corn is invariably measured, contains 80 lbs. avoirdupois of distilled water, and consists of 2,218·2 cubic inches.

Busks.—These are the broad pieces of steel, whalebone, or wood, which are inserted down the front of stays worn by women. In corsets worn some fifty years ago, these busks were made of wood, but being strong and not easily bendable, they were injurious to the wearers; in later days thin steel busks have become universal, for, being pliant, they are more comfortable. Steel busks should be covered with thin washleather or white kid leather previous to being sewed in the corset, for the heat of the body causes the steel to rust, and the rust marks both stays and body-linen, unless the busks are well protected. The word busk or buse formerly denoted a garment worn next the body which was stiffened by a piece of wood; when the garment fell into disuse, its name became affixed to its support.

Bust.—A term used in plastic art, denoting a sculptural representation of the head and upper part of the human body. In the present day, busts consist of portraits of individuals, executed in marble, terra-cotta, bronze, &c. The earliest form of bust among the ancients, however, consisted of heads of Mercury and other divinities, and it was not till a comparatively late period—in the reign of Alexander in Greece, and in the days of the Emperors at Rome—that they took the form of portraits of persons.

Bustles.—These dress improvers appear in and disappear out of fashion according to the style of dress then worn. When it is voluminous, bustles are required to add to that character; when the mode is reversed, bustles are discarded as disfigurating. They are made of woven horsehair, of crinoline, and of steel wires; the former are the most useful, for wires are soon pushed out of their cases, and are bent or broken with the pressure to which bustles are liable.

Butchers' Bills.—The best rule in buying meat, as in buying everything else, is to have no bills at all, but to pay ready money for every article purchased. When this is impracticable, however, the butcher should be directed to send with each joint a small ticket, giving a description of the meat, its weight, and price per pound. The joint should be weighed as soon as it is brought in, in order to ascertain whether or not this ticket is accurate, and if there should be any mistake, the attention of the butcher should be called to it as soon as possible, that the error may be rectified. These tickets should be care-

fully preserved, and when the account is made up it should be compared with them. By this means, and with a little care, overcharge may be entirely prevented. When it is the practice to pay for meat by the week or by the month instead of paying for it immediately, it is better to have the items entered in a book rather than to have a number of small bills. If properly receipted, no dispute can then arise as to the fact of a settlement having been made. Besides this, a comparison can be easily drawn between the expenditure of one week and that of another. Butchers' bills, as well as all other household bills, should be paid by the mistress or by some competent person. It is unwise to leave such a duty as this to be performed by a young and inexperienced servant.

Butler.—This domestic ranks second in a complete establishment; he is chiefly responsible for the management of the ale and wine cellars, and for the direction of the family repasts. He is responsible for the plate, which he gives out to the under-butler to clean. In the morning his first duty is at the breakfast-table. He must next look to the cellars, where he may have to rack, fine, and bottle. Then he has to look after the footman, under-butler, and steward's-boy, for whose industry and efficiency he is accountable. In the next place he must dress, and so station himself as to be at hand to open drawing-room and parlour doors to visitors and members of the family. At luncheon he waits alone, unless further aid is required. At dinner and tea he is in attendance, and between these meals he answers bells and waits on company. At bed-time he brings up night candles, locks up the plate, sees that doors and windows are fastened, and that fires are not left in a dangerous state. He brings from the cellar the wine required, decants it, and locks it up till wanted. He draws the ale allowed to the servants; has to fine, bottle, cork, and seal, and to place in the bins wine purchased in the wood. In his cellar and stock book he regularly enters all bottles used, and the age and character of the wines in each bin. The brewing, racking, and bottling of malt liquors also belong to his department. In more limited establishments the butler takes part of the duties of the house-steward and valet, and has to market, pay bills, and superintend the men-servants in all departments. He also has, at stated times, to give personal attendance in his master's dressing-room. (See *House-Steward*, *Under-Butler*, and *Valet*, "Encyclopædia of Domestic Economy," by Webster and Parkes.)

Butler's Tray.—This article is found in every well-furnished household, and is used for carrying various articles used for dinner, supper, or luncheon, from the butler's pantry or kitchen to the dining-room. It is provided with movable sides, which can be laid down or placed upright according to convenience. They should always be put up when the tray is being carried from one place to another, as they will prevent the articles from slipping down, and so being broken. Butler's trays are sold both with stands and without. The tray is set in the pantry or kitchen. First a cloth is put over it, and then the various articles which are likely to be required, such as knives, water-bottles, salt-cellars, silver, &c., are put upon it. In ordinary households, when a very simple supper only is wanted, this tray covered with a cloth is often put upon the table, also covered with a cloth. As there is room for the hand to enter in each of the sides, it can be very easily brought on and removed.

Butt.—Large casks or barrels are frequently used for the purpose of receiving rain water, which is of importance in connection with many household purposes, and should not be wasted. Rain water is, of course, specially useful for washing clothes in. The purer or softer the water, the better it is adapted for making tea, coffee, or cocoa. Rain water is also best for cooking, and if filtered it is better than ordinary water for drinking, from the readiness with which it exercises its solvent power upon food in the stomach.

An old butt or cask may be sweetened by first filling it with scalding water, emptying it, re-filling it with cold water, and throwing into this the burning fuel of a wood fire. Unless it has contained fish, a cask may be thus rendered fit for the reception of clean water or any other liquid. Boiling water containing potash and lime will also effectually "sweeten" an old cask, and sulphuric acid is sometimes used for the same purpose, as is also a piece of coarse linen dipped into melted brimstone and placed when cold with one end fastened at the bung-hole and the other under the tightly-fitting bung. This is then set fire to, and the vapour produced is confined in the cask for a few hours.

Butter is the fatty substance present in milk, and obtained from it by churning. In England it has been used from very early times. The Hebrews also appear to have made use of it as food from an ancient date. The Greeks and Romans neither employed it in cooking, nor had it brought upon their tables. They used it only in their baths as an ointment, and it is employed in this way at the present day in parts of Italy, Spain, and Portugal, and is sold by apothecaries for the purpose. The Romans made it very much as we do, for Pliny tells us: "Butter is made from milk, and is obtained principally from cows' milk; that from ewes is the fattest, and goats supply some. It is produced by agitating the milk in long vessels with narrow openings; a little water is added." It is probable that the Romans derived their knowledge of butter from Germany, while the Greeks may have gained it from Scythia, Thrace, and Phrygia.

The process of making butter by churning is a very simple one. When milk is placed under the microscope, it is found that there are present in it a number of minute globules which contain fatty matter. To make butter, the milk is agitated violently in the churn in order that these globules may be broken, that the fatty matter may be liberated and afterwards incorporated together to form masses of butter, and when these float on the top of the whey, the butter is said to have "come." It is then taken out, freed from the buttermilk, and washed in clear spring water, when it is ready

to be weighed and divided into rolls. Butter may be made more readily from cream than from milk. It is generally considered that about eleven quarts of milk will be required to make one pound of good butter.

Butter should be kept in a dark cool place in as large masses as possible. In hot weather, ice should be put upon it to keep it from melting. When ice is not to be had, the butter may be kept firm by the adoption of the following method:—Put the butter into a jar, and place this in a basin with saltpetre and water. Lay a clean cloth over the butter, and let the corners rest in the saltpetre water. Keep the jar in a cool dark place. To keep butter fresh for several days, knead it well to extract the buttermilk. Put it into a glazed jar, and insert this in another, pouring into the second one a small quantity of cold water. Change the water daily. Another method of preserving butter is to press it into jars to within an inch of the top, and then to sprinkle over it a layer of coarse-grained salt, half an inch deep, covering it closely with a plate. The salt will melt with keeping, and may be poured off when the butter is to be used.

To restore rancid butter, wash it well, first with new milk, and afterwards with cold spring water. Rancidity is caused by the presence of butyric acid, which is freely soluble in fresh milk. For the adulteration of butter, *see* ADULTERATIONS OF FOOD.

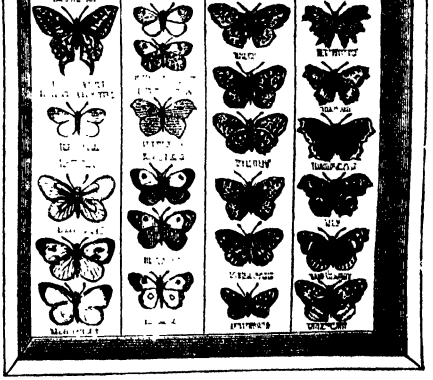
Butter-boat.—This is but another name for the sauce-boat which belonged to old-fashioned dinner-services, and was used for sending sauces of various kinds to table. It is now almost superseded by the sauce-tureen. When the sauce-boat is used, the preparation needs to be poured upon the plate; with the sauce-tureen it can be taken out with the ladle, which is a much more convenient and cleanly method. The sauce-tureen is usually kept on the sideboard, and is handed round by the waiter, who stands for the purpose at the left hand of the guest, and who should be careful to hold it near enough, as otherwise a few drops of the sauce may be spilt in the transit from the tureen to the plate.

Butter-knife.—This useful article, with which we are all familiar, is generally formed with regard to ornament as well as efficiency. It should be either of silver or of metal plated with silver, mere steel blades being objectionable. The blade is in various shapes, often with sides and edges curved, sometimes with edges only curved, the former being preferable for the dexterous. The hafts or handles are commonly of ivory or mother-of-pearl, but often the whole of the knife is of one piece.

Butter Squash, American.—This is a kind of gourd which is highly esteemed and much cultivated in some parts of Europe and in North America. It is excellent either boiled, baked, fried, or served in soup; it is also frequently mashed like a turnip. It may be eaten in summer, when it is young and green, or in winter, when it has attained its full size and is of a yellow colour. The squash grows differently to other gourds, as it generally forms a bush, whilst they send out long straggling shoots.

Butter (Various Kinds).—Butter is either *fresh*, *salt*, or *potted*. Fresh butter or sweet butter is more highly esteemed than any other. It is generally of a yellow colour, and as it is believed that the richer the pasture on which the cows have fed, the yellower will be the butter made from their milk, a little annatto is frequently put into butter to colour it, and so give it a better appearance. Salt butter is butter to which more or less common salt has been added in order to preserve it. All butter has a little salt in it. Even fresh butter has from ½ to 2 parts in the 100. Salt butter contains, however, as much as 8 per cent. of salt, and sometimes considerably more than this. When the butter is to be kept a long time, the proportion is an ounce of salt to one pound of butter. When salt butter is packed in wooden kits or in jars of stoneware, it is called potted butter. In this form large quantities of butter are sent to market. Dorset, Welsh, and Ostend butters are usually potted. Dutch butter is largely consumed in Great Britain; indeed, by far the larger portion of the foreign butter used in England comes from Holland. Aylesbury, Epping, and Cambridge butters are highly esteemed. Devonshire butter is valued for its richness, and also for its delicious taste. Some Devonshire butter has a slight smoky flavour, which is caused by its absorbing the fumes of the charcoal over which it is scalded. Purified fat, flavoured with buttermilk, is often sold as genuine butter. A good deal of the Normandy and Brittany butter which is imported into England is of this nature. In India, butter is prepared from the milk of buffaloes, and is known as "ghee." The Arabs are very fond of this.

Butterflies, To Preserve, &c.—Having killed our butterflies, by the safest and most humane plan possible, a small well-made pin



CASE OF BUTTERFLIES.

should be inserted through the thorax and into the cork, with which the lower part of the drawer or box should be lined. The wings, legs, &c., should be arranged in their natural

positions, and when the insect is quite stiff and firm, it may be removed to its proper place in the cabinet. Insects should be pinned on the cabinet drawer in columns—the generic name being written above the column, and the specific name below the insect; and each order should be arranged in a separate drawer. A brush dipped in spirits of wine, in which a little camphor is dissolved, will remove the mould with which a dried insect may become covered; but to clean it, the insect must be removed from the cabinet and allowed to dry previous to its being replaced. Camphor placed in the drawer will prevent the attacks of other insects, which may otherwise become troublesome depredators.

Buttermilk is the liquid that is left after the butter or fatty matter has been separated from cream. It contains the sugar casein and salt of milk, and when it is procured from sweet cream is both delicious and nourishing, besides being easy of digestion. It is sometimes taken instead of sauce with puddings and stewed fruit, and is eaten with porridge in Scotland, and with potatoes in Ireland. It forms a pleasant and cooling beverage in diabetes, stomach affections, and inflammatory disorders. An American doctor has given it as his opinion that its use tends to the prolongation of human life. In some districts buttermilk is used as a wash for the complexion.

Butters (in Chemistry).—The word butter is sometimes applied to preparations which are of a totally different nature. Hence the terchloride of antimony and chloride of zinc have been called butter of antimony and butter of zinc. Butter of cacao or of cocoa is procured from the *Theobroma cacao;* butter of nutmegs is obtained by distillation from the oil of nutmegs; butter of roses is produced by the distilling of damask roses; and butter of wax is got in the same way from beeswax. These last are all fatty substances, but are not used for domestic purposes.

Button-holes, To Work.—These require exactitude: they must be cut by a thread and worked by a thread. Special scissors are made for the purpose of cutting the slits, but these will not ensure a well-cut button-hole, unless the cutter is careful to place the points in a straight direction. In working evenly round the slit, practice alone makes perfect. The thread used should be neither long nor short; the depth of material taken should also be medium, for if too great the hole will be thick and clumsy, and if too shallow the threads will fray away and the edges will look ragged. Some workers work the thread all round the slit in a uniform manner; others reverse the stitch at the corners. This plan makes the hole more open.

Buttons (Various).—These fasteners are of comparatively modern origin. Previous to the invention, aiglets, ribbons, and large pins were used. The first form of button was that made of moulds of wood or bone, which were afterwards covered when wanted with pieces of the same material as the garment they were to fasten together or to adorn. In the present day the manufacture of buttons is carried on on a most extensive scale, principally at Birmingham, but also in France — at Paris, Lyons, &c. Buttons are made of horn, metals, wood, bone, glass, jet, mother-of-pearl, and some have coverings of silk, mohair, leather, linen, &c. The most durable buttons are those of polished metal or metal covered with a thin coat of gold or silver. It has been computed that threepennyworth of gold can be made to cover a gross of buttons. The Florentine buttons, which have silk or worsted face on metal back, are not useful, for the front of the button shells off with but small provocation. Among the Chinese, buttons are made a distinguishing mark of rank.

Buxton Waters.—For three centuries, Buxton, in Derbyshire, has been famous for its calcareous springs. They are both tepid—82° Fahr.—and cold, discharging a hundred and twenty gallons of water per minute. Besides these, there are chalybeate springs. Buxton is visited annually from June to October by 12,000 to 14,000 persons, the greater number of them drinking the waters for gout, indigestion, rheumatism, and nervous and cutaneous diseases.

Buying, Advice upon.—The mother of a family and the mistress of a household who desires to provide liberally, and at the same time economically, for home requirements, will do well to make a constant practice either of going herself or of appointing some judicious, experienced person to go for her to purchase what is needed at the market or the shop. The arrangement by which the tradesman calls daily at the house for orders is a good one for the tradesman, but it is a bad one for the customer. True, the custom is a convenient one, but it is a convenience which is expensively purchased. The organs of sight and smell are the best helps in the selection of food. When the customer is herself the chooser, it is her own fault if she permits inferior articles to be forced upon her. Besides this, she may discover that from some arbitrary cause or another an article that would in a general way be beyond her means is to be had at a low rate, and so an unexpected treat may be given to her family. This she would never have found out if she had simply given an order to the man at the door. When the tradesman is the chooser, he is strongly tempted to rid himself of that which is most in his way, and though for his own sake he would not do this to a very good customer, there are very few tradesmen who would not try it on upon a small and inexperienced one.

The wise house-mother will also endeavour to pay ready money for what she buys; and will avoid "little bills" and open "accounts" as she would waste and extravagance. All money is worth interest, and she who buys goods on credit is getting the benefit of another person's money, and will have to pay interest for the same. And this she will surely do, even though the item does not appear in the bill. A tradesman soon forms his opinion of a customer, and the one who pays at once will have the advantage. Besides, those who pay ready money for what they buy are less likely to purchase extravagantly than those who go upon credit.

Supposing there are no debts, the amount of money in hand is the measure of the right to purchase, and when every little article procured has to come out of this, "unnecessaries" are soon put in their proper place.

Those who in supplying the wants of a family can purchase certain articles in large quantities and at certain seasons, have before them an opportunity of saving considerably. So many articles of domestic consumption are sold cheaper in this way. Potatoes, for instance, may frequently be obtained for one-third less if bought by the sack than by the pound. Apples, too, are much cheaper if bought by the bushel. Soap may be bought advantageously by the hundredweight, and if cut up and well dried, it will go twice as far as if it were used when soft and new. Coals should certainly be laid in at the end of summer for winter use. Things that will not keep, such as butcher's-meat, milk, bread, &c., must of course be bought as they are wanted.

The *best* article of its kind is almost sure to be also the *cheapest*. This is especially the case with food, which is unfortunately so much adulterated. The best safeguard is to purchase commodities, especially those the quality of which cannot readily be determined, of a respectable dealer whose honesty will be a surety for the excellence of his goods.

The following rules may prove of use to the inexperienced housekeeper about to make purchases:—

Good *Beef* has the lean of a deep-red colour, smooth and open-grained, with fat firm and pure, and more white than yellow, and running in thin streaks through the flesh. Beef is the best and cheapest from Michaelmas to Midsummer.

The best *Mutton* is dark-coloured, and has a fine grain well mixed with firm white fat. Wether-mutton is the best. It is to be preferred from Christmas to Midsummer.

Veal should be quite fresh. The flesh should be white, approaching to pink, and the fat firm. The kidneys ought to be covered with fat, and the veins in the shoulder bright-red or blue. When the head is fresh, the eyes are plump and bright. Veal may be had all the year, but is best from May to September.

Pork, if fresh and young, has the rind smooth, the flesh and fat white and firm. If the fat has a clammy and greasy look, and is mixed with little lumps and kernels, the pork is bad.

Lamb.—Quarters of lamb should be short and thick. If the shoulder has little flesh upon it, the lamb is not fine. The vein in the fore-quarter ought to be bluish and firm. If it is yellow or of a green tint, the lamb is very stale. The neck of lamb should be fat, the eyes bright, the kidney fresh and sweet. House-lamb is in season from Christmas to April. It is considered more delicate than grass-lamb, which can be had later in the year. The latter is more full of flavour.

Poultry is young when it is smooth in the legs and short in the spur. When the eye is sunk and the vent tainted, the bird is stale. Dishonest poulterers often cut and shorten the spurs. Black-legged fowls have often the most flavour. White-legged ones have the best appearance.

Turkeys, if young, have the legs smooth, the spurs short, the eyes fresh, and the feet flexible.

Game.—The age of birds may be known by the softness of their quills. Females are more tender and juicy than males. Amongst wild-fowl, those that have the finest plumage are the worst for eating. If the sinews of the leg are stiff, the birds are old. If hares and rabbits are young, the ear will tear easily, and the jaw-bone can be broken between the finger and thumb. The spurs in old pheasants are long and sharp; in young ones they are short and blunt. Before Christmas the legs of old partridges are light blue instead of brown. If the flesh about the vent is of a livid colour, game is stale.

Venison should be thick and firm in the fat, the flesh should be dark, fine-grained, and firm. The clefts and claws are close and smooth in the young animal.

Ham and *Bacon* are good when the smell is pleasant, when the lean is clear and not streaked with yellow, and when the flesh adheres firmly to the bone.

Fish.—In fresh fish the gills are open, red, and smell sweet, the eyes are bright and plump, the fins light and close. Fish that are well covered with scales are generally fresh and good. All kinds of fish are best when freshly caught. White fish is the most digestible; red fish the richest. Round fish, such as salmon, trout, whiting, haddock, mackerel, herrings, and eels, *must* be perfectly fresh. Flat fish, such as turbot, halibut, and skate, may be kept for a short time only. Shell-fish, if not perfectly fresh, is very unwholesome.

Crabs and *Lobsters* should be judged by their weight; if light, they are watery. Medium-sized fish are the best.

Cheese and *Butter* should be tasted.

Brawn.—If the brawn is old, the rind is thick and hard.

Pickled Salmon.—The liquor should be pure, and of a good flavour. The fish should smell sweet, and be of a bright colour.

Soaps, candles, dried fruits, spices, and starch, improve with keeping.

Rice, vermicelli, macaroni, semolina, pearl barley, tapioca, and similar articles, soon spoil, and should therefore be bought in small quantities. Coffee also is much better for being freshly roasted and ground. It quickly loses its aroma after being exposed to the air.

Buying and Selling.—The contract of purchase and sale is founded upon a mutuality of engagement or mutual promises, the promise or undertaking of the one part to sell being the consideration for the promise of the other to buy. It is completed and rendered binding, consequently, if properly authenticated by the bare consent of the parties, and ranks among that class of contracts called consensual contracts. It is essential to the creation of a contract of sale that there be a price, consisting of a sum of money to be paid by the buyer to the seller, for if there is an agreement that one person shall sell another his horse for one of the latter's books, this agreement does not constitute a sale, but an exchange—a different

kind of contract. A written agreement is absolutely essential for the disposition of real estate (*i.e.*, lands and tenements). (*See* AGREEMENT.)

By-laws are laws made *obiter—i.e.*, by the way—such as orders and constitutions of corporations for the governing of their members, of courts-leet and courts-baron, railway companies, &c. They are made by common assent for the good of those that frame them, in particular cases to which the public law does not extend, so that they bind further than the common law or statute law. Guilds and fraternities of trades, by letters patent, if incorporated, may likewise make by-laws for the better regulation of trade among themselves or with others. They are binding, unless contrary to law or unreasonable, and against the common benefit, and then they are void. In Scotland these laws are called laws of birlaw or burlaw.

C

Cabal (from the French word *cabale*) signifies intrigue; the secret science of the Hebrew Rabbins; a body of men united in some close design. This name was given to that Ministry formed by Clifford, Ashley, Buckingham, Arlington, and Lauderdale, in the reign of Charles II., who concerted a scheme for the restoration of Popery, the initials of these five names forming the word "Cabal."

Cabbage Wood is the *Andira inermis* of botanists. This plant grows in the West India Islands, where it is called the cabbage-tree. The bark called cabbage or worm bark, though poisonous in large doses, possesses valuable medicinal properties, and was formerly employed as a remedy for worms. The tree itself supplies an ornamental wood, known to cabinet-makers as partridge wood, and is much valued for the beautiful manner in which it is marked.

Cabbages (Various).—The cabbage is a plant which is largely cultivated in Europe and other countries for culinary purposes. It belongs to the natural order *Cruciferæ*. It constitutes an agreeable food, though, as it contains more than 90 per cent of water, it is more wholesome than nourishing. Its tendency is to purify the blood, and it is particularly serviceable in cases of skin disease, but should be avoided by all who are subject to flatulence and diarrhœa.

There are many varieties of the cabbage, and these may be divided into three classes:—First, cabbages proper, which have closed-up leaves in the centre to form a heart, and amongst which are included white cabbages, red cabbages, Brussels sprouts, and savoys; second, those that have loose open leaves, such as greens and kale and borecoles; third, those which form a head consisting of a thick cluster of close flowers, such as cauliflowers and broccoli, both white and purple. All of these spring from one plant, the wild sea-cabbage of the coasts (*Brassica oleracea*), and the varieties have been produced by cultivation. There are very few plants which exhibit so great a tendency as this one does to vary in form, and the difference is so great as to be scarcely recognisable between the cauliflower of cultivation and the wild cabbage, which has smooth waving leaves, which flowers like the wild mustard plant, and which generally grows to a height of from one to two feet.

Cabbages have been cultivated in Europe from time immemorial. They were first planted in England in the time of Charles II., by Sir Anthony Ashley, who brought them over from Holland. A monument was raised to the memory of Sir Anthony, in which he is represented with a cabbage at his feet.

Cabbages should only be dressed when they are young and freshly gathered. They should be thrown into plenty of fast-boiling water slightly salted. If the water is hard, a small piece of soda may be dissolved in it also, in order to keep the vegetable green. A large quantity of water should be used, in order to carry off the bitter acrid taste and the rank odour. This water should be thrown away as soon as possible after it is done with.

It is said that cabbages may be preserved for three or four weeks, by cutting them with two or three inches of stalk, from which the pith must be taken out without injuring the rind. The hollow thus formed should be filled with a little fresh cold water every day, and the cabbage should be hung up in a cool airy situation.

In order to grow cabbages successfully, care should be taken to procure good seed. This can be bought of respectable seedsmen for from 4d. to 1s. per ounce, and will keep in good condition for three or four years. Those who find it necessary to grow their own seed should be careful to procure it from a fine healthy plant.

The soil in which cabbages are grown can scarcely be too rich. The beds should be in a warm situation, and be freely exposed to light and air; they should also be well manured. They must not be in too dry a place, and must be watered liberally when they require it. The weeds should be kept away from them, and the earth around them should be lightened occasionally by being hoed and forked. As soon as they begin to grow well they should be earthed up.

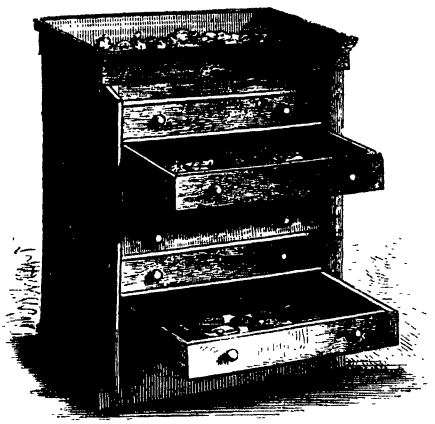
Ordinary varieties of cabbage are known by the general name of white cabbage. This is to distinguish them from red cabbage, which is chiefly used for pickling, and amongst these the Dutch red is one of the best. Amongst the best sorts of white cabbages the Incomparable, the Vaneck, the Sugarloaf, Wheeler's Imperial, Shilling's Queen, Battersea, and Wellington may be mentioned. Local varieties are generally at their best in their particular locality.

Large quantities of cabbage are grown in Germany for Sauer Kraut.

Cabin.—This term is usually applied to rooms or apartments in ships occupied by the officers or passengers.

Cabinet (for Coins, Curiosities, &c.).—These cabinets are usually on a small scale, but are made in form like those of larger

size, *i.e.*, with doors which, when open, disclose drawers or shelves which can be drawn out. Another plan is that of tiers of small shelves covered with glass, through which the collection can be seen without disturbance. Some curiosities are too delicate to be handled or exposed to the air; for instance, butterflies and insects generally, and for these glass cases are the best. Geological specimens and coins require to be scrutinised more closely, therefore



CABINET.

shelves or drawers are the most suitable receptacles. Coins should be arranged in order of date, and classified; it is well to put the name of each class on the drawer, and to label each partition, so that those who look can learn at once. The drawers that contain coins or medals should be lined with dark-blue or green velvet; a slip of ribbon gummed to the velvet will enable the coin to be raised quickly. These cabinets should be kept locked, for fear of the meddling of mischievous fingers.

Cabinet (Room).—A small private room kept apart for study, or interviews requiring a degree of secrecy; hence the secret councils of Government officers are called Cabinet Councils, and the principal members of the administration, Ministers of the Government, bear the same name. The policy of Italy and the practice of France first introduced cabinet councils. King Charles I. is considered to have first established this usage in England. Besides his Privy Council, that king constituted a kind of cabinet council under the denomination of a Council of State, composed of Archbishop Laud, the Earl of Strafford, and Lord Collington, with the Secretaries of State.

Cable Patterns.—These are composed of links placed one within the other. A great variety can be made in these patterns, although at first that would not be considered feasible. The links can be long or short, plain or twisted, double or single, round or flat, plain or engraved. This style is the most serviceable for watch-chains, being strong and durable. Although the same may be said with regard to bracelets, these patterns are not much used, because they are uncomfortable for the wrist.

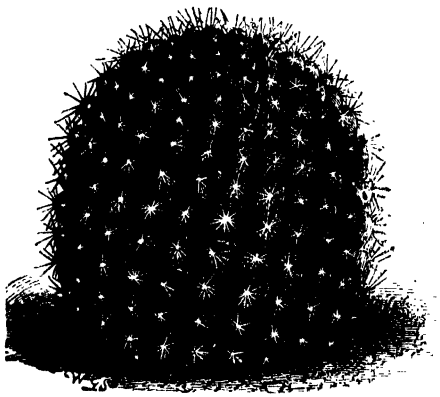
Cabriolet.—This is a kind of light vehicle, now commonly known as the cab, from which it differed originally, being then a one-horse chaise or gig with a calash top, and a wooden apron in front to cover the legs and lap. In its earliest form the driver was seated inside the vehicle, and a foot-board was behind for a "tiger," or boy-servant, standing by the aid of straps for the hands. It has from time to time endured many changes of form, at one time resembling nothing so much as a sentry-box on wheels, with a door behind and the driver in front; at another a low-hung chariot between two enormous wheels, with its driver seated on the roof. When in private use it is called cabriolet; in public use the word is abbreviated into cab. The one-horsed cabriolet was originally introduced early in the present century to take the place of the two-horsed old hackney coach. The private cabriolet possesses the advantage of its covered head being raised or lowered at will.

Cabs and Cab-fares.—Cabs come under the more general appellation of hackney coaches or hackney carriages. Hansom cabs have two wheels only, but those in the old style have four. These vehicles are subject to many regulations, and are hired under various conditions involving differences in the fares charged. Every cab bears a registered number, and every driver has a number which he wears on a badge. The hirer of a cab may demand a ticket on entering; and on leaving it may, if a dispute arises, require to be driven to the nearest police-court. A driver can recover unpaid fares and compensation for damage or loss of time, but he can only demand the legal fare, or less if he has agreed to take it. He is not required to drive more than six miles an hour if hired by distance, or for more than one hour if hired by time; if stopped by the hirer, he can demand 6d. for every fifteen minutes, when engaged by distance. For the regular fare only two persons are to be carried; for each adult additional an extra 6d. is demanded, 3d. for each child under ten; for each parcel of luggage carried outside 2d. is to be paid. If hired and discharged within four miles of Charing Cross, the fare is 1s. for any distance not more than two miles, and 6d. for each additional mile or part of a mile. If hired beyond the four-mile circle, the fare is 1s. for each mile or part of a mile, wherever discharged. If hired within the circle but discharged beyond, each mile within it is at the ordinary rate, but any mile or part of a mile beyond it is charged 1s. Fares by time for two persons within the four-mile circle are 2s. an hour or part of an hour for "four-wheelers," and 2s. 6d. for two-wheeled cabs; for each fifteen minutes or part thereof beyond one hour, 6d. is paid for four-wheelers, and 8d. for two-wheeled cabs. When hired by time beyond the circle, the fares are 2s. 6d. for the hour or part of it, and 8d. for each quarter of an hour or part thereof. Back fare cannot be demanded on discharged cabs. In cases of dispute, distances may be measured; but the ordinary official tables of measured distances are usually relied on. These tables give the fares between all the best-known por-

tions of the metropolis, to which the foregoing regulations apply. The rules for cabs at such places as Birmingham, Liverpool, Manchester, Hull, Dublin, &c., differ in a variety of details, all of which are, however, settled by authority. It may be added that no driver of a cab is compelled in London to hire by time between eight in the evening and six in the morning; at other times he cannot refuse to take a reasonable fare either by time or distance. Among the penalties there is one for the conveyance of persons who are suffering from infectious or contagious diseases; in this case the hirer is severely punished.

Cacao. (*See* Cocoa.)

Cactus.—The cactus is a greenhouse plant, but it will thrive well in warm rooms. Some sorts of cacti are very beautiful, and throw forth a number of blossoms; the flowers are generally a scarlet crimson, and are elegant in their character, hanging in a pendant form from the main stems. The cactus has no leaves, but



CACTUS.

the stem shoots out joints, each of which becomes a stem or branch for other shoots. It may be propagated from seed, but the best plan is to take a shoot or cutting and plant it in a pot. The soil necessary for the cactus should be light, with cinder or brick refuse. The seed should be sown in fine sand, and little water is necessary to the growing plants. The cuttings should not be put into the earth as soon as broken off the main stems, but allowed to dry up a little at the cut part. The time for flowering is about June.

Caddies are small boxes divided into two or more sections for the separation and preservation of different kinds of tea. They are made of various fancy woods, and to prevent evaporation are lined inside with lead, tea having volatile and essential properties which might otherwise be lost in the keeping. Exposed to the air, the tea-leaf becomes dry, and its delicate flavour is more or less lost by evaporation.

Cadency (Heraldic).—This term signifies certain heraldic marks used to distinguish the several members of the same family. Special devices are adapted which indicate the right of the individual to the arms he bears, and this device is generally borne in the chief of the shield. The distinguishing mark exhibited by the eldest son (during his father's lifetime) is that of a label; the second son or brother that of a crescent; the third son bears a mullet, the fourth a martlet, the fifth an annulet, the sixth a fleur de lis, the seventh a rose, the eighth a cross moline, and the ninth a double quatrefoil. In olden times crosslets and other forms of small crosses were the general signs, but gradually these became identified with the original arms, and thus lost their significance, when it became necessary to adopt others. Those now employed resemble in their general character those in use in the fifteenth century.



LABEL OF ELDEST SONS OF EDWARD I. AND II.

Cadet.—This term (derived from the French *cadet*, younger, junior in service) is applied generally to all junior members of a noble family as distinguished from the eldest; and in France a junior officer is a cadet in respect to any of his senior officers. The word, however, is more commonly used when speaking of military and naval cadets.

A military cadet is a youth who is preparing for the military service, and going through a period of probation previous to commencing his duties as a military officer. Under the present system all first commissions in the army are thrown open to competition, an examination being held twice a year, when the most successful candidates are admitted as military cadets. Some of these are gazetted at once to regiments; others, lower in the list, as sub-lieutenants unattached, to be afterwards gazetted to regiments as vacancies occur. The whole number, however, of the successful candidates next undergo a course of preparation at the Military College at Sandhurst, or, in the case of appointments in the Engineers or Artillery, at the Royal Military Academy at Woolwich. Unattached sub-lieutenants receive no pay while at the Military College, but have to support themselves at a cost of about 4s. a day. Commissions in the army can be obtained by young men qualified for Queen's or Indian cadetships without competition, after passing a qualifying entrance examination only. Queen's cadets are sons of officers of the Army, Navy, or Marines, who have fallen in action, or died of wounds within six months, or of illness brought on by fatigue, privation, or exposure, incident to active operations in the field before an enemy, within six months of having been first certified to be ill. Indian cadets are the sons of men who have served in India in the Military or Civil Service of her Majesty, or of the East India Company, and these are nominated by the Secretary of State for India.

The naval cadet is the lowest grade of officer in the Royal Navy. All candidates for

cadetships must first procure a nomination. Nominations are in the gift of the Lords of the Admiralty, but admirals on appointment to command stations have two placed at their disposal, and post-captains commissioning a ship have one in their gift. The nominated candidates, who must be between the ages of twelve and fourteen, are examined at the Royal Naval College at Greenwich. Those boys who are most successful—depending in number according to the requirements of the service—are then sent on board the training-ship *Britannia*, at Dartmouth, and are called cadets.

Caen Stone.—So called from Caen, in Normandy, near to which place it has long been quarried: a fine white oolitic limestone, similar to that of Bath. It is very durable, and much used as a first-class building stone, and for ornamental work.

Café.—The French name for a house at which coffee is the principal beverage sold; a coffee-house.

Cafetière.—A very large variety of utensils have been contrived for making coffee, all of which have for their object the production of a clear, strong infusion. Amongst these, one of the best—perhaps the very best—is the French cafetière, or coffee biggin. This apparatus is divided into two parts, which fall into each other, and the spout, which has a little lid attached to it to keep in the heat, is in the lower portion. The upper division has a perforated bottom, a round piece of tin inside for pressing down the coffee, and a movable strainer which fixes into the top part. To use the cafetière, first fill it with boiling water, and when the biggin is quite hot pour the liquid away. Remove the strainer and the presser, and put the coffee at once into the upper division of the cafetière. Press it down with the piece of tin, and leave this upon it in order to keep it from being scattered. Fix the strainer in the top, and pour through it as much boiling water as will fill the lower portion of the cafetière, put on the lid, and leave it for a few minutes. The infusion will percolate into the lower division, and will be strong and clear. The objection which is sometimes urged against the cafetière, that the coffee gets cold before it is ready for use, will be entirely obviated if the cafetière be made hot with boiling water before the coffee is put in. If it should get cool, the cafetière may be put on over the hot stove until steam appears in the spout, and then be instantly removed.

Caffeine is obtained from coffee as theine is from tea. Both possess to a large degree the same qualities as quinine; indeed, according to Dr. Lankester, there have been cases of ague which quinine has failed to cure, and which have yielded to caffeine or theine. Tea contains from two to four per cent., whilst coffee yields but one per cent. The extract is obtained by boiling and precipitating. It has been recommended for pains in the head which are local, and also, with doubtful success, as an antidote for overdoses of opium. It has a weak, bitter taste, and its effect upon the system is slight and uncertain, the most common one being such as might be produced by a small dose of sal volatile.

Caftan.—A close-fitting vest worn by the Turks and Persians. The word itself is of Persic origin.

Cage-birds, Breeding of.—If you purchase your birds from a dealer, see that you get strong, handsome birds, and not poor sickly things. Hens ought to be young, while strength, sprightliness, and courage are the things to look for in the cock. Early in January, having some months before selected your stock, you must prepare and see to the cleanliness and comfort of your proposed breeding-cages. The rule is in all cases to follow Nature as closely as you can; the more successful you are in this, the more good fortune you will have in bird-rearing. The essentials for the cage are, first and foremost, roominess and comfort, the water placed where the bird can reach it easily, and the food likewise, and a handy perch in the corner near where the nest is to be; and secondly, the most perfect cleanliness, without which all your efforts will result in failure. If you have a nicely-arranged aviary, with branches of holly or laurel stuck here and there in large flower-pots, the branches having been cut in January or February, and artificial nests placed here and there, you may generally have three or four birds to each cock. The hens may be introduced when the aviary or cages are ready; the cocks not until the beginning of March, or even later. When the hens begin to lay, the rule is to give them an allowance of more nourishing food than usual; and it is best to remove the eggs from the nests as soon as laid, substituting ivory nest-eggs. They must be put carefully away, and covered with a little cotton-wool, and as soon as the bird has laid her complement, returned to the nest again. When the bird is hatching, she still requires the best of food and plenty of it. During the breeding-season the bottom of the cage should be plentifully sprinkled with sand, and a little old lime sometimes added. Sea-sand or broken freestone is the best to use. See that the birds' feet are clean, and the nails not too long, before beginning to breed, or you may have your eggs broken. If you go into bird-breeding as a fancy, it is best to have a room set apart for the purpose, and this must have a southerly aspect. We must never forget that birds of all kinds need a sunshine bath occasionally. Finally, as we have said, the more closely you study Nature in bird-breeding, the greater will your success be.

Cage-birds, Diseases of.—Our principal aim should be, while keeping birds, to do all we can to ward off disease. That this can be done, and successfully too, any old intelligent breeder will tell you, always, of course, leaving accidents out of account. To keep our birds in health, we must attend to three things at least—cleanliness, food, and exercise. As to cleanliness, the cages ought to be kept as sweet as young nuts; it is a good plan to turn the inmates of one cage into another, while you are giving the usual dwelling

a thorough clean out. This is best done with simple soap and water, or carbolic soap, with a final rinse in water in which a little disinfecting fluid is dropped. See that the cage is thoroughly dry before the birds are returned. Where you only keep one or two pet birds it is a good thing to have an additional cage; nothing delights a starling, for instance, more than a few hours spent in a different cage. As to food, it ought to be as simple as simple can be, and the best of the kind. The food should be fresh every day; if permitted to turn sour it is sure to make the bird ill. Too much green meat is very mischievous. Let the water be changed daily, and a bath given to such birds as care to have it. As to exercise, birds cannot always be allowed to fly all over a room, but if possible a little outing should be allowed them daily; and at all events, the cages ought to be as large and roomy as possible. Sprinkle the bottoms of the cages with good sea-sand, and let the birds have an occasional bath in the sunshine, but never for a long time nor in a very hot sun, or you may induce apoplexy, when your little favourite will be found lying fluttering at the bottom of the cage in a fit. If you so see it, take it gently up, and bathe the head in the coldest of water in the fresh air; afterwards give it two or three drops of castor oil.

Asthma is a troublesome disease with some birds, especially canaries. It is known by a continual wheezing sound and difficulty of breathing, as well as occasional fits or paroxysms of dyspepsia. When these latter are urgent, a little nitre paper burned in the room may give relief, and to an ounce of its ordinary drinking water may be added ten drops each of tincture of hyoscyamus and antimonial wine. The bowels must be moved too. Afterwards pay particular attention to the diet, which should be light but nourishing.

If a bird breaks its leg, it may easily be bound up in little quill splints; the perches must then be removed, and a bit of hay placed for it in a corner. Nature will do the healing if you attend to the feeding.

Constipation is best removed by food, an additional supply of green food in summer, and by bread soaked in milk and sugar in winter.

Severe *Cold* and *Consumption* are often taken when the bird is exposed to draughts or wet (too much bathing) while moulting. Give the bird the best and most nourishing food, place a little bit of gum arabic and a little Spanish liquorice in its water, keep it warm and free from draughts. When the bird gets worse, it ought to have a little cod-liver oil with its food daily, and a little (fifteen to twenty drops) paregoric in its water, and if diarrhœa sets in, a few drops of dilute sulphuric acid and one or two of the solution of muriate of morphia may be added.

Diarrhœa is a common disease in birds, arising from cold, indigestion from over-eating, or from having had too much green food, &c. It will be well to begin the curing treatment by giving a small dose of castor oil. If the illness seems to be the result of cold, two or three grains of Dover's powder mixed with gum may be dissolved in its drinking water; if from indigestion, five to ten grains of the trisnitrate of bismuth is to be mixed with gum, and given in its water; and if the purging continues, place in the bird's water a dessert-spoonful of chalk mixture, to which add twenty drops of laudanum.

Enteritis is a more serious disease; there is every appearance of fever, and the bowels are tense and swollen. The treatment consists in painting the abdomen with warm turps, giving castor oil, afterwards gum-water and laudanum, and finally, on convalescence, a rusty nail in the water by way of tonic. If a bird becomes egg-bound, drop a little oil on the vent, give castor oil, and place in a warm position rolled in flannel. Parasites are apt to infest breeding-cages, the insides of which should be whitewashed, the tins that contain the nests rubbed in oil, and small bags of camphor hung here and there about the cage.

Loss of Voice is not uncommon among birds. They may be seen straining their throats to sing, without being able to articulate a note. It is generally the result of cold. Gum-water with paregoric is the remedy, along with a supply of green food to gently open the bowels.

Pip.—A name given to a swelling of the oil gland on the bird's rump. It is to be opened with a fine needle as soon as there is the slightest signs of matter formed. The "yellow gall," "cancer of the bill," or "warts on the head," are names given to tumours about the head, often of a malignant nature. They must be removed either by knife or scissors (if they bleed much, tincture of the muriate of iron will be the styptic), and afterwards dressed with simple ointment.

Swelling of the Joints is not uncommon from accidents. Fomentation with hot water is the proper remedy, and painting with a little warm laudanum. The feet often get sore from dirt, or from being entangled with hairs; the proper remedy in this case must suggest itself to the veriest tyro. In conclusion, ever strive to treat your feathered pets naturally, and with attention and kindness.

Cages.—The canary claims our attention first, all the more so in that the same kind of cage may be used for a variety of other small birds, such as linnets and the several kinds of pet finches. They are made in a variety of different forms, of woodwork and wire, which may be either iron or brass, or brass gilded. There are plain square or oblong cages, Gothic-built cages, cages domed, and arched, and towered, or built cottage fashion; in fact, there is no end to the shapes and styles of canaries' cages, and amateurs often display great skill and taste in building them. Conveniently-fixed perches, a glass utensil for water, a seed-hopper, and a bottom that can be removed for cleaning, are essential in all cases.

For thrushes, mavises, and blackbirds, cages are usually built of little rails, square in shape, with a wooden back and a slanting wooden roof, like a village church. Little boxes for food, and for the water-glass, project from each side, and the bottom draws out. The lark's cage has also the same kind of roof and back. It is, however, perchless, and has the front

side projecting in the shape of a bow. This "bay window" of the larks is kept floored with nice fresh turf, and here the bird delights to sit and trill his song. The bars of this cage are wire.

The starling's cage is almost too well known to need a description; it is made of wicker-work, round, and supplied with plenty of perches. The starling, of all birds, likes plenty of room and plenty to do; the bottom of the cage ought to be covered with hay or straw, and he likes a turf as well. The cage of the nightingale is somewhat peculiar; it is of the same shape as the blackbird's, only three sides are made of wood as well as the roof; the door opens in the back, and there is a little shelf inside with two holes therein for the reception of the utensils for food and water. The inside of the roof must be padded, and the perches covered with green baize or flannel, so that the bird may not hurt himself in his attempted flights. The perches are placed from one side to the other, and not from back to front.

The cage for the squirrel, usually sold in shops, consists of two parts—namely, one, a kind of wire barrel, into which the animal gains access from the other portion, or sleeping and feeding compartment. This wire barrel the little animal is supposed to delight in turning treadmill fashion; but this is a great mistake, and nothing could be more cruel than a cage of this description, for either rats or squirrels. They ought to be kept in a large—the larger the better—roomy box, in which perches are placed after the fashion of tree-branches; this box is wired only in front, and contains a dark compartment for retirement, and refreshment by sleep and food. This retiring-room must have a little door behind it that it may be regularly cleaned, and it contains the squirrel's food and water dishes. The cage for the white or Java rat may be built on exactly the same principle. Cages for mice are more fanciful, and may be constructed with a brass treadmill wheel, and in the wooden portion several storeys may be built, with a winding staircase, food and water being contained in the topmost storey.

Cairngorm.—A variety of quartz named after a mountain on the borders of Banffshire. It is of brownish-yellow colour, and when cut and polished is very attractive in jewelled work, and in the form of bracelets, brooches, earrings, &c. Though beautiful, it is by no means costly.

Cajeput Oil is obtained from the leaves of the cajeput tree (*Melaleuca Cajeputi*), a native of the East Indies and Australia. When pure, this oil is colourless and transparent, and has a strong odour, but as ordinarily sold it is green. This colour is produced by the infusion of chloride of copper. Oil of cajeput possesses strong stimulating and anti-spasmodic qualities, and is useful in cases of cholera, hysteria, spasms, &c. Inferior oils are often sold under this name, the most common being a compound rosemary flavoured with camphor and cardamoms. The pure cajeput boils at 343° Fahr., and dissolves freely in alcohol, but when dropped on water spreads over the surface only, and speedily evaporates. Large quantities of this oil are prepared in the island of Banda. It is said that two sackfuls of leaves yield only three drachms of oil.

Cake Baskets are pretty ornamental baskets, made either of silver or of plated metal for the purpose of holding cakes which have been cut up into pieces of a convenient size. These baskets are generally made to look pretty and light, and have a very good appearance. They have now become a little old-fashioned.

Cake Tins are either pieces of thin iron made to suit the oven for which they are intended, or they are tin shapes with perpendicular sides intended to hold cakes whilst they are being baked. They are made of all shapes and sizes, and are used for cakes of all descriptions. They should be well greased, and should afterwards be lined with white paper before they are used, and should not, as a rule, be more than half filled, in order to allow for the cake rising in the oven. Cake tins are often made with fluted sides like moulds, and they give a pretty appearance to the cake; but they are a little more difficult to turn out, and the cakes baked in them cannot be iced so successfully as if a plain mould had been used. When done with, cake tins should be washed in hot water, and dried perfectly before they are put away, and they should be hung in a dry place, or they will be apt to impart a musty taste to the next cakes that are baked in them.

Cakes (Various).—These toothsome delights are too well known to need description. They are the abhorrence of the dyspeptic, and they are the delight of the hungry school-boy. The former may growl at them as being unwholesome or unnecessary, but to the latter they constitute the crowning achievement of the culinary art. He proves his appreciation of their goodness by the relish with which he partakes of them, and assisted by those wonderful aids to digestion, cricket and football, can with perfect safety dispose of a slice of cake that would make his elders turn pale.

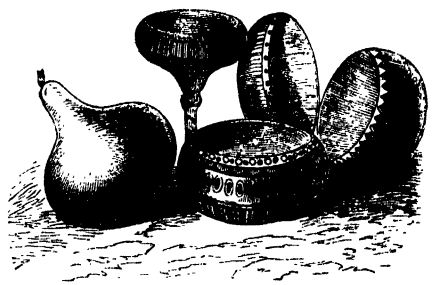
To make cakes well it is indispensable not only that great accuracy should be observed in proportioning the ingredients, but that the ingredients themselves should be, if not the best, at least good of their kind, and all should be fresh and perfectly dry. Flour, sugar, butter, eggs, currants, with flavourings of various kinds, are the materials usually employed. These should be prepared to a certain extent, and afterwards measured or weighed before the actual operation of cake-making is commenced. Flour should be gently heated in front of the fire for an hour before being used; currants should be washed and picked, then wiped with a soft cloth, and dried before the fire. A little flour may be sprinkled over them at the last moment. Sugar should be rolled and sifted. If the cake is to be a plain one, clean light-brown sugar will do as well as refined white sugar. The eggs should be perfectly fresh and good, and in order to ensure this, each one should be broken separately into a cup before it is put with the others. If this point is carefully attended to, the accidental introduction of a bad egg amongst the number

will not spoil all the rest. The yolks and whites should be put into separate bowls, the specks removed, then the yolks beaten, either with a broad fork or with rods, till they are light and frothy, and afterwards the whites whisked to a solid froth, till no moisture remains at the bottom of the bowl. Both may then be put in a cool place till wanted. Nothing but fresh sweet butter should be used in making cakes. Common cheap butter is to be avoided, as if it is at all rank or strong, it is sure to impart an unpleasant taste to the cake. Should it be salt, that will do no harm, as the saltness may be removed by washing the butter in cold water two or three times, at the same time kneading it well with the hands. Good clarified beef-dripping is to be preferred to common butter for plain cakes. Lard also is not good for cakes. In most recipes for making cake it is recommended that the butter should be beaten to cream. This is done by beating it in a bowl, either with a wooden beater or with a cool hand, till it is reduced to a smooth cream. The water which every now and then oozes out of the butter during the process should be poured off. Almonds should be blanched before they are pounded or sliced. To do this easily, put them either into boiling water for a minute or two, or into cold water over the fire, and let them remain a few minutes till the water is about to simmer, when it will be found that the skins will slip off easily. As they are peeled, throw them into cold water, to preserve the colour. If they are not pounded they should be thinly sliced or divided lengthwise; if they are pounded, one or two drops of cold water, or of rose water, or orange-flower water, or white of egg, should be sprinkled upon them every now and then to keep them from oiling. Either a marble mortar or one made of hard wood should be used for pounding almonds. Volatile salts, saleratus, or carbonate of soda, is often used to make cakes light. This should be finely powdered, and dissolved in a little hot water before being added to the cake. If baking powder is used for the same purpose, it does not need to be dissolved, but may be mixed with the dry flour and other ingredients before they are moistened. When fresh lemon-peel is used for flavouring, it should be rubbed upon loaf-sugar till the yellow part is taken off: this is a tedious process. An easier one is to cut off the yellow part very thin and entirely free from white, and then pound it in a marble mortar with sugar. Many cooks, to save trouble, draw out the flavour of the lemon by soaking the thin yellow rind for an hour or more in a little of the liquid with which the cake is to be moistened. Or a more usual plan still is to cut off the yellow part and mince it very finely, and add it to cakes. When yeast is used, fewer eggs and less butter will be required. The liquid with which cakes are to be moistened should be made lukewarm. Where milk is used, the cakes will not keep so long as if water were employed. Cakes cannot be beaten too much: not only should they be beaten whilst they are being mixed, but the operation should be continued after all the ingredients are introduced, and until the mixture is light and creamy. By this means the lightness of the cake will be increased.

The heat of the oven in baking cakes is an important consideration, for cakes are oftener spoiled in the baking than in the making. Small cakes require a brisk oven to make them rise. The heat should not be increased after they have begun to bake. All large cakes need a well-heated but not a fierce oven, as they should be equally cooked throughout; and there is always a danger that the middle will be a little pasty even when the outside is sufficiently baked. In order to keep them from being scorched, a sheet of white paper should be laid over them after they have risen and become firm; also they should be turned round in the oven once or twice that they may be equally cooked. Of course the tin in which they are baked should, after being greased, be lined with paper. In order to ascertain whether or not a cake is sufficiently baked, a skewer or knitting-needle may be plunged into the centre of it. If the cake is very large, a broad-bladed knife should be substituted for the skewer. If when drawn out it is dry and clean, the cake is done enough; if it feels moist and sticky, and if anything adheres to it, the cake must be returned again to the oven. Cakes when done enough should be gently turned out of the tin and laid on their sides till cool. Cakes keep best when kept in a tightly-covered tin canister in a cool dry cupboard. Wooden boxes, brown paper covers, and linen or cotton wrappers are liable to give them an unpleasant taste. If the canister is not at hand, the cake may be folded in a thick napkin and placed in a stone jar, and covered closely.

Calabar Bean.—The product of a leguminous shrub which grows in Old Calabar. The seed or bean is about the size of a horse-bean, has no particular flavour, and occurs in long pods which contains two or three in each. It acts as a poison, but it has some properties which have secured it a place among modern Materia Medica. In small doses it is used in cases of lockjaw, and some other nervous affections; and it is applied to the eye in certain diseases of that organ. Its effect upon the eye is to cause a contraction of the pupil, and so to lessen the amount of light admitted; its action is therefore exactly the opposite of that of belladonna.

Calabash.—A vessel formed from a dried



CALABASH.

gourd, the fruit of the calabash tree, a native of the West Indies and the tropical parts of

America. These gourds are sometimes as much as a foot in diameter, and when scooped out, their hard shells form very useful vessels, which may take the place of bottles, goblets, cans, &c.; they have even been used as kettles for boiling liquids, and this too, it is said, without being materially injured. The rinds of other gourds also are often used for similar purposes, and called calabashes; these are sometimes highly-carved and ornamented vessels.

Calcareous. — A term applied to substances in which lime in some form is a chief constituent.

Calcareous Spar.—The same as calcite, native carbonate of lime in a crystallised state, occurring in many forms and various colours. It ranges from colourless and transparent to opaque; and is found in different parts of England as well as abroad. Specimens from Iceland, hence called "Iceland spar," are remarkable for their power of double refraction, *i.e.*, objects seen through them appear double.

Calcareous Tufa.—This is a carbonate of lime; it is porous and soft, and has been deposited by water; it occurs in irregular forms of different colours, as yellowish-grey and brown; it sometimes encloses organic remains. In England it occurs in Dorsetshire; and it is found in Germany and other countries. An Italian variety is harder, and under the name of "travertine" is used for building.

Calceolaria (from the Latin *calceolus*, a little shoe).—This plant, belonging to the numerous order of *Scrophulariaceæ*, is so named from the resemblance which the inflated corolla bears to a slipper or shoe. It is a native of South America, in most parts of which, whether in the colder or warmer regions, it grows in great profusion. The calceolaria has long been known in English gardens, where it is usually, though not always, treated as a greenhouse flower, and it may be propagated without any difficulty by cuttings. It is necessary to keep the plants well watered. As a rule, the flower of the calceolaria is of a yellow colour; there are, however, some other varieties.

Calculating Machines.—These are devices for executing by a mechanical process calculations which by ordinary means would involve great labour and mental weariness. The idea is ancient, as is shown by the abacus, which, as an aid to arithmetical calculations, has been long and widely used. This consists of a rectangular frame, across which are a number of parallel wires bearing balls or counters having certain values assigned to them, and showing the sum of an exercise when shifted into their proper positions. Of a far higher character was the invention of Blaise Pascal, which, by means of a series of cylinders properly marked, showed results of great practical value to scientific men. "Napier's bones," for calculating logarithms—another invention of the seventeenth century—greatly assisted and shortened operations of much nicety and importance. Since then a list of names, English and foreign, is on record of men who have devoted themselves to the construction of calculating machines; the best known being that of Mr. Babbage. This gentleman carried on his work from 1822 to the close of his life in 1871. His two great achievements were an analytical machine and a difference machine, the latter of which was left uncompleted, and is now in a London museum (that of King's College). Two Swedish engineers, the brothers Scheutz, completed a machine based on the description of Mr. Babbage's unfinished one, and examples of it exist in England and in the United States. Without going into the principles which underlie all forms of the calculating machine, suffice it to say that modern efforts are mainly and properly designed to assist in the manipulation of high figures, and not in such sums as ordinary intelligence is equal to work in a short time, and without much labour.

Calculus.—This term is generally applied to a certain concretion formed from the products of the urine, and found in the kidneys and bladder. In the former case it is called renal, in the latter vesical calculus. There are also salivary, lacteal, and biliary calculi, each deriving its name from the specific fluid from which it is formed. (*See* STONE.)

Caledonian Quadrille. — This is danced as follows, the number of couples and their first arrangement being the same as in other quadrilles. Each figure, as described, is danced by the side couples after those at the top and bottom of the set have danced it. First figure: The *vis-à-vis* couples at the opposite ends advance, give hands across, and retire to their places, then set and turn their partners; this is followed by ladies' chain and half promenade. Second figure: The gentlemen at each end advance and retire twice, then all couples set at corners, and every lady passes to the right into the next lady's place, after which all promenade. Third figure: The first lady and her *vis-à-vis* advance, bow to each other, retire, and then pass round each other to their places. The first couple then, taking hands, pass over, while at the same time the opposite couple cross on the outside of them. This part is then reversed, after which all couples set at corners, turn, and take their own partners; finally all advance in circle with hands joined, and retire, advance a second time, retire, and turn partners. Fourth figure: The first lady and her *vis-à-vis* advance and wait, then their partners advance, and the four each turn with their partners to their places. All the ladies now move to the right, each one occupying the place of the next lady, and there stop; all the gentlemen move to the left, each one occupying the next gentleman's place, and stop. This movement is again made by all, then all join hands and promenade to their places, and all gentlemen turn their partners. Fifth figure: The first couple waltz round inside the circle; all the ladies join hands and retire; gentlemen advance and retire; all couples set and turn their partners; all make chain figure, and then set, after which all promenade to their places, and gentlemen turn their partners; all change sides, right hands are joined at corners; partners set, and retire to their places. The final movement is the grand promenade. (*See* QUADRILLES.)

Calendar.—The method of adjusting the divisions of the civil to those of the natural or solar year (derived from the Latin calends). From a very early period the necessity of some division and measurement of time seems to have been felt. The changes of the moon afforded a natural division into months, the changes of the seasons into years. The year of the Egyptians was determined by the changes of the seasons, regardless of the changes of the moon, and was divided into twelve months of thirty days each, with five supplementary days at the end of each year. The Jewish year consisted, and still consists, of twelve lunar months of twenty-nine and thirty days alternately, a thirteenth being introduced from time to time to accommodate their calendar to the seasons. The Greeks originally reckoned according to true lunar months, but in 594 B.C. Solon introduced a system of months consisting alternately of twenty-nine and thirty days, an extra month being occasionally introduced. The Romans, in the times of the kings, had a lunar year of 355 days; but this system caused much confusion, and in 46 B.C. Julius Cæsar attempted to remedy the matter by the introduction of the Julian Calendar, by which the year consisted ordinarily of 365 days, every fourth year (leap-year) having an extra day. By this arrangement the average year consisted of 365 days, the true duration being 365 days, 5 hours, 48 minutes, 50 seconds. By the Julian calendar the length of the months now universally adopted was fixed. This calendar remained undisturbed until the year 1582, when the accumulated error of nearly sixteen centuries amounted to about ten days, and began to cause great inconvenience. Pope Gregory XIII. then took the matter in hand, and after some consideration decided that ten days should be deducted from the current year (1582) by calling what according to the old calendar would have been the 5th the 15th of October. But this was not all; not content with having set the matter right for the nonce, he determined to provide against error for the future, and ordained that every hundredth year (1700, 1800, 1900, 2100, &c.) should not be counted a leap-year, excepting, however, every fourth hundred (2000, 2400, &c.). It has been reckoned that by this arrangement the accumulated difference between the civil and the natural year will not amount to a day in 5,000 years. The use of the Gregorian Calendar was not at once generally adopted, the Protestant nations refusing to have anything to do with a project, however useful, emanating from the Pope. One by one, however, urged by the expediency of the step, the different countries gave way; and in 1751, when the error had increased to eleven days, the necessary change was made in this country. Russia is now the only nation in Europe which still adheres to the old style, and in consequence of the non-observance of the year 1800 as a leap-year, according to the Gregorian regulation, there is now a difference of twelve days between the two styles; thus, for example, October 15th in this and other countries becomes October 3rd in Russia.

Calendering (Laundry).—The smooth and glazed appearance noticeable in all new calico and linen goods is obtained by means of pressure given by cylinders, more or less heavy according to the substance of the material. The first method of calendering was similar to that of mangling, wooden rollers being used. It is now done by means of cylinders made of cast-iron or of paper. The latter is supposed to be the most effectual, as paper takes a finer polish, and so makes smoother the cloth over which it rolls. When a high glaze is required, bleached wax is sometimes used to add additional gloss. Muslin is stiffened with flour starch, and stretched out until dry.

Calf. (*See* VEAL.)

Calico.—The mark of well-woven calico is the evenness and regularity of its selvage. Calico which is not dressed—*i.e.*, which has not been subjected to the final process of pressure—is said to wear longer than that which has been highly finished. Unbleached is stronger than bleached calico. The calico called long-cloth is finer and more suitable for body-linen than any of the other kinds. The best calicoes are those woven of American cotton, the fibres being longer, and therefore the calico is smoother. Those manufactured of Indian cotton are not so substantial or useful, the fibre being short. Narrow calicoes are cheaper by the yard than wide ones, but often they entail much extra time and trouble, and thus occasion more loss than gain; it is well, therefore, to make calculations of the width required for the garments before the purchase is made. The name of calico has come into use from Calicut, a town in India famous for its production of cotton cloths of various descriptions. It was not until the early part of the seventeenth century that the English began to make use of cotton. In the United States, printed cotton cloth is called calico.

Californian Wines.—The soil and the climate of California are eminently favourable to the growth of the vine, which is largely cultivated there. Between 300 and 400 varieties of grapes have already been successfully grown, and amongst them are some of the choicest vines used in Europe for the manufacture of wine. As a regular thing the vineyards produce 1,000 lbs. of grapes per acre, and some of them in the more favourable localities yield as much as twenty times that quantity. Under these circumstances it is not astonishing that a large and increasing trade is carried on in wine. Opinions differ considerably as to the quality of Californian wines. Californians themselves speak of them with rapture, and are confident of their ability to produce a marketable vintage. Some who have tasted them say they are excellent, while others advance a directly opposite opinion. Major Sir Rose Lambert Price declares that though he made a martyr of himself on every possible occasion by tasting the wine in hopes of discovering something wonderful, he never once came across even a tolerably good specimen through the entire State. The real fact of the matter seems to be that though the wine is itself excellent, and although it would be possible to make as good

wine in California as anywhere else, the growers cannot afford to keep it very long, and the consumers drink it right away. An idea of the extent of the trade in Californian wine may be drawn from the fact that in the Santa Rosa valley alone, which is not the chief seat of the wine trade—Los Angeles being more important still—350,000 gallons of wine and brandy are produced every year.

Calisthenics.—This word is derived from the Greek *kalos*, beautiful, and *sthenos*, strength. It signifies the science of exercising the body for the purpose of giving strength to the muscles and grace to the carriage. The importance and value of taking regular exercise can scarcely be overrated. Exercise is one of Nature's laws, fixed and unalterable. We may dislike the necessity, and we may think to disobey the law, but if we do we must bear the penalty. If the mental powers are to be improved they must be exercised, if the affections are to be cultivated they must be exercised, if the memory is to be of any service it must be exercised, if the moral faculties—truthfulness, generosity, honour—are to be developed they must be called into exercise, and so if the limbs and muscles are to be strengthened they must be exercised, and unless this is done health cannot be enjoyed. If the arm of a healthy man were tied up, and kept quite still for a length of time, it would gradually lose its power; but if it were employed in lifting, or pushing, or carrying, it would grow stronger and stronger. In England we have been slow to recognise the truthfulness of these statements. It is only since the commencement of the present century that exercise has been elevated into a science. In France, in Sweden, and especially in Prussia, the advantages of physical exercise have long been admitted, and steps have been taken to secure them, especially to the rising generation. The German gymnasia and Turn-everein are proofs of this. Fortunately this may now be said of our own country also. There are very few large schools where provision is not made for muscular training, or calisthenics does not enter into the educational curriculum. If calisthenics are valuable at all they are particularly so during the period of growth. Many parents need to have their ideas expanded on this subject. They are careful that their children should be shielded from damp and cold and draught, but they are not equally anxious that the muscles and limbs should be brought into regular action. The narrow chests, the projecting shoulder-blades, the shrunken limbs, the crooked spines, the weak joints, the swollen necks, the disproportioned bodies, that meet our eyes every day bear witness to the fact. People who live in large towns, and who have young children, may urge the difficulties that are in their way, but much may be effected by simple means. Children should be required at least once a day to stand with the shoulders thrown back and perfectly upright. The mouth should then be closed and the breath held, while the arms are thrust vigorously in all directions—upwards, downwards, outwards, backwards, forwards. In this way the chest will be expanded, and all the respiratory muscles exercised. The movements should be made in the open air, if possible, and if this is not practicable, in a cool place, and quite away from the fire. If they are begun in early life, repeated daily, and continued up to and beyond mature age, they will have developed the vigour of the system, will have increased the size and strength of the lungs, will have been a safeguard against consumption and similar disorders, and will have braced up the muscles and also the nervous system. One thing, however, must not be forgotten — moderation should be observed even in calisthenics, otherwise the muscles may be strained instead of strengthened, and harm instead of good be the result.

Call of the House.—This is a Parliamentary usage, sometimes adopted to discover whether there be any one in the House not returned by the Clerk of the Crown, but more frequently to discover what members are absent without leave of the House or just cause, when the sense of the whole House is deemed necessary. In the former case, the names being called over, every member answers to his name, and departs out of the House in the order wherein he is called. In the latter, each member stands up uncovered on his name being called. Members not attending when their names are read over are reported as defaulters, and ordered to attend on another day, when, if they still be absent, and no cause offered, they may be committed to the custody of the Serjeant-at-arms.

Call to the Bar.—The election of students to the degree of barrister-at-law. (*See* Bar.)

Callimanco. — This strong and useful material is not so much in request as it was a hundred years ago. At that time it was used for ladies' petticoats and aprons, and for chair-seats. Much of it was also sent abroad, chiefly to Russia, whence it found its way into Tartary and Siberia, and was there used by the several tribes for sashes. Callimanco is made of wool, and has a glazed appearance; it is made in plain colours, and has latterly been used for blinds, but, being expensive, coloured linen is often substituted. At one period callimancoes were made with broad stripes, on which were flowers. Suffolk is the seat of the manufacture.

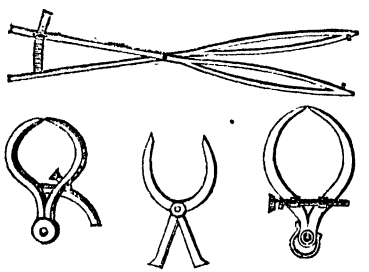
Calling the Jury signifies the drawing the names of the jurors on the panels annexed to the nisi prius record (*i. e.*, the transcript of the pleadings on either side), and calling them over in the order in which they are drawn. The twelve persons whose names are first called, and who appear, are sworn as the jury, unless some just cause of challenge or excuse with respect to any of them shall be brought forward.

Calling the Plaintiff, in law, is when the crier of the court is ordered to demand or call the plaintiff, the evidence offered by him being insufficient to maintain his case. If he does not appear, he is non-suited, and the jury are discharged without giving a verdict. The plaintiff can, however, bring another action,

which he could not have done if a verdict had been arrived at.

Callipash and Callipee.—The callipash of the turtle is the name given to the upper shell of the creature, and is probably merely a corruption of carapace (which is the correct term for the dorsal shield of chelonian reptiles). It is used to signify the green fat which adheres to the upper shell of the turtle, and which is so highly prized by epicures when served with turtle soup. The callipee, on the contrary, signifies the yellow gelatinous matter which adheres to the under shell of the reptile.

Callipers, or Calipers.—Instruments for ascertaining the extreme measure of bodies. For fine work, compasses with the legs slightly curved inwards are used; for larger and rougher measurements, such as the outside



CALLIPERS.

dimensions of casks, packing-cases, and the like, a wooden measure is used, divided into inches and parts of inches, with one arm fixed at right angles at the end of the scale, and another parallel to it, which is made to slip up and down as required. Callipers are also used in the measurement of timber imported from abroad.

Calls, Etiquette of.—These may be divided into three classes—calls of courtesy, of congratulation, and of condolence. Calls of courtesy should be paid after receiving hospitality at a house; after a dinner-party or a dance, the guests should call upon their entertainers within the week following the entertainment. When new acquaintances have called, the return call should be paid a few days afterwards; even if the acquaintanceship is not desired, the call must be returned, but under these circumstances the second need not be acknowledged. After recovery from illness, after the announcement of an approaching marriage of a member of the family, and after such a marriage, calls of congratulation are paid. After a death in the family or any affliction, calls of condolence should be paid. Calls are paid in the afternoon, between the hours of two and six; on entering the room the callers should advance to the lady of the house, and should not speak to any one else until they have spoken with her. Calls of ceremony, such as the three classes above mentioned, should be of short duration, and not extend beyond ten or fifteen minutes. It is not customary to make introductions during calls.

Calomel.—Calomel, or sub-chloride of mercury, is made from the sulphate of mercury, quicksilver, chloride of sodium (common salt), and boiling water. It is a heavy, dull, white powder, without smell or taste, and is not soluble in water. Calomel, in doses of from two to five grains, is an excellent aperient, acting indirectly, in some way as yet unexplained, upon the liver and portal circulation, which it very much relieves. Combined with opium in the proportion of one grain of calomel to half a grain of opium, and taken two or three times a day, it is a valuable remedy in inflammation of the bowels, both peritoneal and enteric, in rheumatic affections of the membranes of the heart, in pleurisy, and in inflammations of the synovial or lining membranes of joints. The drug, however, must not be continued for more than two or three days, as it soon salivates, and in some people a very small quantity will produce this condition. (*See* SALIVATION.) Calomel is also much used in certain affections of the brain, as well as in pneumonia and cholera; and experiments have shown that if given two or three times as a purgative during the first week of typhoid fever, it considerably mitigates the intensity of the attack. Calomel ointment, which contains about one grain of calomel to six of lard, is frequently used as an inunction, and is a valuable application in some forms of skin disease. Children appear to benefit very much from the occasional use of this drug. The dose for a child is from one to two grains in a little pounded white sugar, which should be placed on the tongue. (*See* MERCURY.)

Caloric.—A term introduced to express the idea of heat as a measurable quantity. It soon became adopted by those who regarded heat as a ponderable body; and as used in old books it generally implies the existence of something material. The word is not needed in modern science, and is liable to perpetuate erroneous ideas.

Calorimeter.—An instrument for measuring the quantity of heat which a body absorbs or parts with as its temperature rises or sinks through a certain number of degrees, or when it changes its condition. The most convenient mode of determining this is to see how much ice will be melted by the substance experimented upon after being raised to a given temperature. The ice calorimeter invented by Lavoisier has long been used; but Bunsen has adopted another arrangement, by which much more exact results can be obtained.

Calotype. (*See* TALBOTYPE.)

Calumba Root.—Calumba is the sliced and dried root of the calumba plant (N.O. *Menispermaceæ*), found growing in the forests of Eastern Africa. It is sometimes called colombo, and on that account it was formerly supposed to be imported from Colombo, the capital of Ceylon. It is generally sold in oval, round, or cylindrical pieces, varying in diameter and length from one to two inches or more, and in thickness from one, two, or three lines to nearly

an inch, the centre of each piece being yellow, and the outer portion a dark green. The taste is bitter, but the odour is inappreciable. Calumba is composed of a crystallisable principle called calumbine, an alkaloid called berberia or berberine combined with calumbic acid, a salt which imparts the yellow colour present, and a large quantity of starch. The presence of the latter can be easily proved, by adding a solution of iodine to a cold decoction of the root, which will then become a violet-black. Calumba does not contain any tannic or gallic acid, and on that account is a favourite vehicle for the administration of iron. As a mild serviceable tonic in certain irritable and dyspeptic conditions of the stomach, especially if accompanied with nausea or vomiting, calumba is a valuable medicine. Combined with an alkali, as potash or soda, or with the mineral acids, it seldom disagrees, and may be given with safety when other tonics are inadmissible, and especially after fever it will prepare the way for stronger medicines, as quinine, bark, iron, &c. It is a favourite vehicle, as just mentioned, for giving the latter, the combination making a capital tonic in cases where it is desirable to unite a vegetable with a mineral tonic; and they are frequently thus prescribed. Calumba is used as extract (dose, five to ten grains), powder (dose, ten to twenty grains), tincture (dose, half a drachm to two drachms), and infusion (dose, one to two ounces).

Cambric.—This is an exceedingly fine and beautiful cloth made of flax, deriving its name in English from Cambray, in the Netherlands, where it was first manufactured; and in French, from Baptista, the inventor, it is called *batiste*. It is manufactured in England (Lancashire), and likewise in Ireland, as well as in France. That of France, when of the best description, is superior to our own. It is very silky in appearance. It was much used formerly for shirt-frills, and now chiefly for handkerchiefs. It is imported in short lengths of seven yards and a half each, twenty-five pieces in each box, and it is liable to a heavy duty. The Irish and Lancashire cambrics are little inferior, if at all, to those of France.

There are likewise *Cotton Cambrics*, which are divided into two kinds—those to be used for dresses, white or printed, and those for handkerchiefs or frilling, like the French. The former description of material is made in Lancashire, and the latter at Glasgow.

Scotch Cambric is only a fine cloth made of cotton, in imitation of the French cambric made of flax.

Camellia.—The camellia, so much admired from its being one of our earliest spring flowers, and also valued for its beauty of colour, was introduced into Florence from Japan by a monk of the name of Camellus. In the warm temperature of their native place they attain the dimensions of trees, giving forth thousands of flowers. The plant is easily grown, but requires care and warmth. A very excellent compost to grow it in is cocoa-nut fibre or tan, and in its native state it will flourish on the bark of rotten chestnut wood. There are many varieties, but the double white should never be forgotten. If grown in pots, plenty of water should be given, and a careful syringing to clear the leaves from vermin, &c. Too much heat



CAMELLIA.

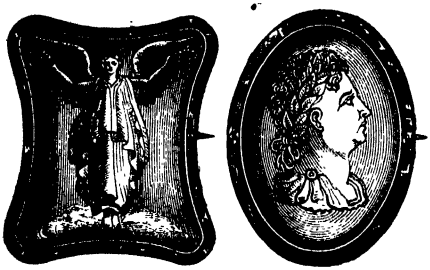
causes the blossoms to drop off, and a cold greenhouse seems to suit them best. They can be placed out of doors in mild weather, but the severe cold kills them.

Camel's-hair Brushes.—The smallest kind of brush, such as used in water-colour drawing, is usually called a hair pencil, although the hair employed may not be always that of the camel, though that is the most valuable. Hair pencils are tufts or small bundles of hair, with the points all laid in one direction, and then firmly bound together at the root ends with strong thread. The tuft is then dropped into the wide end of a piece of quill tube, which has been previously softened and made pliable by soaking in water, and pushed down until the points project at the small end. This quill tube contracts in drying, and holds the tuft of hair securely. The wide end of the quill holds the stick of cedar-wood which is used as a handle. Hair pencils are made of various sizes, from a crow-quill to a turkey or large swan-quill. When required of larger dimensions, tin-plate tubes are used, with the handle or stick firmly riveted in. The pencil then becomes a brush, and is so denominated. These brushes may be round, flat, or even square, and are named according to the uses to which they are to be applied.

Camel's-hair Cloth.—The hair of the camel, as imported into England, is principally used in the manufacture of fine brushes or pencils for drawing and painting. By the French it is particularly used in the making of hats. The hair of the camel is renewed every year, and is divided in commerce into three qualities—black, red, and grey—of which the black is the most valued, the grey being worth only half as much as the red. The best hair comes from Persia, where cloth is manufactured from it. Great quantities of it also come from Constantinople, Smyrna, and Alexandria; and the Arabs depend on it for the material of their

tents and carpets, as well as their wearing-apparel. The material referred to in early literature under the name of "hair-cloth" was originally a rough fabric made from the hair of the camel and the goat interwoven. It was of Oriental manufacture, and was used by monks and other ascetics for shirts worn next the skin as a penance. What is known at present under the name of camel's-hair cloth is made from the fine, soft hair of the Angora goat, mixed with woollen thread. No cloth is made in Europe from camel's hair alone.

Cameos (Shell).—The particular shells made use of are brought from the African and Brazilian coasts, and also from Jamaica and Nassau. With small steel chisels the workmen cut away, more or less deeply, the white part



SHELL CAMEOS.

of the shells, which action exposes to view pale brown and orange tints of colour. At one period the art of cutting these cameos was practised in Italy only, but now Paris is the chief seat of the work. Shell cameos are not so valuable as those of stone.

Cameos (Stone, Lava, &c.).—Onyx and sardonyx are the stones which present the best surface for this art, because they possess strata of several colours in parallel lines, and thus the cutter can make use of these layers in design and execution. In onyx, white alternates with brown, blue, and grey; in sardonyx, opaque white comes into contrast with a dark orange-brown. This art was practised by Greeks and Romans, who adorned themselves profusely with these ornaments. A lapidary's lathe, steel instruments, and diamond-dust are the necessary aids for cameo-cutting. It requires such extreme care, and necessitates so much time and labour, that in consequence cameos are exceedingly costly. They are cut principally at Rome, and are purchased chiefly by Americans. Cameos are also cut in lava: these are not so expensive as the above mentioned.

Camerâ (*In Camerâ*).—Literally, "in the judge's private room, behind the court." A case heard privately, as opposed to a trial or hearing in open court. The judges formerly had a discretion to allow this, but the future exercise of their power is very doubtful, the Legislature having refused its sanction to the Divorce Court to hear a case *in camerâ* without the consent of the parties.

Camera Lucida.—An instrument for assisting in procuring the exact representation of any object, by bringing its image upon a sheet of paper so that its form can be accurately traced with a pencil. By its use a person who has no knowledge of perspective, or eye for proportion, can delineate the object correctly. The draughtsman has no need to look away from his paper, as the image of the object is brought to his eye through a four-sided prism by double reflection. The first reflection is from the side which makes an angle of 22½° with the horizon, and the second from the side adjoining, which will send the image in a perpendicular direction. The observer will then see the representation of the object in looking straight down upon the prism from above. If then a sheet of paper be placed at a convenient distance below, and the eye extend somewhat over the edge of the prism, the object will appear to be depicted on the paper, and its features can be traced with a pencil. To complete the apparatus, there must be a small perforated rest for the eye, in order to keep it steady while the drawing is being made; and lenses, either convex or concave, as the case may require, so that both the image and the paper on which the drawing is to be made may be in proper focus to be seen distinctly by the same eye. The prism and lenses are usually supported by a brass rod, which is fixed by a clamp and screw to the drawing-table. The stem of the rod should be telescopic, so that it can be lengthened or shortened according as the size of the drawing to be made may render necessary. The camera lucida was the invention of Dr. Wollaston.

Camera Obscura.—An optical instrument for producing within a darkened chamber the representation of outside objects. The principle on which it acts was known to Roger Bacon, but it does not seem to have received practical application till the time of Giovanni Battista Porta, some four hundred years later. If there is a small aperture in one side of a dark chamber and a white screen placed opposite to it, the rays of light reflected by any external objects which can pass in a straight line through the aperture will fall on the screen, and so become visible to those within the chamber. The picture thus produced will correspond in colour with the originals, and moving objects will also be seen to be in motion. It is evident that the rays of light must converge to a point in order to pass through the aperture, and as they travel in straight lines, they must cross and spread out again before they fall upon the screen. Hence the picture will appear upside down, and right and left will be interchanged. By putting the screen horizontal, however, and allowing the picture to fall upon it from a reflector placed at an angle of 45°, the inverted position of the objects will be rectified. The effect will also be improved by placing a lens in the aperture, and fixing the screen at the proper focal distance.

The camera obscura was not put to much practical utility until photography was invented; it is, however, an essential part of the photographer's apparatus, as in this art the picture is taken in a camera, the same in principle, though somewhat altered in arrangement for

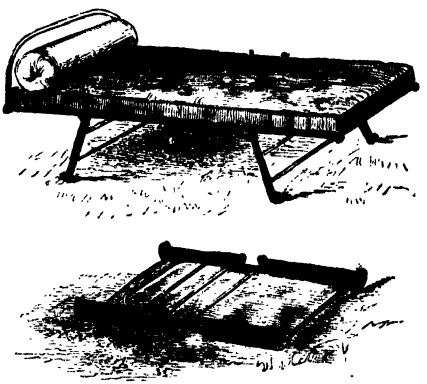
the sake of convenience. It consists of a rectangular wooden box in two pieces, the one fixed, the other capable of being pushed in or drawn out. In the front of the box is a brass tube, in which a condensing lens is fixed; a second tube, which is movable, fits into the fore part of the former, and this contains a second lens, the two together forming an object-glass with combined lenses. At the back of the box is a screen of ground glass, which can be removed at will, and the movable lens is adjusted until the object to be photographed is seen in proper focus on the glass. The screen is then removed, and the sensitive plate on which the negative of the picture is to be taken is put in its place, the lens being covered with a brass cap while the plate is being put in position, and again while being removed after the light has played upon it for a sufficient time.

Camlet.—England has for several centuries been famed for its manufacture of this material, which is made of long fine wool. In the twelfth and thirteenth centuries it was held in high repute, being classed among the precious stuffs then in use, and mentioned as worn by ladies of rank. English-made camlets are much esteemed abroad. Immense numbers of pieces are sent especially to Italy, to the East Indies, and to China, in which countries the lightness and fineness of this texture are much appreciated. Grey camlets are made at Norwich; the other kinds chiefly at Leeds. Camlets are not much worn in England at the present time, other materials which bear a close resemblance having taken their place. Hair camlets, for the making of which Brussels was famed, was a fabrication of goat's hair mixed with wool or silk. It has been erroneously supposed that the name of camlet arose from the material being of camel's hair; but camel's hair was never used, and the name is doubtless from *chamal*, the Arabian word for fine.

Camomile - flowers. — These are the flowers of the *Anthemis nobilis* (common camomile), N.O. *Compositæ*, and somewhat resemble the daisy in appearance. There are two varieties—the single and the double. The single variety consists of both yellow tubular and white strap-shaped florets; and the double of white strap-shaped florets only. The distinction is, however, somewhat arbitrary, for in most of the so-called single flowers, some of the yellow tubular florets have become converted into white ligulate florets. Camomile-flowers contain a volatile oil, bitter extractive, and a little tannin, resin, and volatile acid. The volatile oil and bitter extractive contain the active properties. The oil is of a pale-blue or greenish colour, becoming yellow with age, and possesses the peculiar smell and taste of the flowers. The preparation of camomile-flowers at present used are the oil (the dose of which is one to five drops), the extract (the dose two grains to ten), and the infusion (dose from one to four ounces). (*See* CAMOMILE, USES OF.)

Camomile, Uses of. — Camomile is a stomachic and tonic, and in the form of tea is a popular remedy with certain people in all sorts of diseases. In dyspepsia with general debility, camomile will be of some service. The oil is a useful adjunct to other medicines in cases of flatulence and griping. The warm infusion in large doses acts as an emetic, and is frequently given for that purpose. Camomile may be described as a medicine which may do some good, and cannot do much harm.

Camp Bed and Bedstead.—A camp bedstead is one constructed on the folding principle referred to in connection with the camp-stool (*which see*). It is convenient in the



CAMP BEDSTEAD.

house, as when folded it occupies little space, and when an extra bed and bedstead are required it can be made ready for use in a few minutes, and as speedily removed or put aside folded when it is no longer required.

Camp Stool.—This is simply a folding stool of a light but sufficiently strong nature, which can be conveniently carried in the hand when folded, and at once converted into a seat when required for use. The materials of which stools of this kind are constructed are selected with a view to lightness and durability.

Campanula.—There is a very large variety of this pretty and useful flower, which not only decorates our cultivated gardens, where it attains great beauty from its large character and brilliancy of its colour, but is one of the class which make our fields cheerful and beautiful. The common blue harebell grows wild on all our commons and hedgerows, and finds its way sometimes into the garden. It looks pretty in rock-work. Some species grow tall, while others creep on the earth; but whatever the situation may be, they are lovely. There are some of larger size, which form a great addition to the borders of the flower-garden. There is a white variety. It can be raised from seed, and when once planted will grow for years in the same place, but is the better for dividing in the spring.

Campbell's, Lord, Act.—Formerly, relatives of a person killed through negligence could not recover damages for the injury they indirectly sustained by their loss. To remedy this state of things, the Act 9 & 10 Vict. c. 93, commonly known as "Lord Campbell's Act," was passed, providing for compensation in such

cases. It has since been amended by the 27 & 28 Vict. c. 95. The name of this eminent judge and statesman is also associated with the Acts for amending the practice in prosecutions for libel (6 & 7 Vict. c. 96, and 8 & 9 Vict. c. 75); and also with the Act giving facilities for the suppression of the trade in obscene books, &c. (20 & 21 Vict. c. 83).

Campeachy.—This is the wood of the *Hæmatoxylon campeachianum*, belonging to the natural order *Leguminosæ*, and is one of those technically known in commerce as dye-stuffs. It is a tree of medium size, with twisted branches and trunk, which is usually about a foot and a half in diameter. Its bark is ash-coloured; it bears a yellow flower, and has sharp thorns. This tree is indigenous to Central America, Mexico, and Campeachy, whence it derives its name, and is also to be found in the West Indies. For its uses, *see* LOGWOOD.

Camphine.—A compound of carbon and hydrogen identical with pure oil of turpentine. It is made from the common oil by distilling it over chloride of calcium, so as to get rid of the water. It is used in lamps, as it gives a white and brilliant light; but it is liable to the objection of producing an immense quantity of soot unless a sufficient supply of air is constantly maintained. The lamps in which camphine is burnt need to be more carefully trimmed than is practicable in most households.

Camphor, Preparations of.—Camphor is a concrete volatile oil, obtained by steeping in water, and afterwards boiling, the chopped branches of the camphor laurel (N.O. *Lauracea*), found chiefly in Formosa and Japan. There is an artificial camphor, which is formed when hydrochloric acid is passed into oil of turpentine. The latter preparation may be recognised by its evolving hydrochloric acid when volatilised surrounded by oil, and by burning with a greenish sooty flame, which, if extinguished, emits the smell of turpentine. Camphor is imported into this country in a crude state, and is of two kinds—one, Formosa camphor, and the other, Japan camphor. The former comes in chests, lined with lead, holding about a hundredweight, and appears in grains of a dirty grey colour. The latter is imported in tubs, and is frequently called tub camphor; in this the grains are of a pinkish hue, and are larger, more cohesive, and cleaner than the preceding, commanding a higher price in the market. The preparations of camphor are: 1. *Camphor water*, made by placing some camphor in a muslin bag, putting it into a stoppered bottle full of water for twenty-four hours, and using the solution as required in doses of two or three table-spoonfuls. This is really only water flavoured with camphor. 2. *Camphor liniment*, made of camphor and olive oil. 3. *Compound camphor liniment*, composed of camphor, oil of lavender, strong solution of ammonia, and rectified spirit. 4. *Spirit of camphor*, consisting of camphor and rectified spirit. 5. *Compound tincture of camphor*, composed of camphor, opium, benzoic acid, oil of anise, and proof spirit. This is popularly known as paregoric, the dose being from twenty drops to forty, in water, and useful in chronic bronchitis, &c. Camphor may be easily pulverised by the addition of a little spirits of wine. When given medicinally, it should be mixed with mucilage, to counteract its irritating effect upon the mucous membrane of the stomach.

Camphor, Uses of.—Camphor is used both medicinally and for various domestic purposes. 1. *As a medicine.* In moderate doses of four or five grains, camphor exhilarates, and acts as an anodyne, especially in certain nervous affections peculiar to women, as hysteria, painful menstruation, &c. It also acts upon the skin, markedly so when combined with opium or acetate of ammonia, and is thus frequently prescribed in feverish cases and in inflammations, especially those of a rheumatic character, which it very much relieves. Camphor has also been given, with varying effect, in such mental disorders as melancholia, puerperal mania, in certain spasmodic or convulsive affections, as whooping-cough, asthma, angina pectoris, &c. It sometimes relieves palpitation, and has been used with success in chronic nasal catarrh, accompanied with troublesome sneezing and frontal headache. In the form of fumigation, camphor has been found useful in chronic rheumatism. The fumigation is effected by seating the patient in a state of nudity on a cane-bottomed chair, beneath which is placed a hot metallic plate containing half an ounce of camphor, and enveloping him completely in a blanket fastened under the chin. Camphor has also been employed in poultices for some purposes, and when sprinkled in the form of powder on cotton-wool, and applied to the face, it is said to be successful in preventing the pitting of small-pox. As a liniment, it is an excellent application in muscular rheumatism and stiff joints. It is a favourite remedy with homœopathic practitioners. 2. *For domestic purposes.* From its poisonous effect upon the lowest forms of animal life, as well as from its anti-septic properties, camphor is frequently used by prudent housewives to put in their wardrobes and clothes-presses. It is also employed by pyrotechnists to make their white stars and fire; and when mixed with clay, in the proportion of one in six, and distilled, it yields a pleasant-smelling oil in much favour with perfumers and fancy soap-makers. When camphor is taken in poisonous doses, an emetic should at once be given. Opium and a solution of chlorine, are both said to act as antidotes. Wine or brandy may be given, but coffee and vinegar are prohibited.

Camphor-wood. — The camphor-tree belongs to the order *Guttiferæ*, and is found largely in the woods of India growing near the sea, where it frequently attains a circumference of fifteen feet with proportionate height. It is a light durable wood, avoided by insects, easily worked, and having the well-known and somewhat agreeable odour. It is specially suitable where the article of which it is constructed is subjected to the constant action of water, as in ship-building, the construction of wharves, jetties, &c., as the sea-worms do not attack it. The breaking-strain of a piece of camphor-wood 3 ft. × 1½ ft. is 1,344 lbs., and it weighs 70 lbs.

per cubic foot. In Lahore large saw-mills exist at which this valuable timber is prepared for exportation on a very extensive scale.

Camphorated Chalk is a very favourite tooth-powder, and is particularly useful for those whose teeth are in bad condition and much furred, or who have offensive breath. It is sometimes pronounced injurious to the teeth, but this is not the case if the proportion of chalk used is not too large. It may be easily prepared at home. The camphor needs merely to have a few drops of spirits of wine added to it, and then to be reduced to fine powder and mixed with the prepared chalk. The whole must then be passed through a fine sieve, and kept closely secured from the air. The proportion of camphor employed may be one ounce of camphor to half a pound of chalk. Camphorated chalk tooth-powder can be rendered more effectual for cleansing teeth that are in urgent need of cleansing by the addition of a small quantity of pumice-stone which has been powdered so finely that it can be passed through coarse muslin.

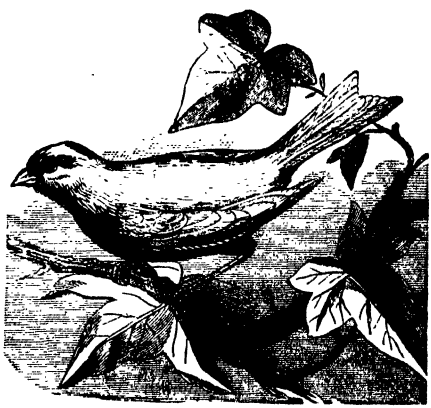
Camwood.—A red dye-wood, principally obtained from the neighbourhood of Sierra Leone, where it is called *Kambi*. It was first imported into Europe by the Portuguese. The colouring matter which it supplies much resembles that of ordinary Nicaragua-wood, both in quantity and in quality, and it can be used with similiar mordants. The use of this article is declining. It is chiefly used in turnery for knife-handles and similar articles.

Canada Balsam is a species of turpentine obtained from the balm of Gilead fir (*Picea balsamea*), a native of Canada and the United States. When freshly extracted from the tree, it is a thin, transparent liquid, but it rapidly becomes viscid, and then solidifies. It is mainly composed of resin dissolved in an essential oil. Canada balsam is much used for medicinal purposes; it is also employed as an ingredient for varnishes, and for mounting microscopic slides. Perhaps, however, it is most valuable as a cement to opticians, since on account of its perfect transparency, and its high refractive power (almost equal to that of glass), it is almost the only cement available for connecting the various parts of achromatic lenses, &c.

Canary. — This beautiful songster, the *Fringilla canaria* of Linnæus, came originally, as the name indicates, from the Canary Islands, where, however, it is never found with the same bright or orange plumage which we find it has in this country. The extreme brilliancy of colour is only attained by judicious crossing and selection, cayenne pepper, however, being often administered during moulting season, in order to deepen the colour of the feather.

There are a great many different varieties of the canary in this country, prominent among which we find the Yorkshire canary, the Belgian, the London fancy canary, the Scotch fancy, and the beautiful Norwich crested canary. Canaries are also crossed with other birds, to obtain what are called mule birds. There are, for instance, the hen canary and goldfinch cross, the cross with the cock siskin or aberdevine, with the linnet, and with the greenfinch. The mule bred from the bullfinch is also rare and good.

It is a well-known fact that birds fed on plain wholesome food live much longer, and are more healthy, than those that are pampered. We should remember this in feeding our canaries. Procure the very best canary-seed that can be got, and the best sowing rape-seed. These seeds are usually sold under the names of black and white bird-seed. They are mixed in the proportion of three parts of canary-seed to one of rape, and with this mixture the bird's hopper or seed-drawer should be kept well supplied. This should form the bird's chief diet, but a small knob of loaf-sugar may be allowed. Fresh drinking-water frequently changed is essential; the drinking fountain should be kept scrupulously clean; and it is a good plan to have the water filtered. In summer a very little green food should be allowed the canary, such as chickweed, lettuce, or



CANARY.

water-cress, and in winter a slice of sweet apple; but dainties of all kinds only do harm. The larger and roomier the cage, and the more fresh though not *cold* air the bird has, the better, and its bath should never be forgotten.

In order to breed canaries well and successfully, it is best to select your stock in the end of the year, placing the cocks and hens in separate rooms, where they can have plenty of exercise. The breeding-cages must be well washed, scraped, and disinfected; then thoroughly dried before the birds are admitted; the bottoms of the cages are then to be sprinkled with good clear sand, which during the breeding season must be often but *quietly* cleaned out and changed. It is necessary to place the cock and hen to be mated in separate cages, in sight of each other, and close together, until they seem to be on good terms one with the other, after which they may be mated. The end of March is the best time for pairing; and when the birds have been mated they require good substantial food: probably the best is finely-grated stale bread and hard-boiled eggs, intimately pounded together or mixed. Of this

give a dessert-spoonful daily to each pair of birds; a little linseed and maw-seed, or hemp-seed, should also be given every other day.

After two or three days the nest must be placed in the breeding-cage. It should be so placed that the bird can feed its young ones from a neighbouring perch. The nest may be made of half a cocoa-nut shell lined with flannel or felt; but it is a good plan to amuse the birds by placing a little dried moss and cotton-wool between the bars of the cage where it can be easily reached. If you have more cages than one, they should be so placed in the room that one pair of birds cannot see another. Take the eggs away one by one, as they are laid every morning, substituting an ivory nest-egg. When the hen finishes laying, replace the eggs. Add a little soft sugar to the hen's food just before she begins to lay, and a little lettuce or ripe groundsel may be given her with advantage. After the hen has taken to the nest to sit, the cock may only be left in the same compartment if he be not troublesome. During the period of hatching, and until the young birds are able to feed themselves, plenty of egg and bread, and an allowance of green food, must be given to the hen. If you take up canary-breeding as a fancy, get the best-bred birds you can procure to begin with; the hens about one year old and the cocks about three. The room which is retained for breeding purposes should, if possible, have a southerly aspect; a fire in the room is objectionable, and gas is worse. Moulting-time is the last five or six months in the year—the young birds usually moult about the ninth week. During the moult the diet should be liberal, a little hard-boiled egg being added to their usual food, and the cage occasionally placed in the sun. Cleanliness, both of cage and food, good fresh water, supplied twice a day, and protection from draughts and all bad smells, are essential if you would keep your birds in health.

Canary Grass and Seed (botanical name, *Phalaris canariensis*, genus *Phalaris*).—Originally a native of the Canary Islands, canary grass is now largely cultivated in the south of Europe, and is grown in our own country in the county of Kent, but not to any very large extent, owing to the uncertainty of the climate. The average yield of seed per acre is about thirty-five bushels.

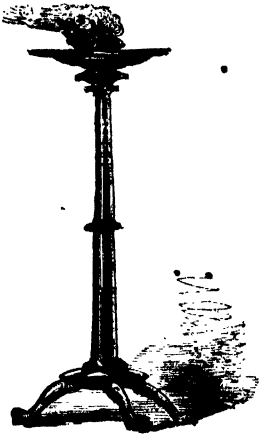
Canary Wine is the produce of the Canary Islands. It is often confounded with the Malvoisie of the Canaries, although the name really belongs only to the Bidogue wine, known also as Tenerife. The true Canary is made from unripe grapes, and when new has a rough taste, which is not agreeable, but it improves greatly with keeping, becoming mellower as it gets older. If it can be put on board ship, and sent on a voyage to the tropics, it becomes very similar to Madeira, for which it is frequently sold. The port of the island of Tenerife is the chief seat of the trade in this wine. There is a variety of Canary which is produced at the island of Palma, but this is not equal to the true Canary, though it has a pleasant aroma, and does not need to be kept so long. It was of Canary that Howell spoke, nearly three hundred years ago, when he said, "If of any others may be verified the merry induction, that good wine maketh good blood, good blood causeth good humours, good humours cause good thoughts, good thoughts bring forth good works, good works carry a man to heaven: *ergo*, good wine carries a man to heaven. If this be true, more English go to heaven than any other, for I think there is more Canary brought to England than the world besides."

Canary Wood is an ornamental wood used for cabinet work and gun-stocks. It is very light, and of a beautiful orange colour, much employed in work requiring turnery. It grows in South America.

Cancer.—Cancer, or *carcinoma*, may be defined to be the manifestation of a peculiar and probably inherited constitutional disease, which takes the form of certain morbid growths in various parts of the body, and is always accompanied, if not preceded, by a condition of health which is called cachexia. In this state of cachexia, which is indicative of the disease, the complexion becomes sallow or orange-coloured, the skin dry, the features pinched, the expression anxious and careworn, the tongue is furred, the breath and secretions are offensive, and there is general emaciation. Cancer is of two kinds—hard (*scirrhus*) and soft (*encephaloid*), the latter presenting some varieties. In structure, hard and soft cancers do not differ much from each other, being chiefly made up of a confused mass of large oval or tail-shaped granular and nucleolated cells and fibres embedded in a fibrous stroma, which also contains a large quantity of molecular matter and granular *débris*. 1. *Hard cancer*, or *scirrhus*, is a hard, nodulated growth of varying dimensions, occurring most commonly in the female breast and womb, in the tongue, œsophagus, pyloric end of stomach, colon, and rectum. It is at first movable, but gradually becomes deeply attached, implicating the surrounding tissues and the neighbouring lymphatic glands. It is usually attended with severe aching or lancinating pain. Scirrhus, if external, as on the breast, may be of very slow growth, extending over a period of months, or even years, until at length, making its way through the skin, it becomes much more rapid in its course, and death finally ensues, apparently from exhaustion. The cut surface of a scirrhus tumour presents a bluish-white, glistening appearance, somewhat like an unripe pear, and is intersected by white bands, exuding, when scraped or pressed, a greyish-blue granular fluid called the cancer juice. The microscopical character of this juice is a valuable aid in distinguishing cancer from other morbid growths of a non-malignant character. 2. *Soft cancer*, called also *encephaloid*, from its size and head-like shape, and *medullary*, from its brain-like appearance, is much more rapid and fatal in its course than hard cancer. It is found either as an encysted or infiltrated tumour, or as a soft, irregular, fungus mass, which receives the name of *fungus hæmatodes* when it is characterised, as is very frequently

the case, by a continued tendency to bleed, and *melanosis*, or black cancer, when, as in one variety, the tumour is coloured with black pigment. Soft cancer often attains an enormous size, especially in that form called *colloid*, or gelatinous cancer, which frequently weighs several pounds. Soft cancer commonly attacks the eye, testicles, the breast, womb, and abdominal viscera, and in *epithelioma* (or skin cancer), the lips, nose, anus, and scrotum. *Treatment.* Cancer in the present state of medical knowledge does not admit of cure. It is the opprobrium of the art of medicine, both as to cause and effect, comparatively little being known of the former, excepting, perhaps, that it appears to be inherited, and that great mental anxiety and depression seem to predispose to the disease, and, with regard to the latter, very little can be done to allay the inevitably fatal result. By some eminent physicians and surgeons cancer is considered to be hereditary, and to have its origin in the blood, the tumour being the result. By others, equally eminent, it is said to be the consequence of injury only, the cachexia being the result. It is hard, however, to believe that, unless there is some peculiar condition of blood, a blow on the breast, for example, should in one person produce a simple contusion, and in another a malignant cancer. In the absence of any known remedy for this disease, the treatment must consist in supporting the strength by good nourishing food, pure air, and mineral tonics, in relieving severe pain by opium, or subcutaneous injections of morphia, in checking hæmorrhage when present by the application of ice, and in removing the tumour when the case is a suitable one for such an operation—a matter, owing to the almost certain return of the disease, requiring the highest surgical skill to decide. It may be mentioned here that an attempt has been made to connect cancer with localities having a certain geological formation; but this view requires further investigation. Animals are also subject to this disease.

Candelabra originally meant simply candlesticks, and as such they were used by the ancients. The Romans made candelabra of wood, and also of metals of all kinds, and exquisitely beautiful specimens in bronze have been found in the ruins of Pompeii and other places. They stood on the ground, and were some of them of a great height, especially those used in the temples of the gods. They took the form of a tall, slender rod of iron, with a receptacle at the top for oil, and were fashioned in every variety of shape, according to the taste of the owner or the purpose for which they were designed. In the palaces of the nobles the stand was sometimes made of marble, which in the dwellings of the poor was replaced by wood. But whatever the surroundings, whether rude or refined, they were elegant objects of art. In modern times these forms have been perpetuated, although their use is no longer confined to the burning of oil or candles. The chandeliers of the present day have taken the place of the ancient candelabra; but it is not improbable, if the discovery of the electric light should be made available for every-day



ROMAN CANDELABRA.

use, that we may see even in our own time electric candelabra ornamenting our houses.

Candied Peel, Fruits, &c.—All fruits and vegetables which are to be candied should be preserved in syrup as dried fruits, before being placed in the candying-pan. Small fruits, such as cherries and plums, should have a straw or splinter stuck through them, and then be put into the pan with the ends of the straws resting upon something which will prevent them sinking to the bottom. The articles should not be put close together in the candying-pan, but should have a space left between them, otherwise they will not remain separate when the sugar is crystallised round them, but will together form a shapeless mass. The process of candying various substances calls properly for the skill and experience of the confectioner; it is seldom successfully performed by the unprofessional practitioner. Amongst the articles which are commonly candied for sale may be mentioned—small fruits of all kinds; the peel of oranges and lemons and citrons; roots, such as angelica, eringo, and ginger; candied almonds; flavoured sweetmeats, such as vanilla, peppermint, liqueur, cinnamon, clove and rose tablets; and various ornamental articles.

Candle-boxes are long tin boxes made for the purpose of preserving candles in good condition. Care should be taken to hang them in a cool dry situation, as if they are in a warm place the candles may melt, and become soft and greasy to the touch, and if they are in a damp place they will not burn so well.

Candle-lamps.—These were originally intended for the consumption of candles which require no snuffing, but can be used for any mould candles of the proper size. They consist of a metal tube mounted upon a stand; a steel spring is coiled within the tube, into which also the candle is inserted. The candle is kept up by constant pressure from the spring below it, but is held down at the top by a movable cap. Other forms occur, but this is the most important, and used to be commonly

called a Palmer's candlestick, or candle-lamp, because Palmer's patent candles were burned in it. It is in most cases surmounted by a glass shade, which can be taken off or left on as desired. Unless smooth, hard candles are used, these candle-lamps cause trouble, and are not easily cleaned. Gas and mineral oils have done much to supersede them, but they are still to be met with.

Candlemas.—A feast of the Church, held on the 2nd day of February, in honour of the purification of the Virgin Mary. The name is borrowed from the practice of the early Christians, who on that day used abundance of lights both in their churches and processions in memory of our Saviour being on that day declared by Simeon "to be a Light to lighten the Gentiles." In imitation of this custom, the Roman Catholics on this day consecrate all the tapers and candles which they use in their churches during the whole year. It is the fourth of the four cross quarter days of the ecclesiastical year.

Candles.—Candles must have been used in different countries from the very earliest times. They were in use among the Romans, and in the first century Pliny speaks of a candle made of rushes, which was evidently very much like our rushlight. They are frequently mentioned in the sacred writings, although there is reason to believe that in these cases lamps were sometimes referred to rather than candles; for in Exodus xxvii. 20—after the seven-branched candlestick has been spoken of—we are told that Aaron was to "command the children of Israel that they bring pure olive oil beaten for the light, to cause the lamp to burn always." In our own country it is well known that Alfred the Great used candles which were painted in rings of varying breadths and colours to mark the time, and that as he found they burnt more quickly in windy weather, he contrived lanterns to put them in. The Anglo-Saxons used candles in their processions. Still, it would seem that those in common use were not worth very much, for as late as Henry III.'s time tallow candles were regarded as a luxury, splinters of wood being burnt by the common people. Candles were introduced into Christian worship at a very early period. To this day they are employed quite as a usual thing in the Roman Catholic Church. They are placed on the altar, before the images of favourite saints, and are carried in funeral processions. The latter practice probably originated in the Roman custom of carrying candles in order to diminish funeral expenses. Besides this, they were placed by the tombs of great personages. Thus, at Henry V.'s tomb they were kept burning day and night for nearly one hundred years. Various superstitions, too, are connected with candles, and some of these were probably relics of the worship of fire. Candles were burnt before the birth of a child, and were placed lighted on the corpse after death, with the object of warding off the evil spirits who were expected to be on the watch to injure the departing soul. In country places various omens are connected with candles. If the tallow in burning rises up against the wick, it is called a winding-sheet, and is supposed to be a sign of approaching death. If the candle does not light easily, it is a sign of rain; if it waves from side to side, it is a sign of wind; if there is a bright spark in the flame, it is a sign of a letter. The superstitious of both sexes in rural districts occasionally declare that they see lights passing from a particular house, and going towards the churchyard, and these are called corpse-candles, and immediately it is anticipated that there will be a death in that house, and that one of the inmates will shortly follow in the path which was taken by the lights. These superstitions, with most others, will, it is to be hoped, disappear with the spread of education.

Candles are made principally of tallow, although various oils, such as palm oil and cocoa-nut oil, also spermaceti and wax, are employed in their manufacture. Melted fat which has been mixed with lime and water until the fatty acid which enters into its composition becomes separated and floats on the top, and can be skimmed off and utilised, forms composite candles. All candles are either dipped, rolled, or moulded. The commoner sorts are dipped. They are made by stretching a number of wicks, made of three or four thicknesses of cotton, upon a suitable frame, and then dipping them again and again in hot melted tallow till they are of the required thickness. Mould candles are made by pouring melted tallow into pewter moulds, eight or ten of which are fitted into a frame. The upper portion of this frame forms a trough into which the melted material can be poured. The wicks are fixed into the moulds at the beginning of the process. When the candles are quite cold, they are taken out by means of a bodkin. In large manufactories, however, they are forced out by means of compressed air. Wax candles are rolled, not only because it is difficult to take them out of the moulds, but because the wax contracts when it is cooling. In making them the wicks are warmed and hung over a basin of melted wax, which is then poured over them till they are sufficiently thick. They are then rolled while hot until perfectly smooth between two hard pieces of wood. Wax candles have a flaxen wick which never needs snuffing. Great improvements have been made in the manufacture of candles of late years. Most of these improvements have tended to the removal of the unpleasant properties belonging to tallow candles, and also to do away with the necessity of using snuffers. This has been effected by causing the wick to bend over out of the flame, and so to be consumed by coming in contact with the oxygen of the air. This plan has succeeded perfectly in the case of stearic candles, which are candles made of a hard, dry substance perfectly free from greasiness, which closely resembles wax in its appearance and properties, and which is called stearine. The best candles are paraffin candles, which surpass all others in beauty and in the brilliancy of the light which they afford. Paraffin is a solid translucent substance obtained by the distillation either of wood-tar, of coal, or of peat. It contains the same elements as coal-gas.

Besides the varieties which have been men-

tioned, there are candles made for other purposes besides that of affording light, and amongst these may be mentioned mercurial candles, which are intended for mercurial fumigation; and medicated candles, which are intended to supply a convenient method of diffusing certain substances through the atmosphere for medical and similar purposes. Besides these there are cinnamon candles, which were at one time made from the oil of the cinnamon tree, and were valued for the sake of their delightful odour. These varieties are not commonly known in England, however; indeed, the last one named was manufactured in Ceylon, and was intended for the sole use of the king.

Candles, Choice and Care of.—The choice of candles is by no means such an important consideration as it was some years ago before gas was burnt. Then the careful housewife was accustomed to lay in a goodly store of candles of all sorts which were to be burnt in hall and dining-room and kitchen, and furnish light for all in the house. At the present time, excepting in the country places where ancient habits and customs still prevail, it is most usual for candles to be bought in small quantities as they are required for use. The descriptions of candle which are to be purchased must depend upon the purpose for which they are intended. *Tallow candles* are in general use for common purposes. They are very cheap, and are preferred on that account, but it is questionable whether they are economical, because they gutter so much. Besides this they have a very unpleasant odour. They are much improved by being kept for a winter before they are burnt. Those made in winter last longer than those made in summer. *Mould candles* used to be in common use for superior purposes. They have been to a great extent superseded by *Composite candles*, which are nothing more than mould candles made of a mixture of the stearine of cocoa-nut oil and of the fatty acid obtained from palm oil. *Spermaceti candles* are also highly valued, as being delicate in appearance and burning well. They are excellent to burn in a fixed position where they will not need to be moved from one place to another, but they gutter if they are carried about in the hand. *Stearic candles* are also to be recommended. They burn well and steadily. They are very hard, do not grease the hands, and have no unpleasant odour. These candles are not expensive. *Paraffin candles* are more elegant than any others. They give a brilliant light, are quite free from greasiness, and have not an unpleasant odour. The light given by fifty pounds of paraffin candles is equal to that of sixty-four pounds of wax, or sixty pounds of spermaceti, or seventy-two pounds of stearic, or seventy-seven pounds of composite candles. Pure *Wax candles* are considered superior to all others, both in beauty and luminosity, but they are very expensive. They are apt to lose their colour and to turn yellow. If this should happen, they may be restored by being rubbed with a flannel which has been lightly dipped in spirits of wine. *Ozokerit candles*, which are amongst the latest novelties, are made of a kind of mineral wax. It used to be found in small quantities only, oozing from rocks of coal, but lately it has been found in large quantities in various parts of Europe. In its natural state it is of a dark rich brown colour, but when refined it resembles pure beeswax. Candles made of ozokerit are much esteemed.

A decided economy may be effected by using save-alls to burn up candle-ends.

Candlesticks.—Candlesticks are manufactured either of earthenware, porcelain, plated copper, papier-maché, tin, brass, bronze, silver, and even gold. The ordinary kinds are too well known to need description, and the superior kinds are so artistically and elaborately fashioned that they almost defy it. It used to be customary for the snuffers and snuffer-stands to be sold with the candlesticks, but the use of these articles is now almost obsolete, because the best candles are made not to require snuffing. By a modern improvement in candlesticks, the wick of the candle can be maintained at a uniform height. This is done by means of a spring which is placed in the cylindrical part of the candlestick underneath the candle. This spring forces the candle upwards, and would push it out altogether if it were not held down by a collar which, resting on the surface round the wick, yields to the spring only as the candle melts.

Candlesticks, Cleaning.—In order to remove grease from candlesticks, pour a little hot water, just hot enough to melt it over them; then rub them very gently with a soft cloth or with a leather. The usual practice of melting the grease by placing the candlestick near the fire is to be avoided, as it is almost sure to melt the solder also. If after this the candlestick has a smeary appearance, it may be polished a little. If the article be made of brass, this can be done with a little polishing-paste; if of silver or plated metal, plate powder can be used; if of white metal, whiting or fine chalk may be employed; if the candlesticks are japanned, a little flour sprinkled over them will clean them better than anything. Wax candles should not be burnt in japanned candlesticks, as the spots of wax cannot be taken off without injuring the varnish.

Candy.—One of the methods which is adopted for the preservation of fruits, vegetables, and other substances, is to candy them. By this process the substance is first boiled till soft, and preserved in syrup, as for dried fruits, then placed in a candying-pan, and covered with sugar which has been boiled to candy height. The pan is then set in a screen or drying closet, and thus the fruits become crystallised. When it is intended simply to prepare a sweetmeat possessing the flavour of any substance, the sugar is boiled with the flavouring ingredient, which may be introduced either in the form of a tincture, juice, or powder. When it has boiled so long that it will candy when put into cold water, it may be poured upon a marble slab, or into moulds covered with powdered sugar.

Candytuft.—This plant is both a perennial and an annual, the former living in the

ground for several years, while the latter has to be grown from seed every year. There are two varieties of the annual—purple and white. When sown together in a mass, or as an edging for a border, it looks very showy, and grows about eight inches high. The time for sowing is the end of March. The ground should be made smooth and even when the seed is sown, and a thin layer of earth placed over it, gentle watering being first given. The perennial candytuft is white, and coming into blossom earlier than the annual, forms one of our early blossoming plants. It grows and looks well in pots for the window. The perennial candytuft roots can be divided in the spring, and then planted where the space is apportioned for it. It looks well among rock-work, and will grow in shady places.

Cane-seats are made, or should be made, from those palms described under the heading of CANES. The great merit of cane-seats and cane-seated chairs is, that the great strength and durability of thin and easily-prepared strips admit of such articles being made at once airy, strong, and flexible.

Canes are plants possessed of long, slender, reed-like stalks or stems. The name cane is improperly given to light walking-sticks, utterly irrespective of the sources from which they may be derived. Properly, it should be restricted to a peculiar class of palms known as ratans, included under the two closely-allied genera *Calamus* and *Dæmonorops*, of which there are a large number of species.



A CANE PALM.

These plants are found in the Indian Archipelago, the Malay Peninsula, China, India, and Ceylon, and examples have also been found in Australia and Africa. They were described by the learned Rumphius, under the name of *Palmijunci*, as inhabitants of dense forests, into which the rays of the sun can scarcely penetrate, where they form spiny bushes, obstructing the passage through the jungle. They rise to the top of the highest trees, and fall again, so as to resemble a great length of cable, adorned, however, with the most beautiful leaves, pinnated, or terminating in graceful tendrils. The plants creep or trail along to an enormous length, sometimes, it is said, reaching 500 feet. The stem in few cases exceeds one inch in diameter, and it is mostly of much smaller dimensions. When growing, it is sheathed in a base of numerous leaves, which the natives, in preparing the canes for the market, strip off by pulling the cut plant through a notch made in a tree. The canes always present distinct rings at the junction of the sheathing leaves with the stem. They assume a yellow colour as they dry; and those imported from Calcutta have a glossy surface, while the produce of the Eastern Archipelago presents a dull exterior. The well-known Malacca canes are obtained from *Calamus Scipionum*, the stems of which are much stouter than is the case with the average species of *Calamus*.

Canine Madness.—Canine madness, or rabies, is a disease which originates in animals, both of the canine and feline races, as the dog, fox, wolf, and cat, and by means of the saliva, which contains a specific poison, is communicable to man through the bite of the animal, or through licking some abraded surface. The symptoms of this formidable disease are as follows:—There is at first observable a marked and increasing alteration in the habits of the animal: he is agitated and restless, shy and irritable, prone to snap at anything or nothing, and then dash himself down barking and howling. He is at this period obedient and affectionate, taking his food and drink, but given to gnawing everything about him and to picking up and swallowing all sorts of rubbish, as bits of straw, paper, &c., showing a morbid appetite. As the disease progresses, the bark becomes peculiarly altered, and there is a continuous flow of saliva from the mouth, which, with the tongue, appears tender and swollen; the appetite fails, the eyes are red and half closed, the coat rough, and the gait unsteady. There is now a disposition to fierceness and quarrelsomeness, characterised by fighting with other dogs, and snapping at everything, or by sullenness, concealment, and refusing food. If not shot, or otherwise disposed of at this state, convulsions set in, and death ensues from exhaustion. Rabies is a disease which does not appear to be affected by any known causes, either of heat or cold, thirst or climate, and is unknown amongst lions, tigers, and the larger feline animals; it is, however, communicable to animals, as to human beings, through the bite, but there is no evidence to show that it can be communicated by one human being to another, nurses and attendants having been bitten and injured without any special result. It may be remarked here that dogs suffering from madness do not, as a rule, exhibit the same fear of water that human beings do, but that, on the contrary, they will take it readily. It is important to observe the first symptoms of this disease as described above, in order that the animal may be at once destroyed, and painful consequences averted. For the effects of this disease upon man, *see* HYDROPHOBIA.

Canisters.—These are small cases or boxes made of metal, and used for the preservation

of articles from which it is desirous that air should be more or less excluded. They are largely used by tea-dealers for the preservation of tea, which is apt to lose some of its flavour in boxes of a more porous material.

Canker.—This is a term which has been popularly applied to all foul and deeply-eating ulcers, but by medical men it is used only to designate a very loathsome and fatal disease which is generally met with in ill-fed and unhealthy children between the ages of two and six years, and is called *cancrum oris*, or canker of the mouth. This disease, which is akin to hospital gangrene, presents two types—the one somewhat mild, or rather not so malignant, called *noma;* the other very malignant, which is the true *cancrum oris*. In *noma*, or mild canker, the gums become spongy and swollen, and separate from the teeth, which frequently fall out; the tongue and the whole inside of the mouth are more or less ulcerated; there is a constant flow of saliva, sometimes mixed with blood and matter; and the breath is most offensive. *Cancrum oris*, or true canker of the mouth, in addition to the symptoms just described, presents a red patch on the centre of one cheek, the whole of the latter being swollen, brawny, and shining. If the mouth can be examined inside, which cannot always be done, owing to the swelling, there will be found a deep, foul, ash-coloured, sloughing ulcer, corresponding to the red patch outside. In bad cases, where the disease is progressive, the cheek may become completely penetrated by this ulcer, and a dark gangrenous cavity appears; the ulceration, swelling, and sloughing continue; the little sufferer does not generally complain of pain, but after a time becomes drowsy, then insensible, and finally dies. The proportion of recoveries in this disease is only about one in twenty. *Treatment.* In *noma*, or mild canker, the mouth should be sponged out frequently with a weak solution of carbolic acid (three grains to a pint of water). Spanish snuff (sabilla), put into a muslin bag and kept in the mouth, is said to be soothing and useful. Chlorate of potash, in two or three grain doses, with one, two, or three drops of nitro-muriatic acid, according to age, in a tea-spoonful of decoction of bark, is the best medicine that can be given in this disease. The strength must be supported from the beginning with beef tea, mutton and veal broth, and wine, brandy, &c. In true canker (*cancrum oris*) the above treatment must be supplemented by cauterising the slough on the cheek with nitric acid; but this operation should be performed by the surgeon.

Cannetille.—The name of the filaments of metal, gold or silver, used in the making of fringes, embroidery, and sundry ornamental borders, especially of the class once popular under the name of *purl* (*which see*). In actual practice it is made to include the flat gold strips called *clinquant*, the stout wire known as bullion, and the finer wire termed frisure.

Canoe.—According to the earliest form, canoes were small boats constructed of the hollowed trunk of a tree, or of the bark of trees fastened to some kind of frame. Canoes, consisting of the scooped-out trunks of the oak, seem to have been used by the ancient Britons. The canoes of the American Indians and other savage races often consist of light frames covered with birch-bark or skins, propelled in the water by means of a paddle. The canoes in common use on English lakes and rivers are just large enough to admit the body in a



MODERN CANOE.

sitting position, and are very highly-finished productions. Canoeing, as an exercise, cannot take so high a rank as rowing, from the fact that in paddling the arms are brought forward across the body, the chest being thereby somewhat contracted, whereas, in rowing the tendency is always to open and expand the chest.

Canon.—A statute or law of the Church, applicable either to doctrine or discipline, enacted by a council and confirmed by the authority of the sovereign. The word also signifies a residentiary member of a cathedral chapter, formerly designated a "prebendary." The word is also used to describe the authorised catalogue of the sacred writings. The ancient canon or catalogue of the books of the Old Testament was made by the Jews, and is ordinarily attributed to Ezra, who is said to have distributed them into the Law, the Prophets, and the Hagiographa, to which our Saviour refers in Luke xxiv. 44. The same division is also mentioned by Josephus, and was followed by the primitive Church till the Council of Carthage, when the canon was considerably enlarged, and included the Apocryphal books, which the Council of Trent subsequently confirmed and enforced. The Romanists, in defence of this canon, say that it is the same with that of the Council of Hippo, held in 393, and with that of the third Council of Carthage, in 397, at which there were present forty-six bishops, and among the rest St. Augustine, who declared that they received it from their fathers. Their canon of the New Testament perfectly agrees with ours. It consists of the well-known and universally-acknowledged books, the four Gospels, the Acts, the Epistles. These books were written at different times; and they are authenticated, not by the decrees of councils or infallible evidence, but by such sort of evidence as is thought sufficient in the case of any other ancient writings.

This word is also used to indicate a table of the movable feasts, showing the day of Easter, and the other facts depending on it, for a cycle

of nineteen years. This (which is called the paschal canon) is supposed to be the calculation of Eusebius of Cæsarea, and to have been carried out by order of the Council of Nice.

In ancient music, this word signified a method of determining the intervals of notes.

Canon Law.—A collection of ecclesiastical laws serving as the rule and measure of Church government. The power of making laws was exercised by the Church before the Roman Empire became Christian. The canon law that obtained throughout the West till the twelfth century was the collection of canons made by Dionysius Exiguus in 520, the capitularies of Charlemagne, and the decrees of the Popes from Sirgius to Anastasius. The canon law, even when Papal authority was at its height in England, was of no force when it was found to contravene the authority of the sovereign, the laws, statutes, and customs of the realm, or the doctrine of the Established Church. The ecclesiastical jurisdiction of the see of Rome in England was founded on the canon law, and this caused quarrels between the sovereign and the prelates who adhered to the Papal usurpation. Besides the foreign canons, there were several laws and constitutions made here for the government of the Church, but all these received their force from the royal assent; and if at any time the ecclesiastical courts did, by their sentence, endeavour to enforce obedience to such canons, the courts of common law, upon complaints made, granted prohibition. The authority vested in the Church of making canons was declared by a Statute of Henry VIII., commonly called the "Act of the Clergy's Submission," by which they acknowledged that the convocation had always been summoned by the king's writ; so that, though the power of making canons resided in the clergy assembled in convocation, their force was derived from the authority of the king's assenting to and confirming them. The old canons remained in force until the reign of James I., when, the clergy being assembled in convocation, the king gave them leave to treat and consult upon canons, which they did, and presented them to the king, who gave them the royal assent. These were a collection out of the several preceding canons and injunctions. Some of these canons are now obsolete. In the reign of Charles I., several canons were passed by the clergy in convocation. The canon law is founded principally upon the civil law, and so interwoven with it in its many branches that there is no understanding the canon law rightly without being versed in the civil law. To use a dictum of Lord Thurlow: "The canon law prevails in this country only so far as it hath been actually received, with such amplifications and limitations as time and occasion have introduced, and subject at all times to municipal law."

Canons of Inheritance.—These are the legal rules directing the descent of real property, which are now prescribed by the Statute 3 & 4 Wm. IV. c. 106. This Statute effected great alterations in the old canons of real property descent, and applies to the deaths of all persons after the 1st of January, 1834. The rules of descent thereby established may be shortly summarised as follows:—

1. That inheritances shall, in the first place, lineally descend to the issue of the last purchaser *in infinitum*; the word purchaser having an extended signification to the popular one, and meaning, for all purposes of the Act, the person who last acquired the land otherwise than by descent.

2. That the male issue shall be admitted before the female.

3. That between two males of equal degree of consanguinity, the eldest shall inherit; but that females shall inherit together.

4. That all the lineal descendants *in infinitum* shall represent their ancestor—that is, shall stand in the same place as he would have done if living.

5. That on failure of lineal descendants, the inheritance shall descend to the nearest lineal ancestor.

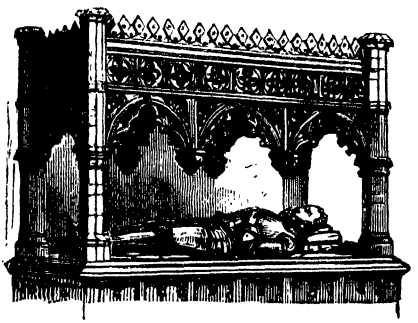
6. That the father and all the male paternal ancestors and their descendants shall be admitted before the female paternal ancestors or their heirs; all the female paternal ancestors and their heirs before the mother or any of the maternal ancestors, or her or their descendants; and the mother and all the male maternal ancestors, and her and their descendants, before any of the female maternal ancestors or their heirs.

7. That a kinsman of the half-blood shall be capable of being heir; and that such kinsman shall inherit next after a kinsman in the same degree of the whole blood, and after the issue of such kinsman, when the common ancestor is a male, and next after the common ancestor, when such ancestor is a female.

8. That in the admission of female paternal ancestors, the mother of the more remote paternal ancestor and his heirs shall be preferred to the mother of a less remote male paternal ancestor and her heirs; and in the admission of female maternal ancestors, the mother of the more remote male maternal ancestor and her heirs shall be preferred to the mother of a less remote male maternal ancestor and her heirs.

9. Where there shall be a total failure of heirs, or where any lands shall be descendible, as if an ancestor had been the purchaser of same, and there shall be a total failure of the heirs of such ancestor, the land shall descend, and the descent shall thenceforth be traced from the person last entitled to the land, as if he had been the purchaser thereof. This last rule is under 22 & 23 Vict. c. 35, s. 19, which is to be read as part of the 3 & 4 Wm. IV. c. 106, s. 20. It meets the case of a purchaser of lands dying intestate leaving an only son and no other relations. On the death of the son intestate there will be a total failure of heirs of the purchaser, and previous to this last enactment the land would have escheated to the lord of the fee. But although there be no relations of the son on his father's side, yet he may have relations on his mother's side, or she herself may be living; and those persons who were before totally excluded are now admitted in the order mentioned in the 6th rule.

Canopy.—In Gothic architecture the word canopy implies the ornament over tombs and altars, whether projecting from the wall or otherwise; a covering or hood. The word is also applied to the tablet or dripping-stone over doors or windows, whether it be straight or circular, if it be also enriched. Canopies are made use of chiefly in the Decorated and Perpendicular styles. In Early English work they are very simple in character, being frequently merely trefoil or cinquefoil arches, projecting and surmounted by a plain pediment. In the Decorated style they are often elaborately ornamental. The greatest variety of canopies



GOTHIC CANOPY.

are to be found in the Perpendicular style. Canopies apart from architecture are coverings of velvet, silk, &c., usually richly embroidered or otherwise decorated, supported at the corners or sides with handsome staves, and borne by four or more persons. In the religious processions of the Roman Catholic Church, a canopy of this kind is borne over the host and sacred reliques. For this purpose they are in Rome usually white, but in France and in the Flemish churches they are more commonly red. The word canopy, or tester, is also used in connection with certain bedsteads which have a canopy supported on "posts," or projecting above them from the wall, or otherwise arranged.

Cans.—These are simply metal vessels used chiefly for their lightness, durability, and strength, and the readiness with which they are cleaned, in lieu of glass, or earthenware, or other material not possessing similar advantages.

Canteen.—This term is a military one, which is applied to a sutling-house used for the officers and privates of a regiment, and also to a small tin vessel, holding about three pints of liquid, in which soldiers when on march carry their drink.

Canterbury.—This piece of furniture, which is generally devoted to the preservation of music in frequent use, and therefore appears in the room containing the musical instruments, should be decorative in character, and usually is so. The canterbury is made in various forms, but we think those preferable that are provided with drawers for the loose sheets of unbound music, which do not admit dust to the bound volumes, and will allow them to be so arranged that the titles on their backs may be readily seen.

Canterbury, Archbishop of.—The Primate of all England and the chief ecclesiastical dignitary of the Church of England. He has precedence immediately after the uncles of the sovereign, and immediately before the Lord Chancellor. It is his privilege to crown the kings and queens of England, while the Archbishop of York has the privilege of crowning the Queen Consort and being her perpetual chaplain. The Archbishop of Canterbury has also, under 25 Hen. VIII. c. 21, the power of granting dispensations in any case not contrary to the Word of God, where the Pope used formerly to grant them, which is the foundation of his granting special licenses to marry at any place or time, to hold two livings (which must be confirmed under the Great Seal), and the like. It is also the foundation of his right of conferring degrees in prejudice of the two universities; but although he can confer all the degrees which are taken in the universities, yet the graduates of the two universities, by various Acts of Parliament and other regulations, are entitled to many privileges which are not extended to what is called a "Lambeth degree." His power to confer medical degrees has been superseded by Statute 21 & 22 Vict. c. 90 (the Medical Act).

The archbishops have each their separate dioceses (that of Canterbury being the eastern part of the county of Kent) over which they preside as bishops besides their respective provinces (as they are termed) of Canterbury and York, in which they exercise a certain jurisdiction over the bishops.

Canterbury Bell.—This is one of the old-fashioned flowers which could formerly be seen in almost any garden; but fashion and the introduction of so many beautiful plants have nearly driven it away, though it may still be seen, here and there, holding its own amongst the more gaudy flowers. The Canterbury bell is a biennial, requiring the seed to be sown one year to blossom the following. To propagate it is very simple: when the plants are about four or five inches high, they should be planted, either in rows as a stock to select from, or put into the place they are to occupy the coming summer. The species known as the Canterbury bell grows about two feet six or rather less, of a deep blue, and throws out a large number of blooms from a single root; and to keep the plant in bloom, take off all the seed-pods as they form, thus giving strength to the young blossoming shoots. A light soil is necessary for the seed when sown, and the better and richer often will conduce much to the handsomeness of the flowers. It is particularly adapted for the background of borders, and looks well if planted in clusters in a shrubbery. There is also a white variety.

Cantharides.—The blister beetle, or Spanish fly (N.O. *Coleoptera*), is imported into this country in a dry state, chiefly from Hungary. It is an insect from eight to ten lines in length, furnished with two conspicuously bright green wings, overlaying two others of a transparent character, has a disagreeable smell, and,

when powdered, presents a greyish-brown appearance, with green particles shining through it. The flies are caught during the months of May and June, in the following manner:—A cloth is spread under a tree which the flies frequent; the tree is then violently shaken or beaten with poles, which causes the flies to fall into the cloth in large numbers; the latter, with its contents, is then immersed in boiling vinegar to kill the flies, which are afterwards very quickly dried. It is necessary for those who engage in this operation to protect the face and hands with veil, gloves, &c. The female fly is said to possess much more of the active and odorous principle than the male, and in both male and female this principle is chiefly situated in the generative organs. At certain times the odour from these insects is so strong that persons sitting under a tree where they are in any number are apt to be attacked with ophthalmia and irritability of urine. Cantharides is composed of a crystallisable principle called cantharidine, a volatile odorous oil, and certain fatty matters. When administered internally, even in small doses, it produces a sense of heat in the throat and stomach, as well as irritation of the urethra and bladder, with a frequent desire to make water. If the dose is increased, these symptoms become much more aggravated, and the urine is frequently tinged with blood. In larger and poisonous doses, delirium and convulsions occur, and death may ensue. There is no antidote for poisoning by cantharides, but the stomach should be at once emptied by an emetic or the stomach-pump; mucilaginous drinks, as linseed tea, white of egg and water, should be given plentifully; and subsequently opium would be necessary to relieve pain. The best preparation of cantharides for internal use is the tincture, the dose being from five to fifteen drops in some mucilaginous fluid. It has been prescribed in certain nervous affections, especially of the spinal cord, in paralysis of the bladder, with incontinence of urine. In combination with iron it has been found useful in skin diseases of a squamous character. It has also been given to cure that incontinence of urine which results from habit only, but it is especially urged here that this powerful and dangerous drug should on no account be taken without medical advice. Externally, in the form of pomade and lotion, it has been used with great success in baldness not the result of age. For other preparations of cantharides, and their uses, *see* BLISTERS.



CANTHARIS BEETLE.

Canton (Heraldic).—This is a subordinary device. It consists of a small square which occupies a small space in the first quarter of the shield. The device with which it is charged is taken from some coat of arms to which the bearer has a right, and this is the signification of that right. Thus the children of an heiress canton the arms of their father, and a man cantons his maternal arms.

Cantoon.—This was a material similar to fustain. It was in fashion about the middle of the last century for ladies' dresses. It was also known as cantiloon and cantaloune.

Canvas Grounding.—Regularity is here required. Although the proper places are assigned to stitches, the work will not look well unless each stitch is taken in its proper order. Every stitch in the grounding of canvas ought to look exactly alike. To secure this, the stitches should be worked in one way, all crossed in the same direction, all worked with the same needle and by the same needlewoman. Different workers have different ways—some pull the wool tighter or looser than others, therefore if it is visible where one hand has left off and another begun, the effect is spoilt by a patchy appearance. As the least difference of shade in the colour is perceptible, plenty of wool should be got in the first instance; this should be of right thickness to fill up the stitches, for white threads show themselves when the wool is too thin, and the stitches rise up when the wool is too thick. Silk canvas is not often grounded, but when, after use, it becomes discoloured, the work is freshened by grounding it. Floss silk is difficult to manage, being easily ruffled. Filoselle is pleasanter to deal with, and not so expensive to buy; it also presents the advantage of separate threads, so that should it be too thick, it can be divided. When grounding with these silks, it is usual to work the under stitch in wool, and cross it with the silk.

Canvas Pasting.—Canvas when pasted should be well dried before a fire, or pressed with a very hot iron. A good paste for this purpose is made as follows:—A pint of water, six table-spoonfuls of flour, and as much resin as will cover a half-crown piece.

Canvas, Raised Work on.—This style of work is more particularly adapted for the representation of flowers. The effect is that of velvet pile, and if the shades of colour have been well selected, and the surface is even, the floral representation will look natural and handsome. Silk canvas is usually chosen, either white or of some pale tint. Meshes are sold for this special purpose; these are provided with a sharp edge to cut the wool as the mesh is withdrawn. Needles threaded with every colour or shade which will be required in one row of the flower or leaf should be ready for use, because it is necessary to complete one row before another is begun. The needle is brought up close to the mesh, the wool is carried over it, and the needle is taken down close to the mesh on the other side. Each stitch should pass over one thread of canvas in length and two threads in width. The stitches should be taken evenly over the mesh. When a second row is finished, the mesh under the first may be withdrawn. This requires to be done carefully, for the pile should look quite even, and it is not possible to cut it afterwards. It is well to sew over the threads between every two rows at the back of the canvas to make the work secure.

Canvas Samplers.—Previous to the introduction of marking-ink, it was the universal

custom to mark all linen with the name or initials of the owner in blue or red marking-cotton. In order to be able to accomplish this, every girl was taught to work all the letters of the alphabet, in plain and ornamental characters, large and small, and also figures, upon a piece of canvas which was termed a sampler. The canvas then used was that having close threads, not openly divided into squares; therefore the threads had to be counted and divided by the workers. Fifty years ago, any girl who had not worked one or more samplers was considered to have had her education neglected. Sometimes these samplers were specimens of fine and minute work, and sometimes they were on a large scale. It was not unusual for them to bear the name and age of the worker, and to frame them and hang them on the wall as a testimony of skill and patience. In the present day, marking-ink has come into general use, because it is more rapid in its work; but many people prefer to have household linen marked with cotton, therefore the knowledge of marking samplers is still useful. The stitch is cross-stitch. The letters should be worked by even threads, the number taken at first to be according to the fineness or coarseness of the material, and the same number taken throughout. Old samplers will best show varieties in form of letters.

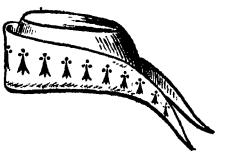
Canvas (Sizes).—Canvas is classed according to its fineness and its coarseness, and the sizes of the holes vary according to these degrees.

Canvas (Stitches).—Cross-stitch is that most commonly worked. It is also known by the name of Berlin stitch, and is best adapted for Berlin or Penelope canvas: the wool in this stitch should be taken across two threads both in width and height. Tent-stitch is that in which one thread is crossed over diagonally, in the manner in which beads are sewn on canvas. Irish stitch is worked entirely in one direction, and always parallel with the selvage of the canvas—thus this stitch is not crossed in any way. Tapestry-stitch is to cross one thread in width and two in height. Velvet-stitch is that used when making raised flowers. (*See* RAISED WORK.)

Canvas, To Join.—Place the two edges of canvas over one another. At least one row of squares should overlap another row of squares, and the two sets should be exactly over one another. When thus fixed, one edge should be fastened down, by over-casting the edge to the piece it lies upon, with a needle and strong cotton. Press the join with an iron, and it will be found that the pattern can be worked over it without the join being perceptible.

Canvas (Various).—This fabric is made of hemp, and as *cannabis* is the Latin word for hemp, most probably in this way has originated the name by which the fabric is known. It is made chiefly in Scotland, Dundee being the seat of the manufacture. Prepared fibres of hemp, to which flax is sometimes added, are tightly stitched on frames, and when stiffness is required, each side of the canvas receives a coating of melted size. Berlin or Penelope canvas is that wherein the threads are evenly divided, so as to form distinct squares. Flexible canvas is that which has not been stiffened, and wherein the threads are woven evenly and lie closely together. Sampler and silk canvas are of this description. This canvas was mostly in use before the introduction of Berlin canvas. Painter's canvas is a closely-woven texture, grey or drab in colour; it is called ticking. Canvas made of strong fibres is used for the sails of ships and in the making of floor-cloth. A fine description of canvas, made of hemp, is known by the name of huckaback, and is used as towelling. There are also several kinds of foreign canvas, made of different fibres such as Java and Japanese canvas. These have a plaited appearance, and are of close texture.

Cap of Maintenance (Heraldic).—The form of this is similar to that of the modern Scotch Glengarry. In early times it was the sign of high rank and dignity: in the present day it is occasionally used, and is placed beneath the crest. "Chapeau of estate" is another name for this sign.



CAP OF MAINTENANCE.

Cape.—An outer garment which fits round the neck and falls over the shoulders, having no sleeves, is termed a cape. Formerly capes were used either as a covering for the shoulders, or for the head in place of cowl or hood, and it is probable that from this circumstance the garment received its name—*caput* being the Latin for head. The capes worn by the Romans were made of sheep's-wool and beaver's-skin. Cardinal capes are circular in shape. Small capes were at one time called tippets.

Cape Diamonds. (*See* DIAMONDS.)

Cape Wines.—Large quantities of wine, good, bad, and indifferent, are sent to England from the Cape of Good Hope. Some of this is sold as Cape wine or South African wine, and the best is named Constantia, from the town near which it grows. It is an excellent sweet wine, of a very luscious character, and has been highly esteemed for a century or more. There is both a red and a white variety. A good deal of inferior wine is also sent over from the Cape, and this, after having had a "nutty" flavour imparted to it by the addition of bitter almonds, after being rendered luscious with honey and strong with brandy, is sold for sherry. A red and rather rough wine, named Pontac, is also much used in the Cape.

Capelan.—A small fish, about six inches long, shoals of which frequent the coasts of Greenland, Iceland, and Newfoundland. They constitute a regular article of diet among the Greenlanders, and are generally to be obtained dried in this country.

Capercailzie, or Capercailie, or Cock of the Wood (Linnæan name, *Tetrao urogallus*), is a most beautiful bird, found principally in the pine-forests of Scandinavia, and formerly in some of the forests of the Scottish Highlands. It lives principally on berries. The

cocks attain a length of about three feet, and may range in weight from ten to sixteen pounds. The bird does not attain full size, however, until about three years of age, when he strikes one as possessing more than the beauty of plumage of the best game-cock, with all the nobility and pomp of the eagle. His throat is adorned with long black feathers, his head and neck are ashy black, the eyebrows crimson, wings brown besprinkled with black dots, abdomen black spotted with white, breast a changing green, rumps and flanks ashy-coloured zigzags on a black ground, and tail-feathers black with white spots near the end. The hen is a more humble bird.

Capers, Uses of.—The flower-buds of the caper-bush are pickled and used to flavour sauces and vinegars, and are regarded as an agreeable accompaniment to boiled meats of various kinds, especially to boiled mutton. They have a pleasant pungent taste, and possess both stimulant and laxative properties. They are properly of a greyish-green, but, as according to the popular idea they are best when of a bright-green colour, the dealers frequently impart the desired appearance to them by the employment of copper vessels in their preparation. This of course renders them poisonous. The copper can, however, be detected by pushing a polished iron rod into the vessel with the capers, when, if the objectionable substance is present, the rod will quickly become coated with it. The hyssop of Scripture, "which springeth out of the wall," is a variety of the caper. It was on one of its trailing branches that the sponge filled with vinegar was offered to our Lord during His last agony. "They filled a sponge with vinegar, and put it upon hyssop." It was with a branch of hyssop, too, that the Israelites sprinkled their posts with blood when they partook of the Passover.

Capette.—This word, originally meaning a little cap, was forty years ago or less the name of a kind of half-cap worn by young ladies as a protection against cold, or occasionally as an evening head-dress. In its general appearance it resembled the front border of a cap, tied under the chin, and kept in position by a sort of back-strap crossing behind from ear to ear. The capette was sometimes worn under the bonnet, in which case it simulated a cap, the border of which it much resembled. Its place was taken by the cephaline, and other various forms of bonnet-fronts.

Capias (literally, that you take) was a writ of several sorts. One was the writ "*ad respondendum*," to answer the plaintiff in a plea of debt, trespass, or the like; another, "*ad satisfaciendum*," to satisfy the plaintiff after judgment in his favour; and a third, "Capias on mesne [*i.e.* intermediate] process," as it was called, under which, on an affidavit of debt being filed, a man's person could be arrested until payment was made or bail given. Now, arrest on the *mesne* process is entirely abolished, except in cases where a creditor has a good cause of action to the amount of £50 or upwards, and the debtor is about to quit England, and his absence will materially prejudice the prosecution of an action; and the power of arrest on final process is very considerably curtailed by the Statute 32 & 33 Vict. c. 62.

Capillaire is a kind of liqueur used for flavouring punch and similar beverages. It is prepared by adding an infusion of the true maiden-hair fern (*Adiantum capillus veneris*) to a syrup of sugar and water slightly flavoured with orange-flower water. The true capillaire is not often found. Imitation capillaire is made of syrup flavoured with orange-flower water or some aromatic preparation of the same nature. A pleasant beverage for hot weather may be made by diluting capillaire with cold water and adding a little lemon-juice. The syrup is also esteemed useful for coughs and pectoral ailments. The true maiden-hair fern is cultivated in ferneries and hothouses in England, but it grows wild in the south of France, in Rome, and on the rocks of the Mediterranean. It is to be found on rocks and in the crevices of old ruins.

Capillary Attraction. (*See* ATTRACTION, CAPILLARY.)

Capita (by the head).—A distribution of property when all the claimants claim in their own right, in equal degree of kindred. A distribution *per capita* is opposed to a distribution *per stirpes* (by the root)—*i.e.*, in the right of another person—for instance, where the children of a parent take between them what their parent, if living, would have taken. If a man leave two sons, one of whom has three children, and the other one, and these grandchildren become entitled to his estate, a distribution *per capita* would give a fourth of it to each child; whereas a distribution *per stirpes* would give one moiety of it between the three, and the other moiety to the one child.

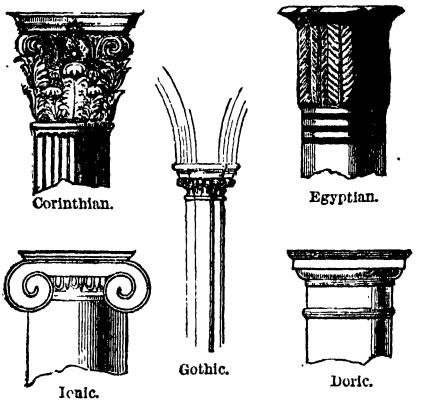
Capital.—In commerce, as well as in the science of political economy, the term capital is not only applied to the money, but also to the stock and property convertible into money, with which a merchant, trader, or manufacturer carries on his business. According to John Stuart Mill, "capital is the accumulated stock of the produce of past labour. What capital does for production is to afford the shelter, protection, tools, and materials which the work requires, and to feed and otherwise maintain the labourers during the process. These are the services which present labour requires from past, and from the produce of past, labour. Whatever things are destined for this use—destined to supply productive labour with these requisites—are capital."

Capital Felony.—A crime rendering the offender liable to the punishment of death. The crimes now punishable with death are only high treason and murder. By the Statutes 24 & 25 Vict. c. 96, 97, 98, and 100 ("The Criminal Law Consolidated Acts"), many offences formerly capital have ceased to be so.

Capital Letters.—The use of capital letters is, for the English language, the same in writing as in printing. This is the general law, and the following are its applications:—Capitals should be used—(1) for all principal

words in the title of a book or document; (2) for every new sentence, or numbered clause of a sentence; (3) for introducing any formal and direct quotation; (4) for all names of God, and their emphatic substitutes, as "Supreme Being," "Holy Spirit," &c.; (5) for all proper names of days and months, persons and places, ships, rivers, seas, &c.; (6) for titles and distinctive epithets; (7) for personifications; (8) for words derived immediately from proper names, though used as adjectives—*e.g.*, Roman, Greek, Latin, French, German, Socratic, Platonic, &c.; (9) for the personal pronoun I, and the interjection O; (10) for every line of poetry; (11) for letters of the alphabet when simply used as such; (12) for compound names when the words are written separately, as Land's End, Long Island, Gretna Green. To some of these rules there are exceptions, especially to rule 6, but a little observation will prevent mistakes.

Capitals (in Architecture).—The capital or head of a column, pilaster, &c., constitutes, as the reader will glean from our remarks on ARCHITECTURE (*see* page 62), the most obvious indication of an order. The earliest form of capital is the Egyptian. In classical architecture, the capitals of the various orders are readily distinguishable, although in



CAPITALS.

some of the more ancient examples wide differences are found to exist. In Norman and Gothic architecture a large diversity of capitals is to be found. The capital, although indispensable, is a purely ornamental part of the column, and there is no absolute necessity for its existence, for which reason artists frequently exercise considerable freedom in its design, being fettered by no condition but that of its being in proper accordance with the order it is associated with. Norman capitals frequently assume what is termed the cushion-shape, although in reality this shape more nearly resembles that of a solid bowl, having its sides truncated to form flat surfaces; and in the later specimens we find conventional foliage introduced by way of ornamenting the capitals. There is less diversity in the capitals of the Early English style of columns, which are often richly decorated, and as often quite devoid of carved work. In the Decorated style the capitals often consist of plain mouldings, upon which frequently appear ball-shaped flowers or rich foliage, with beautifully composed lines and picturesque effect in light and shade. In the Perpendicular style the capitals are usually plain, although we sometimes see them enriched with foliage.

Capitulation (from *capitulo*, to treat upon terms).—In military affairs, a treaty made between the garrison or inhabitants of a place besieged and the besiegers, for the delivering up the place on certain conditions. In the German polity, a contract which the sovereign makes with the Electors, in the name of all the Princes and States of the Empire, before he is declared Emperor, and ratified by him before being raised to that dignity. The principal points are:—1. To defend the Church and Empire. 2. To observe the fundamental laws of the Empire. 3. To maintain and preserve the rights, privileges, and immunities of the Electors, Princes, and other States of the Empire specified in the capitulation.

Caps.—These particular coverings for the head are of comparatively modern invention. They were not worn by the Greeks or Romans, it being their custom to throw the lappet of the gown over the head. Some time during the fifteenth century caps came into use in Europe, taking the place of hoods and cowls. Kings and those of high birth wore caps of velvet; the lower orders wore those of wool. The men of the present day make but little use of this particular form except when engaged in sports or games, when caps made of flannel are found to be the most comfortable. For women the fashion has not yet died away, but the style adopted by each generation varies considerably. Fifty years ago ladies, servants, and babies wore veritable caps, which enveloped the head, had full borders, and were tied under the chin. At the present time smallness of size is the chief characteristic: mere rosettes of muslin and ribbon, and minute lappets, are denominated caps. They are worn by ladies younger in age than formerly. Babies' heads are no longer enveloped in England, but in France and other countries it is still the custom for infants and young children to wear caps.

Capsicums (from the Greek *kapto*, I bite) is a genus of plants of the order *Solanaceæ*. There are numerous species, and they yield the fruits which are commonly sold as chillies, and which are used to form cayenne pepper and chilli vinegar. The plants are natives of the tropical parts of America and of Asia. They have a bushy appearance and woody stems. The fruits of the different species vary in form, some being round, others oval, and others heart-shaped. They vary from one to four inches in length. They contain small seeds, and some are of a shining red, and others of a yellow colour. Capsicums are exceedingly wholesome and useful, and are eaten in large quantities in hot climates, both for animal and vegetable food, as they counteract the weakening influence of excessive heat. When employed in the form of cayenne—that is, when dried, pounded, and mixed with a certain quantity of salt—they assist digestion, and

greatly improve the flavour of meat and fish. In medicine, cayenne is strongly recommended by doctors in gouty and paralytic cases. It is used as a gargle, both in cases of relaxed sore throat and in scarlatina. The gargle is made by infusing the cayenne in vinegar and water, with a little sugar-candy; but cayenne is also taken medicinally in the form of lozenges and pills. All capsicums owe their power to an acrid resin called capsicine which enters into their composition. It can be obtained from cayenne in the form of a thick red liquid, and is of such a nature that a very minute portion diffused through a room will cause every one in it to sneeze. The most common variety of the capiscum is occasionally grown in the south of England on hot-beds.

Capsules are used for covering corked or stoppered bottles for the more effectual exclusion of air. It is also the name applied to the seed-vessel of a plant, and in pharmacy to a globular lozenge used for the administration of nauseous remedies. In anatomy the term is used for a membrane, such as we see in the capsule of the crystalline lens, the capsular ligaments, &c., and in chemistry it indicates a small evaporating dish.

Captain.—A term of varied application, most commonly to the master of a ship, the commanders of certain divisions of the army and navy, and sundry gangs of men on board ship. The captain of a cricket club is its chief officer; he takes part *ex officio* in committee meetings, names the members who are to play in matches, appoints bowlers, settles the order in which the batsmen go in, and superintends the general arrangements of a match. Hence he directs the preliminary exercise, and members bind themselves to observe his directions in all their games or matches. In some public schools the first or chief pupil is called a captain, and as such occupies a post of honour.

Capture.—The arrest or seizure of a person or thing, particularly applicable to the seizure of ships by an enemy in war. On the 16th of April, 1856, a treaty or declaration was entered into and signed at Paris between the Powers of Great Britain, Austria, France, Russia, Sardinia, and Turkey, under which privateering was abolished by those Powers.

Carafe.—The carafe, a water-bottle or decanter, is frequently made of earthenware of a porous character, in which the water retains for a longer time its cool, refreshing qualities which in summer weather are very desirable.

Caramel.—A preparation of sugar used by confectioners, cooks, and distillers as a brown colouring matter for soups, wines, spirits, &c. In its simplest form it is prepared by subjecting cane-sugar to a heat of from 410° to 428° Fahr., until no aqueous vapour is formed; the product is dissolved by water, and the solution is concentrated by evaporation. Really pure caramel is obtained by more elaborate processes.

Carat.—1. A weight used by diamond merchants for weighing pearls, diamonds, and other precious stones. It is not the same in all countries, but in England it is divided into four grains, and 151½ carats equal one ounce troy; so that there are 606 carat grains in a troy ounce of 480 common grains. To make this plainer, a troy pennyweight of 24 grains will be equal in weight to 30 carat grains and a fraction. 2. A term representing the number of parts of pure gold in any article which contains that metal. Taking pure gold as 24, an article which consists of one-fourth alloy and three-fourths gold will be 18 carat gold; if one-half is alloy, it will be 12 carat gold; if five-eighths are alloy, it will be 9 carat gold; and so on in any other proportion, pure gold being called 24 carats fine. The word carat has a further technical use among assayers, but the above are the two meanings it almost invariably bears in ordinary parlance.

Caraway, Preparations of.—Caraway-seeds emit a pleasant odour, and have a warm, aromatic taste. They are used to flavour cakes, biscuits, and cordials, and are employed medicinally as a tonic and a carminative to relieve flatulence, especially in children, and to correct nausea, and the griping sensations which result from the use of various aperient medicines. They also enter into the composition of liqueurs and sweetmeats, and are used by perfumers in the manufacture of scented soaps. The seeds contain about five per cent. of a volatile oil, and their aromatic properties depend to a great extent upon this. The oil is obtained by bruising the seeds and distilling them in water. When the oil is dissolved in proof spirit it becomes spirit of caraway.

Caraway Seeds.—These small, well-known seeds, which are largely used both in cookery and medicine, are the fruit, or, to speak more correctly, the carpels of the caraway, or *Carum carui*, a biennial, umbelliferous plant, something like a carrot. It grows abundantly in the middle and south of Europe, and in parts of Asia. It is cultivated extensively as a field crop in Kent, Essex, and Sussex, in England, and also in Holland and Germany. An acre will yield from four to eight hundredweight of the seeds. The carrot-shaped root of the caraway is often used like carrots or parsnips, but the flavour is a little too strong. Caraway-seeds should be sown in March or April, and when the plants are about three inches high they should be thinned, and allowed to be about six inches apart. Then they will need only to be weeded and to have the earth loosened about them, and they will seed the second year. The seed is usually threshed in the field on a cloth, something like rape-seed.

Carbolic Acid, called also Phenol and Phenylic Acid, is a product of the distillation of coal. When that portion of the tar which distils at between 300° and 400° is mixed with a hot solution of potash, a crystalline mass results, from which an alkaline liquid is obtained on treating it with water. When neutralised with hydrochloric acid, an oily substance separates, which is impure carbolic acid. To purify it, distillation with chloride of calcium is resorted to, when it forms colourless crystals, deliquescent in the air. It smells like creosote. It is an anti-septic, arresting the

decay of organic matter. Along with lime-water, it is used as a wash for tainted meat. Carbolic disinfecting powder is a mixture of the carbolate and sulphite of lime. Timber soaked in this acid is not liable to dry rot. Like most of the other products of the distillation of coal-tar, it yields very beautiful colours when treated with various chemical agents—especially reds, yellows, blues, and purples.

Carbon.—An elementary body present in all organic compounds. One of the most widely diffused substances in nature. It is the principal ingredient of coal, is an important element in limestone rocks, and is the chief solid constituent of plants and trees. The diamond is a crystal of pure carbon. Some of the best anthracites contain very little mineral matter, and consist of little else than carbon. Graphite or plumbago is another form in which this element occurs in a nearly pure state. Coke and charcoal are artificial products, consisting almost entirely of carbon.

Carbonates are compounds of carbonic acid with a base. They form a numerous and important series of salts. Some of them are exceedingly abundant in nature. Those of greatest interest are the carbonates of ammonia, potash, and soda; of lime and magnesia; and of zinc, copper, lead, and iron. The first three named are soluble in water; the rest, except that of lead, are all natural products, forming part of the solid crust of the earth. The neutral *carbonate of ammonia* is an unstable substance, volatilising in the air, whence its extreme pungency and its common name, sal volatile. As smelling-salts it is used in the treatment of syncope and hysteria; and medically it acts as a stimulant, anti-spasmodic, antacid, and, if given in large doses, as an emetic. *Carbonate of soda* is manufactured on a very large scale from common salt, and is known in commerce under the name of alkali (*which see*), or still more generally as soda-ash. It is used in making soap, glass, &c., as well as the bicarbonate (*which see*). It has a disagreeable soapy taste, but is useful in medicine as an antacid. *Carbonate of potash* is made by burning wood, and then dissolving out the soluble portion of the ash with water, and subsequently evaporating the liquor down to dryness. This is the potash of commerce, which is largely imported from Canada. Pearlash is a purer quality of the same, obtained by repeating the washing and evaporation a second time. It is similar in its action to the soda-ash, though for many purposes it is not so desirable, as it is more deliquescent; hence it is less used in this country than on the Continent, as our climate is a moister one. Chalk, marble, and all other kinds of limestones are the natural sources of *carbonate of lime;* and magnesian limestone or dolomite is a compound of the *carbonates of lime and magnesia.* Many of these are used for building purposes, and others are burnt in order to produce quicklime. Carbonate of magnesia is used medicinally as an antacid, and in calculous disorders; for this purpose it is made from the sulphate. *Carbonate of zinc,* known as calamine in mineralogy, is the ore of zinc most common in England and Germany. *Carbonate of lead,* or white-lead as it is commonly called, is an artificial product, made by exposing plates of the metal to the carbonic vapours which are gradually given off from vinegar or wine lees, while gently fermenting. The white-lead is ground into a fine powder, and mixed with a drying oil, to form the basis of ordinary house paint. It is highly poisonous, producing distressing symptoms, known as painter's colic. Soft water passing through leaden pipes, or lying in leaden cisterns, acts on the metal, and, if used for cooking purposes, will introduce a quantity of carbonate of lead into the system sufficient to produce an injurious effect. *Carbonate of copper* is an ore, called malachite if it is the green variety, or azurite if it is the blue, and is common in Australia, Russia, Africa, &c. On account of the beautiful colour and markings of malachite, the hardest portions (which are capable of taking a high polish) are picked out and reserved for the lapidary, but the great bulk of it goes to Swansea to be smelted. *Carbonate of iron,* or ferrous carbonate, is the most valuable of all the list. When in the crystalline form it is termed spathic iron ore by mineralogists; but the earthy form, more or less mixed with clay and other substances, is the one which principally supplies the iron smelter with the charges for his blast furnaces. The deposits of clay ironstone are so enormous, and the form in which the ore occurs is so convenient for the smelter's purposes, that nearly all the great ironworks in this country are dependent upon this description of ore. For a long time, most of the ironstones were got from the carboniferous rocks, but with increasing facilities of carriage it is now found possible to carry on the smelting works successfully at places more remote from the supply of coal, and the oolitic region of the North Riding of Yorkshire, where inexhaustible deposits of the ironstone occur, has become the busy scene of iron-making. In Scotland they have a most valuable variety of this ore, called black-band ironstone: a great part of the clay being replaced by carbonaceous matter, this can be smelted with a less quantity of fuel than the other descriptions.

Carbonic Acid. (*See* Carbonic Acid Gas.)

Carbonic Acid Gas.—This acid consists of two atoms of oxygen and one of carbon, and under ordinary conditions exists only in the gaseous state. It can be liquefied by subjecting it to a pressure of about forty atmospheres; and then readily frozen by removing the pressure, when the sudden and enormous expansion accompanying the return to the gaseous state of the portion which escapes into the air causes such intense cold in the remainder as to freeze it. The gas is produced both by natural and artificial processes. In volcanic districts, many of the water-springs are charged with it; and in other places it comes up through clefts in the rocks, filling up the hollows with a mixture of gas and atmospheric air, in which the former bears such a large proportion as to be dangerous to breathe. This is the case at the Grotto del Cane, near Naples, where it is customary to prove to travellers the presence of the gas by putting

a dog into the hollow of the cave's floor; the dog almost immediately becomes stupefied, and would be killed altogether if not promptly removed into the outside air. The choke-damp which occurs in old mines consists mainly of this gas, the miners' term beign expressive of its nature: it is the presence of the same gas at the bottom of old wells, and in brewers' vats as a product of fermentation, that often leads to fatal accidents. Into the wells and vats it is not wise to venture without first trying them; which can be done by letting down a lighted candle, as the presence of this gas in excess will at once put the light out. All animals in the process of respiration give off carbonic acid gas; and in the burning of candles and all other articles containing carbon the same gas is given off; hence the stifling nature of the air of crowded and brilliantly-lighted apartments, unless there is proper ventilation. Fresh air always contains more or less carbonic acid gas, usually about $\frac{1}{2500}$th part; but a mixture of atmospheric air and this gas, in which there is from $\frac{1}{25}$th to $\frac{1}{30}$th part of the latter, is liable to produce death, by stopping the proper action of the air upon the blood as it passes through the lungs. The air which is expelled from the lungs generally contains about this proportion of carbonic acid gas. The quantity in the air is tending continually to increase, and it would accumulate to a serious extent were it not for the counteracting influence of vegetable life. The green parts of plants, when in sunlight, decompose carbonic acid, retaining the carbon while giving back most of the oxygen to the air. The rain also dissolves the carbonic acid in the air, and carries it down to the earth; then the roots of the plants absorb it, and carry it up into the leaves, where it undergoes the necessary chemical change so long as the sun's rays fall upon the plant. The action does not go on by night. Carbonic acid can easily be separated from any of the carbonates, as its powers as an acid are weak, and it can be disengaged by the introduction of a stronger one. Thus, dilute nitric acid will cause any of the carbonates to effervesce freely, the effervescence being caused by the throwing off of the gas. Mineral waters that are charged with this gas are sparkling when first drawn, if they come from any depth, as the pent-up gas escapes in bubbles in proportion as the atmospheric pressure diminishes. Soda-water, so called (though it seldom contains any soda at all), is made by charging pure water with this gas under pressure. On the cork being removed, the gas escapes, as in the case of the natural mineral waters. The pure gas is more than half as heavy again as air, and hence its tendency to collect at the bottom of wells, &c. It can easily be poured from one vessel into another, though invisible, if the operation be conducted slowly.

Carboniferous.—A geological term meaning, literally, coal-bearing, applied to the group of rocks which includes the true coal measures. The principal divisions of this group are—in descending order:—the coal measures themselves, the millstone grit, and the carboniferous or mountain limestone. Some of the sandstones which overlie, and others which underlie, these, are included by some geologists in the carboniferous group, the line of demarcation between it and the Permian on the one side and the Devonian on the other not being very clearly defined. The coal measures contain other valuable products besides coal, such as ironstone, fireclay, &c. The mountain limestone furnishes many of the ornamental marbles for chimney-pieces, &c., as well as large supplies of lead ore, calamine, baryta, and other minerals. The carboniferous rocks cover a very large area in the British Isles; extending, with slight intermissions, from Northumberland in a south-westerly direction as far as Cornwall, and occupying considerable areas in both North and South Wales, as well as in Scotland and Ireland. But little coal is raised, however, in the last named.

Carbuncle.—The carbuncle is really a garnet when cut *en cabochon*, as it is termed, *i.e.*, with a flat or hollow base and a rounded top. Its name is derived from a word meaning a small glowing coal, in allusion to its bright and beautiful colour. When pierced and set with a diamond, the carbuncle is very liable to fracture. Imitations of the carbuncle are by no means uncommon.

Carbuncle (Boil).—Carbuncle (anthrax, or exaggerated boil) is a circumscribed inflammation not only of the true skin, but also of the subcutaneous areolar tissue. It begins as a round flattened swelling of a dusky red colour, with a hard base which extends some distance, and varies in size from a half-crown piece to a good-sized saucer, and even larger. The swelling, at first hard, soon becomes doughy, and giving way at several points, indicated generally by little vesicles or mattery heads, it exudes an unhealthy ichor, or discharge. The pain throughout is most severe, and as the disease is generally the result of a very low state of health, the exhaustion is sometimes so great that the sufferer never rallies, and death is no uncommon occurrence. The usual seat of carbuncle is on the nape of the neck, and from thence the inflammation extends a considerable distance down the back, or upwards on the scalp. In the latter case, the danger to life is very much increased. *Treatment.* The chief indications are to relieve the very painful tension of skin, to promote suppuration, and to support the strength. If the tension is very great, and no signs of breaking are apparent, nothing will relieve so quickly and so thoroughly as the knife. The incision must be freely carried through the diseased parts, and poultices of linseed-meal only, or with a little yeast added, must be kept constantly applied to promote the discharge of matter. As this is essentially a disease of vitiated blood, every care must be taken to restore the latter to a pure and healthy condition. The bowels should be well cleansed at the beginning of the disease with three or four grains each of calomel and compound colocynth pill. Quinine in large doses (four or five grains) with ten drops of dilute carbolic acid. muriatic acid in an ounce of water, or chloride of ammonia (five to ten grains) three times a day, is a valuable medicine. When forms colourless oily substances, it smells like a favourite remedy, and doestic, arresting the

Opium (twenty to thirty drops of Battelcy's solution for an adult) will be necessary at bedtime, if the pain is severe and the sufferer cannot sleep. Wine, brandy, or beer, according to the taste and habits of the patient, is not only admissible, but does great good if given so as not to disorder the stomach. In small carbuncles, the little head is sometimes opened, and the interior rubbed with a pointed stick of caustic. This is said sometimes to arrest the disease at the outset. It has also been recommended to cover the swelling with a piece of soap plaster spread on leather, in the centre of which a hole has been cut to allow of the exit of matter. We cannot, however, strongly recommend either of these modes of treatment. It is quite true that boils and carbuncles frequently disappear under such treatment, but it is equally true that they often depart spontaneously, owing to the patient getting into a better state of health. (*See* BOILS, TREATMENT OF.)

Carburetted Hydrogen Gas. (*See* HYDROGEN GAS.)

Card-case.—A small box or receptacle for holding visiting-cards, made exactly to fit them, and to be carried conveniently in the hand or pocket. They are made of many various materials: of ivory, tortoiseshell, gold and silver, sandal, cedar, ebony, and other woods, papier-maché, leather, and pasteboard, covered with different materials.

In form they are sometimes made to fold in two like a book, with a pocket on each side; at other times they are more like flat oblong book-shaped boxes, opening with a hinge close to one end, or the end coming completely off, to admit of the insertion of the cards. The folded cases are sometimes quite soft, and others are firm and stiff, according to the material of which they are made. Every person above the lower ranks of society is supposed to have his name and address in his pocket for visiting and other purposes; and thus a card-case is an indispensable article for daily use; a rule holding equally good for gentlewomen. (*See* CARDS OF ADDRESS AND ETIQUETTE.)

Card-purse.—A card-case and *porte-monnaie* combined, in which there are pockets for the visiting-cards, others for postage and receipt stamps, as well as for railway tickets, and such-like; besides a purse, divided into compartments for holding cash and bank-notes—fastened by a holdfast, which is closed upon a metal border binding the tops of these pockets, and keeping the money securely fastened in. Or else they are furnished with a leather strap, with a piece of elastic and a metal end to it, by which the *portemonnaie* is fastened together. These card-purses are so[illegible]ally made of leather, but sometimes the lim[illegible] are of ivory, mother-of-pearl, tortoise-*carbon*[illegible] and other materials. Those of leather are use[illegible]times bound round the edges with are burnt[illegible]rious descriptions.

Carbonate o[illegible]purses in use in British America an antacid, an[illegible]d States are usually supplied purpose it is ma[illegible] of leather, with edges folding *of zinc*, known[illegible]e, for the purpose of holding the ore of zinc [illegible] of that continent. The notes can thus be laid out flat (without folding) and rolled up, so as to be spared the wear and tear of any crumpling.

Cardamoms.—These are the dried seeds of the Malabar cardamom (N.O. *Zingiberaceæ*). There are three kinds known in commerce—viz., shorts, short longs, and long longs. They yield a volatile oil, which is colourless, has an agreeable smell, and aromatic taste. Cardamoms being agreeably aromatic and stomachic, are used largely as adjuncts to other medicine, especially those of a purgative character, to prevent griping. The only official preparation is the compound tincture, composed of cardamoms, caraways, raisins (freed from their seeds), cinnamon, cochineal, and proof spirit. The dose is from half a drachm to two drachms.

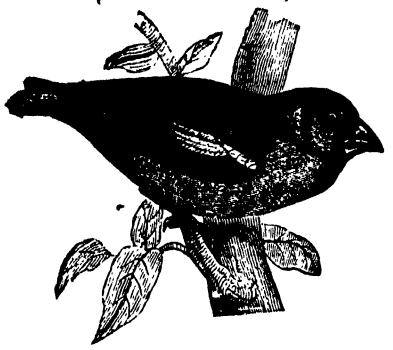
Cardboard.—Cardboard is manufactured by pasting together layers of paper, in number sufficient to obtain a thickness which is greater than that of the material usually called card, and which, resembling the thickness of a thin board, gives the material its name. The inferior kind of cardboard being the same thing, but constructed of cheaper materials, is called pasteboard. A thick, hard, and strong kind of pasteboard, with smooth coloured surfaces, is known as millboard. The superior kind of cardboard known as Bristol boards we have described elsewhere (*see* page 181). The difference between the various qualities of these boards is found in their materials rather than in the process of manufacture. In Bristol boards, special care is devoted to the inner and outer materials, to secure them of a fine uniform surface and colour; but in the commoner kind the inside paper is of a much cheaper and inferior kind to the outer, and less care is devoted to the uniformity and texture of colour. For such boards as railway and other similar tickets are made of, the outer surface being coloured, less care is required in selecting the inner material. The superior hardness and smooth polished surface of the Bristol boards are obtained by hot-pressing—a term meaning great pressure combined with heat between beautifully smooth flat plates of hard metal, kept in a condition of scrupulous cleanliness. Card is often enamelled as well as hot-pressed, and a composition of china-clay is sometimes used to give a brilliant whiteness to the surface.

Cardiac.—This term is used by medical men to signify anything in connection with the heart, as, for example, heart disease is called cardiac disease. The heart sounds, whether diseased or healthy, are called cardiac sounds or murmurs; and the region or space in which the heart acts is called the cardiac region. (*See* HEART.)

Cardigan (Garment).—A woollen waistcoat with sleeves, buttoned down the front, worn by men under the coat as a further protection from cold; it is usually black and ribbed in appearance.

Cardinal (Bird).—The hawfinch, or grosbeak, belonging to the genus of insessorial

birds (*Coccothraustes*), and family *Fringillidæ*. It is common in England, as well as in Italy and France, and many other parts of Europe, and is a bird of very brilliant plumage, building its nest in our woods in summer, and visiting



GROSBEAK.

our homes in the winter months. Its bill is very strong, enabling it to live on the hardest of seeds and kernels, and on blackthorn haws, hence its name; it also eats insects. It builds a most beautiful mossy nest, and the female lays five or six eggs of a bluish or greenish colour spotted with brown.

Cardinal Virtues.—In what is called moral theology, the cardinal virtues are four—Prudence, Fortitude, Temperance, and Justice, from which, it is said, all other moral virtues flow. The principal moral virtues were similarly named by ancient Greek philosophers, but in a different order—Justice, Prudence, Temperance, and Fortitude. By Dr. Whewell it was proposed to give the honour to Benevolence, Justice, Truth, Purity, and Order. Other arrangements have been suggested, but all are liable to some objection.

Cardoon.—This plant (*Cynara cardunculus*) is a perennial garden vegetable, a native of Candia, largely grown in France, and introduced into this country about the middle of the seventeenth century. It belongs to the same botanical genus as the artichoke, which it strongly resembles, though it is of a larger size. It grows to the height of several feet. It is valued for the sake of the stems, usually called the ribs, which are blanched and used either as a salad or as a boiled vegetable. There are many varieties of the cardoon, but the Spanish and the Large Purple are the kinds usually sold by English nurserymen, and the former of these is said to produce the largest, the tenderest, and at the same time the most delicately-flavoured ribs. Cardoons should be planted either at the latter end of May or in the beginning of June, in an open and airy but warm situation. The soil should be light yet rich, and the seeds should be sown half an inch deep, in patches of three or four. They should be planted in drills four feet apart. When the young plants grow they should be well weeded, and watered abundantly. They will have attained their growth by the end of October, and then may either be blanched by being tied together and bound round with haybands, or may be earthed up like celery. This will render them white and crisp, and fit for use. With the florets of the cardoon the Portuguese were at one time in the habit of coagulating milk for making cheese.

Cards of Address and Etiquette.—Visiting-cards should be plain in character. The name and address should be engraved in a simple style. Ladies' cards are larger in size than those used by gentlemen. When the name of both appears on one card, such as "Dr. and Mrs. Campbell," the card should be the ladies' size. The names are placed across the centre, and the addresses in the left-hand corner. The names of daughters who visit with their mother are placed in order under that of their mother. The letters P. P. C. (*pour prendre congé*), or P. D. A. (*pour dire adieu*), are written in the right-hand corner when a farewell call is paid. "With kind inquiries" is written on cards left or sent to a house where there is illness. On cards sent by those who have received such cards, the words "With thanks for kind inquiries" are written. When presents of game, &c., are sent, it is usual to attach a visiting-card, and write, "With" (sender's name) "compliments" or "kind regards." (*See* CARD-CASE.)

Cards, Games at. (*See* under their respective headings.)

Cards, Playing.—Cards seem to be of very ancient origin, evidence having been afforded that in some form or other they were known to the Hindus and the Chinese at a very early period in their history. It has been reported that modern cards were invented in the year 1390, to afford amusement to Charles VI. of France, he having fallen into a melancholy; it is, however, almost certain that they were used at a much earlier date in France than that given. The devices in playing cards have varied greatly since their introduction in Europe, and the French have constantly changed the court or pictorial cards, representing on them all manner of characters famous in past times. Modern cards are fifty-two in number, consisting of four suits, each of thirteen cards—hearts, diamonds, spades, and clubs. Ten cards of each suit are marked with their special device, in number from one to ten respectively (the one being termed the ace), and the remaining three cards are painted with pictorial representations, and termed the king, queen, and knave.

Caret.—This is a Latin word, and means that something is wanting. In writing it is represented by a mark ∧, above which the omitted word or words must be supplied, or, as it is called, interlined.

Caries.—This is an unhealthy inflammation of bone analogous to ulceration, attacking most frequently the short spongy bones, as those of the spine and the extremities of the long bones in the neighbourhood of the joints. The symptoms are at first great pains in the affected part, followed by an abscess, which soon breaks, allowing the rough surface of bone to be easily felt with the probe. As the abscess contracts, fistulous openings are formed, which discharge a fetid pus tinged with blood, and containing bone

granules, with an abundance of phosphate of lime. Caries is generally caused by scrofula or syphilis. When due to the former, the remedies proper to that condition must be resorted to, as cod-liver oil, iron, pure air, sea-bathing, &c; if due to the latter it will probably be necessary to supplement these with a mild course of mercury. The local treatment consists in simple water-dressing, and the removal of the dead parts, should such a step be necessary, by gouging, excision, resection, or amputation.

Carminatives.—These are medicines which contain an aromatic volatile oil, and are important and useful stimulants to the stomach in various forms of indigestion, especially those of a flatulent character. They are also very much used as adjuncts to purgative medicines, in order to correct griping, and thus facilitate their action. Ginger, capsicum (red pepper), mustard, nutmeg, cloves, cinnamon, allspice, valerian, cardamoms, caraways, peppermint, &c., are amongst the most important carminatives.

Carmine.—A beautiful red pigment, which is prepared from the cochineal insect. There are several methods of preparing it, that most approved being by Dr. Pereira. A decoction of the black cochineal is made in water—the residue, or "carmine grounds," is used by paper-stainers. A precipitant, usually bichloride of tin, is added to the decoction, and this is put into a shallow vessel, and allowed to settle. A deposit takes place by slow degrees, adhering to the sides of the vessel; and the liquid being then poured off, it is dried. This precipitate is carmine; and the liquid, when concentrated, is called "liquid rouge." By the old German process it is prepared by means of alum, without any other addition; and by another method with tartar. There is also the process by Langlois, and Mme. Cenette, of Amsterdam, with salt of sorrel; and the carmine of China by that of tin. Painters make great use of it dissolved in ammonia, or "liquid carmine." It is employed in miniature, flower, and water-colour painting, and as a tint for artificial flowers. If adulterated with starch it spoils with damp. Water of ammonia will detect this ingredient.

Carnation (Colour).—Flesh-colour, from the Latin *caro*, *carnis*. The finest coral is of this colour, which combines yellow with pink; a certain species of the pink has also been given the name of carnation, on account of its colour.

Carnation (Flower).—The carnation of old has of late years come into great notoriety, from the interest many have taken in producing the great variety and beauty of its flowers. Its shapes and colours and its exquisite perfume recommend it also to the notice of all who love a garden. The carnation comes into flower about the end of May or the beginning of June, and lasts about a month or six weeks. During the time of its blooming a large number of shoots will be thrown out, which will never blossom. After the plants have ceased to flower, the time has arrived for thinking of next season, by either laying these shoots in the earth and pegging them down, or taking the upper part of the shoot some two inches from the top, and putting them in large numbers in rows in very fine sand well moistened, and covering them with a hand-glass. These after a certain time will be seen to grow. When they have arrived at maturity, or are ready for putting into pots or a bed, each young plant should be taken up carefully, the ground being first loosened with a hand-fork so as to preserve the tender roots. A rich bed of mould being prepared, they can be planted in rows about four or five inches apart, and if on a south border, sheltered from the cold winds, they will make fine plants for the borders in the summer. If you have a greenhouse, many can be put in pots and thus secured; they will thrive well in pots if the mould is good. The carnation may be propagated by seed.

Carnelian, or Cornelian.—A variety of chalcedony. Its colours are red, yellow, and white, and it is one of the quartz group of precious stones. Capable of a fine polish, it is specially adapted for seals, as it so easily detaches itself from the wax, and leaves a perfect impression. Formerly it was much used in this country, but is not fashionable now. It is found in various countries, is engraved with facility, and is cheap.

Carniola. (*See* VENETIAN PAINT.)

Carnival.—An annual festival observed in the principal cities of Italy, and which originally commenced on the feast of the Epiphany, and lasted until Ash Wednesday, with its appropriate fasting, prevented its longer continuance. At the present time, the carnival is limited to the few days immediately preceding Ash Wednesday, and is made the occasion of much mirth, festivity, and rejoicing, with at times not a little rough play. The derivation of the term carnival (from the Latin *caro*, flesh, and *vale*, farewell—"farewell to flesh") shows the origin of the custom. In our own country, in the observance of Shrove Tuesday, or pancake Tuesday, the last day before Lent, we have a somewhat similar, although much milder, form of festival.

Carnivorous.—This is the term applied to all animals that feed on flesh, the word being derived from *carnis*, flesh, and *voro*, to eat. The movements of the jaws are confined to two, namely, opening and shutting; and carnivorous animals have, as a rule, claws or nails on their toes, enabling them to tear and rend their food. Cuvier divides carnivorous animals into four distinct tribes, viz.:—1. The *Plantigrades*, inhabitants of cold regions, who mostly pass the winter in a dormant state; examples, the bear and badger. 2. *Digitigrades*, of which the polecat is a good example; they have very long bodies and short legs, and are altogether ferocious, courageous, and bloodthirsty. 3. *Felidæ*, or cats, with their retracted claws, and very highly-developed destructive powers; the common cat and the tiger are examples. 4. The *Amphibious Carnivora*, comparatively helpless on land, but extremely agile and swift in the water; example, the common seal.

Carob.—The carob-tree (*Ceratonia siliqua*) grows largely in the south of Europe, and particularly in some of the Spanish provinces,



CAROB-BEANS.

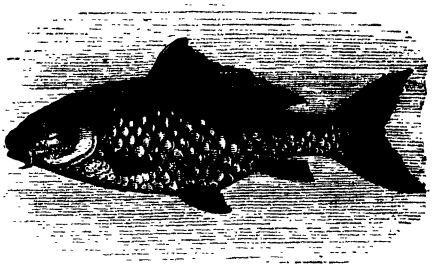
being abundant in Valencia. Its fruit, called the carob-bean, is an important article of commerce, chiefly used for feeding cattle, although amongst the very poor, and in times of dearth and famine, it has been used for making bread.

Carolina Rice. (*See* RICE.)

Carols.—In early times, the name of carol was applied to any kind of joyous song, and this description of song was usually sung as an accompaniment to dancing. The word *carola* is the Italian expression for a song of joy. *Choreola* in Latin has the same significance. In the present day, carols are supposed to signify songs of a religious character, which are sung especially during Christmastide. (*See* CHRISTMAS.)

Carotid Arteries.—These are two large and important arteries, the one on the left side, starting from the arch of the aorta, the other on the right, from the innominate artery. Both pass obliquely up the side of the neck, where they can be felt pulsating, to the angle of the jaw, where they divide into (1) internal carotid, going to supply the brain, &c.; and (2) external carotid, which fulfils the same office to head, face, tongue, &c. It is one of these arteries which is usually wounded in dangerous cut-throat. The common carotid is sometimes tied for tumours of the orbit or skull, and for certain injuries of the neck.

Carp, the *Cyprinus carpio* of naturalists, is found in English ponds, and is considered a great delicacy; it is also found in rivers, where it prefers the still pools in which it can feed off various vegetable substances, and on worms. The carp is rather a long fish, very thick, with arched back, large head, and small mouth. It weighs from two pounds up to thirty, according to its age, which is said to sometimes reach far beyond a century. The carp is in season from October to April. In this country it seldom measures much over a foot, but in



CARP.

hotter climates it may be three times that length.

Carpet Bags.—These are very strong and durable, and can be used constantly for years without showing signs of wear, but they are also heavy and cumbersome, and for this reason they have been almost entirely superseded by leathern bags, although the latter are not so strong, and become shabby sooner.

Carpet Brooms or Brushes.—Brooms, *i.e.*, brushes made of American fibre broom, should not be used for sweeping carpets: they are frequently sold for that purpose, but the roughness of the fibre brushes off the nap of the carpet. Such classes of brushes are the best adapted for sweeping cocoa-nut matting, &c. Brushes of bristles are the best for carpets. Those made double, having a set of short hard bristles and a set of long soft bristles, placed back to back on the same handle, are the most convenient and useful—the hard bristles collect the dust, and the longer bristles sweep them into the dust-pan. Hand-brushes are better than long brushes. Carpets are soon made shabby and threadbare if swept with unsuitable brushes.

Carpets (Suitable for Various Rooms).—For bedrooms the most serviceable and durable is Brussels. The colours should not be dark, or dust and water spots will show too distinctly. A small mingled pattern on a light ground answers best. Tapestry carpeting is suitable if the room is not much used. This carpet soon becomes shabby with much wear; the colours wear off. There is not much choice given in the patterns, and the colours are generally gay. Tapestry is not so much per yard as Brussels. Kidderminster is the best for children's rooms. The double make is stronger (and dearer) than the single. The advantages of these carpets are that, being light in weight, they can easily be taken up and put down, and also the patterns usually look well on the wrong side, so that they can be turned. Dutch carpetings are serviceable, and so are felt carpetings, if the patterns in the latter are printed through. For breakfast-rooms a decided preference should be given to Brussels, though these vary in quality and price. For drawing-rooms the handsomest, and consequently the most expensive, are Aubusson and Axminster carpets; these are made in squares. Wilton and fine Brussels

always look suitable. For dining-rooms, Turkey carpets are the most satisfactory in appearance and wear. Failing these, Brussels should be chosen. Fine cocoa-nut matting is the most suitable for servants' rooms. Brussels carpeting is really the most economical for stairs. Tapestry looks well for a while, but soon grows shabby. Dutch and Scotch are strong for landings and upper stairs.

Carrageen Moss.—This, the *Chondrus crispus* of botanists, is also known as Irish moss and pearl moss. It is celebrated for its supposed medicinal powers. It is one of the commonest British sea-weeds, and abounds also on the shores of most parts of Europe, and on the eastern coast of North America. It may be found a little above low-water mark in various parts of the British coast. It grows in large masses, and varies exceedingly in size and colour. When it is in shallow pools it is pale and stunted; but when it is found in deep pools, or under the shadow of a rock, it is of a reddish-green hue. It is regarded as wholesome and nourishing, and constitutes excellent food for invalids. The jelly and the decoction form a useful popular remedy in pulmonary consumption, and in all diseases of the chest and lungs, as well as in cases of dysentery and scrofula. It is often employed by cooks instead of isinglass or gelatine, and house-painters make their size with it. The excellent properties of Carrageen moss were appreciated and utilised only by the Irish peasantry until about thirty years ago, when a Dublin gentleman recommended it to general notice. It is valued on account of its emollient and demulcent qualities. Its component parts may be represented by the following figures:—

Vegetable jelly	79·1
Mucus	9·5
Ash	2·0
Two resins	0·7
Fibre and water	8·7
	100·0

Carrara Marble.—This is a species of white marble, distinguished from the Parian or statuary marble by its superior hardness and brilliancy. It derives its name from the place in Italy from which it originally came.

Carriage Mats are most commonly made with skins of sheep or other animals, lined and dyed, and are used for the feet.

Carriage Rugs.—These are woollen, or skin, or leather coverings for the legs and lap used for warmth or dryness when travelling.

Carriages are various in kind, for the term carriage in its literal sense includes all structures employed for the purposes of transport of merchandise or human beings. All vehicles mounted on wheels come under this head, hence the costermonger's barrow, the luxurious Pullman car, and her Majesty's state coach would be equally entitled to be included in the category. Hungary is generally credited with the invention of carriages, and their introduction into England took place in the reign of Queen Elizabeth, when they were used almost exclusively for ladies, it being thought in that age decidedly *infra dig* for any of the sterner sex to avail themselves of the luxury. Much that is interesting might be written on the subject of past conveyances, but our purpose now is to deal with the carriages of the present, of which the following list gives those most in use:—Barouche, basket carriage, britzska, brougham, double brougham, cab, cabriolet, chariot, clarence, coach, curricle, dog-cart, drag, gig, landau, mail phaeton, omnibus, phaeton, sociable, sociable-landau, T-cart, wagonette, victoria. The barouche is a permanently open carriage, with only a leathern hood or head over it. The britzska is a kind of small barouche. The brougham is a minature coach for two or more persons. The cabriolet is a two-wheeled vehicle for one horse; it has pliable leathern braces between the springs and the body of the vehicle, together with suspension brackets. It has a hood which shuts up, and a place for a "tiger" to stand behind. The clarence is a pair-horse carriage with movable glazed panels, and hood for two or more persons. The curricle is a two-wheeled vehicle for two horses: there are no shafts, but a pole, fixed to a frame which supports the body, passes between the horses, and is suspended from a metal bar resting on their backs. The coach is a closed four-wheeled vehicle, for two or more horses, with two seats inside, and a skilfully-constructed arrangement of springs to ensure ease of motion. The landau is a coach made to open occasionally. The phaeton is a four-wheeled carriage which may be drawn either by one or two horses; its front body is something like that of a dennet (a two-wheeled vehicle for one horse, with a jointed hood covered with leather, and a driving box), and behind this is an open seat, supported on a kind of large box.

It is extremely difficult to give any rules by which an intending purchaser, inexperienced in the mysteries of carriage manufacture, may be guided, for the principal things necessary in a well-built carriage are iron of the toughest quality, timber that has been well seasoned, and leather that has been well curried, and as these materials are well covered with paint and varnish, it is almost impossible to test their quality. But a hint may be given as to testing the good workmanship in a carriage, which is, that it should have large wings and plenty of leather-work, as this being very expensive, it is here that a saving would be attempted, if the carriage-builder desired to deceive. There is, however, some advice that we can give, which is most essential for persons about to possess carriages, viz., as to the proper horsing of their vehicle. Not unfrequently a single-horse carriage is ordered, and when partly made or finished, fittings are ordered for two horses; and it does sometimes happen that the two horses put to the light one-horse carriage are a pair of coach-horses. These horses, though they may look splendid, are quite out of place when attached to so light a carriage. Although they are able to draw it at a tremendous pace, and do their journey without fatigue, the carriage must suffer sooner or later. Such horses leaning against a light pole, the strain thrown on the pole in case of tripping, the certain breakage

that must occur in case of a fall, and the risk of overturning the carriage, are exigencies that should be considered before putting very large horses in front of a very light carriage. For instance, people often commence with a small brougham which is generally made as light and as slight as safety will permit, and after a short time their circumstances warrant their starting a pair. In such cases where a pair of horses is used with a brougham of this description, if accidents do not occur through the great strain of a long pole acting as a lever on a very light mechanism, the parts become strained, do not work as they were intended to, and necessitate constant repair from not being adapted for the work put upon them. It is therefore to the interest of all carriage-owners to have their carriage and horses suited to what they ought to and can undergo, bearing in mind that there are advantages and disadvantages both with heavy and light carriages. The former are easier and more comfortable to ride in; they are safer for horses, drivers, and riders, and the necessary repairs are less frequently required. The lighter carriages following the horses more easily, therefore enable them to do a longer day's journey; and although the necessary repairs may come more frequently, the saving of the horses may be an advantage that many persons will consider of the utmost importance. Such light carriages should, however, be made of the choicest materials and workmanship, that they may do the work required of them.

Carriages, Care of.—Carriages, like most other things of value, demand constant care and attention to keep them in a good state of preservation, and a good coach-house is the first, if not the chief requisite. It should be dry and cool, as the woodwork of a carriage, no matter how good or well painted, will swell or shrink if subjected to any extreme of damp or warmth. The carriage-handles and other metal fittings require polishing daily, and in summer weather the wheels should be constantly damped to prevent them shrinking. After a carriage has been out in the rain and mud it should be cleaned before the dirt dries, otherwise the labour will be much greater, and the injury to the paint considerably increased. Plenty of water is necessary, which should be thrown over the carriage until the dirt is removed, when the surface should be rubbed dry, and polished with a soft washleather.

Carriages (Hiring Regulations).—The system of hiring carriages is much more common than is generally supposed, and by no means confined to commercial travellers and medical men. In fact, very many of the aristocracy prefer hiring carriages to possessing their own, in order that they may estimate their expenses, for the terms of hire always include the keeping of the carriage in repair. Of course, the terms of hire are entirely regulated by the value of the vehicle; for instance, a brougham worth say £120 would be let out at from £35 to £40 per annum; but a victoria or similar open carriage of less value would cost quite as much to hire, owing to the seats, &c., being exposed to the sun, and necessarily subject to deterioration.

Carrier Pigeon.—This is a variety of the common or domesticated pigeon, known long before the days of Anacreon, the Greek lyric poet, as the bearer of letters or messages, bound to thigh or neck. Its power of flight, and



CARRIER PIGEON.

the unerring accuracy with which it will return to its home from very distant places, are very remarkable. Carrier pigeons are largely employed in time of war to carry messages, in places where the telegraph has been destroyed, or where it would be unsafe to use it.

Carriers. (*See* COMMON CARRIERS.)

Carron Oil.—Carron oil derives its name from the Carron Iron Works, in Scotland. It is a mixture of linseed oil and lime-water, and was formerly held in high repute as an application to burns and scalds. It is, however, a very disagreeable preparation, and has of late years been almost entirely superseded by other remedies equally, if not more, efficacious. (*See* BURNS AND SCALDS.) It is generally applied on cotton-wool or wadding, and should not be removed for two or three days.

Carrots are, next to onions and potatoes, the most important vegetables used in domestic cookery. Their flavour renders them valuable in all soups, stews, and sauces; but they are not particularly nourishing, for it requires two pounds of carrots to produce one ounce of the nitrogenous substance of muscle and flesh. They contain ten parts of heat-producing compounds to one part of flesh-forming matter. The botanical name, *Daucus carota*, is derived from the Greek *daio*, I make hot. The following is the composition of a fully-grown carrot:—

	In 100 parts.
Water	89·0
Albumen	0·5
Sugar	4·5
Gum and pectose	0·5
Fat	0·2
Cellulose and lignose	4·3
Mineral matter	1·0

The carrot belongs to the *Umbellifer* order. It is cultivated in Britain, and in most parts of Europe; indeed, it is found in all quarters of the globe. The wild carrot is slender and

woody, of a strong odour and a disagreeable taste. It has, however, been rendered thicker and more fleshy, as well as much mildor and more succulent, by cultivation. It is largely grown in the field, in France, Germany, and Belgium, as well as in some parts of Britain. It is said that it was first brought into England by Flemish gardeners in the time of Elizabeth. In the time of James I. the ladies used to wear carrot-leaves in their hats instead of feathers. These leaves are elegant and graceful, and are worthy of being used instead of ferns in a bouquet, but they are despised because they are common. Their beauty is sometimes recognised, however, for the upper part of the root is occasionally placed in a hyacinth glass with water, and the young leaves sprouting out green and fresh form an exquisite ornament.

Besides being used for flavouring purposes, and as a garnish for various dishes—particularly salt beef—carrots are sometimes employed in medicine as a poultice for ulcers and sores. Grated carrot possesses cooling and stimulant properties. Carrot-seeds are useful in cases of flatulency. Syrup, jam, and wine are also sometimes prepared from carrots; and in Germany they are roasted and used instead of coffee.

Carrots grow best on a light, sandy, richly-manured soil. Pigeon manure is particularly good for them. They should be sown from the middle to the end of April. The seed, which should not be more than twelve months old, should be covered lightly with earth. As soon as they are three inches long they should be thinned till they are about nine inches apart. When the leaves change colour, which will be about the end of October, the roots may be taken up. The tops should be cut off, and the carrots stored in a dry cellar with sand between the layers; or, if more convenient, a pit can be dug for them, and in this they can be placed, and covered first with straw, and afterwards with a few inches of earth. There are many varieties of carrots, which are distinguished from each other by a difference in form and size, and also by the length of time they take to grow. The early kinds are cultivated chiefly for culinary purposes. The late varieties are grown in the fields, and used for cattle.

Carrots have numerous insect enemies. Amongst these are the wire-worm, the carrot-fly, and the carrot-moth. Frequent digging and weeding of the earth round the roots, combined with trenching, form the best protection against these destroyers.

Cartes-de-Visite.—These are a kind of small photographic portrait, originally introduced to serve as visiting-cards, although the idea of their being so used was never fairly adopted by the public. Their cheapness and prettiness, however, created a very large demand for them soon after their introduction, and they have retained a permanent place in the productions of photography, affording profitable employment to a large section of the community, and largely increasing the demand for all the various materials and manufactures used in their production. They require, to secure freedom from distortion and due proportion of parts in the whole length figures—to which they were at first exclusively devoted—a special kind of lens, which also bears their name, and is somewhat more expensive when of high-class quality than ordinary portrait lenses. (*See* PHOTOGRAPHY.)

Cartilage. — Cartilage constitutes the original framework of the body, but the greater portion of it is gradually converted into bone; hence it has received the name of temporary cartilage. The remainder does not readily ossify, and has consequently been called permanent cartilage. Cartilage is a pearly white, or yellowish, highly-elastic substance, found—first, covering the joint ends of bones, where it promotes freedom of motion and prevents shock, and receives the name of inter-articular-fibro-cartilage; second, arranged in layers of varying thickness, as in the external ear, eyelids, nose, windpipe, &c.; and third, in a more solid condition in the extremities of the ribs, where they unite with the breast-bone. Cartilage does not contain blood-vessels, but derives its nutrition from those of the membrane which surrounds it.

Cartridge Paper.—A tough description of paper, so called on account of its being made suitable to form the cylindrical covers of cartridges, to which use it is applied.

Carts is the name given to those land carriages which have two wheels, and are drawn by horses or oxen, for the conveyance of heavy loads for short distances, although it is often applied to vehicles with four wheels. Carts may, moreover, be regarded as the parents of coaches and carriages, for they were known when roads were not, and became restricted in their uses by the formation of those roads which made carriages and coaches possible. They relieved the horse from the task of bearing as well as drawing the burden, and in their earliest stage were doubtless a kind of sledge such as brewers used to employ within the recollection of even middle-aged persons. The spring van and wagon in many varieties were introduced to take the place of carts for certain purposes. The brewer's dray, without back, front, or sides, and with a bottom composed of mere bars, is the legitimate descendant of our most ancient carts.

Carvers. (*See* CARVING KNIVES AND FORKS.)

Carving at Table.—To carve well and elegantly is one of the most useful accomplishments which the master or mistress of a household can possess. It can only be acquired with practice. Its importance is, however, not likely to be underrated by any who have experienced the discomfort and the delay which arise from an unskilful carver being seated at the head of the table, or who have noticed the miserable appearance of a joint that has been under his hands.

The dish should be sufficiently near the carver to enable him to reach it without rising, while at the same time his seat should be high enough for him to have perfect command over the joint. As in work of this kind, a great deal more depends upon knowledge and skill than upon physical strength, all exhibitions of violent exertion are singularly out of place.

They only give rise to a suspicion, either that the carver is unaccustomed to his post, or that he is working with bad tools upon inferior materials. A skilful carver always performs his business quietly; he dispenses without partiality a portion of such parts of the joint as are considered the best to each guest; and old housekeepers are accustomed to say that while he does this ably and generously, he proves his experience by managing always to reserve a share of the "tit-bits" for himself.

A carver should be careful never to cut across the grain of the meat. Beef, veal, ham, tongue, and breasts of poultry should be cut very thin. Mutton, pork, and lamb a little thicker. The under part of a sirloin of beef should be cut first when hot, and the upper part should be cut straight from the backbone to the outside of the ribs. The ribs of beef should be carved in the same way. A loin of veal should be carved like the sirloin of beef, a little of the kidney and a little of the fat being apportioned to each person.

The round of beef, the aitchbone of beef, and the fillet of veal should have a slice half an inch thick taken from the outside; then thin slices taken off, and one of these with a little fat given together. A shoulder of veal should be begun at the knuckle; thin slices taken off in a slanting direction. Neck and loins should have the bones divided with a small saw before being sent to table. The bone should then be cut quite through in a slanting direction by the carver. According to Alexis Soyer, the profitableness of a saddle of mutton depends to a great extent upon the way in which it is carved. The usual plan is to cut long slices the whole length of the bone. Instead of this, Soyer recommends that the knife should be put under the meat to cut it away from the bone, and that afterwards it should be divided into thin chops, fat and lean together. Leg of mutton should be carved into cutlets. A quarter of lamb should have the ribs sawed through before it is cooked. The shoulder should then be raised, the ribs divided, and a rib and a piece of the brisket served to each person. A tongue should be begun three inches from the tip, and cut in thin slices. The body of a fowl should not properly be cut up at table, but should be left to be dealt with afterwards. This rule does not hold good with regard to game, however, as the backbone is by epicures considered a delicacy. The fork should never be put through the back of a fowl, but the knife should run gently down each side of the breast, and the leg and the wing be taken off at the same time. In serving large fish, such as salmon or cod, care should be taken not to break the flakes, or the appearance of the dish will be spoilt.

It may be a little interesting to note the different words which were used in olden time, as synonyms for carving various dishes. The following quotation is taken from an old book published in the beginning of the sixteenth century, Wynkyn de Worde's "Book of Kervinge:"—"The terms of a carver be as here followeth. Break that deer,—lesche that brawn,—rear that goose,—lift that swan,—sauce that capon,—spoil that hen,—frusche that chicken,—unbrace that mallard,—unlace that coney,—dismember that heron,—display that crane,—disfigure that peacock,—unjoint that bittern,—untache that curlew,—alaye that felande,—wing that partridge,—wing that quail,—mine that plover,—thigh that pigeon,—border that pastry,—thigh that woodcock,—thigh all manner of small birds,—timber that fire,—tire that egg,—chine that salmon,—string that lamprey,—splat that pike,—sauce that plaice,—sauce that tench,—splay that bream,—side that haddock,—tusk that barbel,—culpon that trout,—fin that chevin,—trassene that eel,—tranch that sturgeon,—undertranch that porpoise,—tame that crab,—barb that lobster. Here endeth the goodly terms of carving."

Carving in Wood.—Wood-carving is an attractive occupation for leisure hours, and one that is popular in most domestic circles. The tools required are as follows:—

1. *A Bench*, which should be solid, strong, and firm, in length about four or five feet, a little over three feet in height, and about two feet broad, with a drawer for the tools, oilstone, &c.

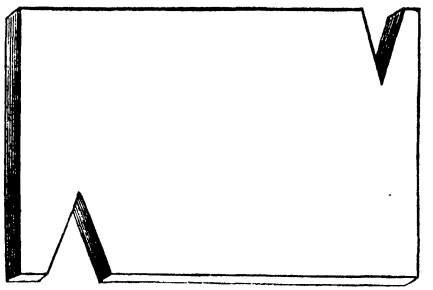
2. *Holdfasts*, or *Cramps*, which, fastening to the bench, are readily removed, and when in their place serve to hold the wood securely while the carver is at work cutting away the wood or gluing it together.

3. *Fret-saw Frame*, of either iron or wood. It costs from 6s. to 12s. (*See* FRET-SAWS.)

4. *Blades*, varying in width and the fineness of their teeth, to fit the above. They are sold in sets at 6d. the dozen, and should be made of fine, well-tempered steel.

5. *Drills*, of different sizes, for large or small work. (*See* DRILLS.)

6. *The "Horse,"* a piece of wood shaped thus—



CARVING "HORSE."

in size about fifteen inches by eighteen inches, and in thickness about three-quarters of an inch. The V-like openings are for the saw to work in, while the flat surface supports, by projecting beyond, the perforated work, which, being necessarily subjected to pressure, might otherwise be broken.

7. *A Toothing-plane*, for giving parts of the work a roughened surface, in order that it may adhere the better when attached to its foundations.

8. *A Wood-scraper*, which is represented by a small rectangular steel plate set in a handle.

9. *A Router*, which is a cutting-point inserted in a piece of wood guided by a string, to afford

a means of readily cutting a groove to a curved or other line.

10. *Chisels.*—Three will be found sufficient for a beginner—namely, the eighth size, quarter size, and the half-inch, with a bent chisel and a few others. (*See* CHISELS.)

11. *Gouges.*—These are of various kinds and sizes for different portions of the work. Some are flat, some hollowed, some half round, some V-shaped. At least three of each of these tools will be required, together with one "skew" chisel, three "graining gouges," and a "double-bent" gouge.

12. *Brace* and *Bit*, for boring holes.

13. *Gimlets.* (*See* GIMLETS.)

14. *Punches.*—These are used for stamping into the flat surfaces of the wood a kind of diaper or other patterns.

15. *Mallet.* (*See* MALLET.)

16. *Hammer.* (*See* HAMMER.)

17. *Tracing-point*, *Glue-pot*, and *Files*, all of which will be found described under their respective letters in other parts of this dictionary.

18. *Oilstone*, for setting the edges of the tools. These are of different kinds and qualities, one of the best being that known as the Turkey oilstone. It should be quite smooth and flat, and set in a block of wood with a cover to it.

19. "*Corner Screw*," *Slips* (2), and a *Pricker*.

A design in which there are no parts in any prominent degree of relief, such as in its simplest form resembles fretwork (*which see*), will best suit a beginner. The design being made on paper, is transferred to a piece of well-seasoned wood in the usual way. The wood, design uppermost, is then screwed to the bench, and a groove is cut outside all the lines with your V chisel. Now bore holes with your brace and bit at distances and positions suitable for sawing from one to another, and so cutting away the parts you wish removed. Next fasten your "horse" to the bench so that it projects beyond it, leaving the V-shaped aperture free from its surface. Take your fret or bow-saw frame with a suitable saw in it, having the teeth towards the handle; unscrew the holder at the end of the bow to release the saw at one end, and pass it up through the first hole; then re-fasten and make it fast, arrange the work over the V-shaped opening of the "horse," and proceed to saw, pushing the work against the blade. The work, if you prefer it, may be sawn in an upright position, by the aid of a proper kind of screw attached to the bench. When the pieces are cut out, leave the sharp angles and corners to be afterwards removed with the saw. Correct all irregularities or defects in the outline, and, if it is necessary, remove also the saw-marks with files and sand-paper, using the latter, however, as little as possible. Having the pattern in the flat or fret form, the operator may next take up his chisels and gouges for the actual work of carving the flat surfaces into the varied forms and surfaces of leaves and scrolls, flowers, decorative bands, shields, or what not, according to the design. If the design is one of leaves and flowers, begin with the stems, and from these proceed to the leaves and flowers, having either a carefully-made drawing in light and shade, a model in clay, or a cast in plaster of Paris beside you for your guidance. Keep your tools sharp and in good order always, and when for intricate and delicate work they are numerous, in placing them down do this so that they may be taken up without loss of time in selecting or looking for them. Every piece of carving is first "blocked out," that is, the superfluous wood is removed, leaving the remainder in block-like forms; then it is "bosted," or carved out rudely; and finally it is finished with the finer and more delicate tools. The best kind of wood for a beginner is one of medium hardness, with a smooth close grain, such as pear-tree, lime, or sycamore.

Carving Knives and Forks.—There is usually belonging to each set of table cutlery one carving knife and fork for meat, and another for game or poultry. The carving-knife for game is lighter than the meat-carver. The handle is longer and the point more tapering. A carving-knife should not be too heavy; it should be of a sufficient size, and above all it should have a sharp edge. Nothing is more likely to disturb the comfort and order of a dinner-table than for the host to be provided with a blunt carving-knife. At ordinary middle-class dinner-tables, however, the task of carving is allotted to the master or mistress of the household, and none but those who are accustomed to perform the duty know what a difference it makes even to the most skilful carver, whether or not the carving-knife is perfectly sharp and the fork in good order.

Caryatides (Architecture).—Figures used in the place of columns, as in the Erectheum at Athens, are described by the Greek term Caryatides, and had their origin in the



CARYATIDES.

defeat of the Persians and Caryæ in the city of Arcadia by the Greeks; hence the male figures so used in architecture are still termed Persians, Telamones, or Atlantides, and the female Caryans or Caryatides. They are used to support an entablature or other part of a building.

Cascarilla Bark.—The bark of the *Croton eluteria* (natural family *Euphorbiaceæ*, Linnæan class and order *Monacia monadelphia*), a tree that grows in the Bahama Islands. The bark comes to this country in small quills about two inches and a half long. It is one of the best aromatic tonics we possess, whether used by

itself or as an adjunct to other medicines. It is used in cases of weak digestion to increase the appetite, and also in diarrhœa; and sometimes it is very beneficial in convalescence from fever or long weakening illnesses of any kind. The infusion can easily be made at home, by taking two ounces of the bark, coarsely powdered, infusing this for an hour in a pint of boiling water, and then straining. A little orange-peel may be added if desired. The dose is from two to four table-spoonfuls twice a day before meals.

Case, Dressing. (*See* DRESSING-CASE.)

Case, Writing.—A small and portable desk and portfolio combined, chiefly used in travelling, to save the space a large box would occupy. They are made in many forms, with and without lock and key. In the portfolio form, they usually have a pocket on each side, which fold together like a book. These are designed to contain writing-paper and envelopes. In the more complicated and larger forms, they are composed of three, instead of two parts: one of these has a pocket, the middle portion has a stiff pocket for envelopes, a box for stamps and matches, two or three straps for other writing appliances; and the third part laps over to meet the lock, and contains the hasp. These cases are made in various materials—stamped paper, roan, calf-skin, and Russia leather. Beside the store of paper and envelopes, they should contain a blotting-book, sealing-wax and seal, a pen-knife and paper-knife combined, a lead pencil, a pen-holder and pens, an ink-bottle, stamps, and in some cases a small taper and taper-holder, and wax matches.

Caseine is a most important element in food, and is one of the three great nitrogenous or flesh-forming substances which are of such vital importance in the support of the muscular and nervous systems. It is contained in milk in solution; indeed, three-quarters of the nitrogenous matter which milk contains is caseine. It is found also in the yolks of eggs, and in various vegetables, such as beans, peas, and lentils. When obtained from plants, it is often spoken of as legumine; but vegetable caseine and animal caseine resemble each other so closely in all their properties that Liebig and other chemists have pronounced that they are one and the same substance. The peculiarity of caseine is that it is not coagulated by heat, but that it is coagulated by certain animal membranes, such as rennet, by alcohol, and also by acids. Even acetic and other weak acids will coagulate it. Thus when milk is turned by rennet or by acids, the caseine is coagulated, and in the form of curd separates from the whey. Caseine also, when acted upon by solutions of various poisonous salts, such as corrosive sublimate, acetate of lead, and nitrate of silver, forms an insoluble precipitate, and this is the reason why caseine in the form of large doses of milk should be taken by those who have swallowed any of these deadly salts, which, by being mixed with the milk, form an insoluble compound, and are therefore kept from exerting their baneful influence.

There is another peculiarity about caseine which makes it valuable, and that is that it not only decomposes quickly itself, but causes other things with which it is brought into contact to change also. It is this property in caseine which causes cheese to be of value in assisting digestion. Cheese when well made from skimmed milk is almost pure caseine. Therefore, when a small portion of cheese is taken after food, it causes a change, and so facilitates digestion.

Casement.—The frame of a window enclosing the glass hinged to open and shut is the casement. The first glazed windows were those of the Church of St. Paolo Fuori le Mura, in the reign of Constantine; and in the sixth century St. Sophia Cathedral at Constantinople became conspicuous for the number of its painted glass windows. In the eighth century, Leo III. adorned the old Church of St. Peter at Rome with windows of stained glass. The oldest glass windows now existing are those of the old French Church of St. Denis; they belong to the twelfth century. In England the most perfect example is to be seen at York. For use in ordinary house windows in England, glass began to be introduced sparingly and as a luxury in the latter part of the thirteenth century, the apertures having been previously protected with lattice-work. The word window originally meant a door for the wind, and being placed high, may have served the useful purpose of ventilation when ventilation as a science was but little understood.

Cash.—This term is generally understood to include not only money, but that which is in every way equivalent to money in this country, *i.e.*, the paper currency, or bank-notes. "Cash" is, however, sometimes used in another sense—to denote not only money and notes, but all immediately negotiable paper, such as bills, cheques, promissory notes, &c.

Cash Accounts.—Accounts in which cash transactions alone are recorded.

Cash-books. (*See* BOOK-KEEPING.)

Cash-box.—A receptacle intended for the better security of money, notes, cheques, &c. It generally consists of a small but strong box constructed of metal, and fitted with lock and key.

Cashew-nuts (*Anacardium occidentale*, Linn.).—This nut is a tropical production, and bears much resemblance to the walnut, rather kidney-shaped, and somewhat convex on one side and depressed on the other, growing at the end of the fleshy and pea-shaped receptacle called the apple. The taste is rather acid and agreeable. It can be made into wine, and is much employed as an ingredient in various beverages in the West Indies. The kernel is edible and of a very fine flavour, and is used for culinary purposes in puddings, and otherwise. It may also be eaten raw, pickled, or roasted, and contains a delicious milky juice when fresh. It is also ground with cacao, in making chocolate, to improve its flavour. The kernel is contained within two shells, between each of which there is a thick juice of rust-colour, which is so caustic that it will blister the

skin, and is used for marking linen, being indelible as an ink. This liquor is extremely inflammable. On account of the caustic nature of this secretion, it should be burned out before the nut is eaten, or the oil will excoriate the lips and fingers. The broken nuts are steeped in old Madeira wines to improve them. There is likewise a milky juice in the cashew-tree itself, which serves equally as well as that in the nut for marking-ink. The negroes in Brazil are very fond of these nuts, and eat them in great quantities. In colour they are of a greyish-brown.

Cashmere, or Cachemere.—A peculiar textile fabric, deriving its name from the kingdom of Cashmere (Kashmir), from whence it was first imported. It is now very well imitated in Great Britain and France. Cashmere shawls are composed of the downy wool found about the roots of the hair on the Thibet goat. Those of Oriental manufacture are woven by such a slow process that they are comparatively costly. Some of these are plain, others deeply embroidered; some are square in shape, and others long wide scarves, with shawl-work at the edges and ends, as worn by the natives. The Cashmere shawls proper are the six-feet square shawl, loom-made, sold at from £30 to £60 in the country itself; and the long shawl, loom-made, at from £50 to £120. The plain Pashmina, first named, is six feet square, and costs from £3 to £4 10s.; the deeply embroidered from £7 to £9, and the Doshala, or long embroidered scarf, from £10 to £30. Finer sorts than these are manufactured to order. Those presented to the Queen by the Maharajah are valued at £300. The finest ever made was presented by him, at Lahore, to the Duke of Edinburgh, who would not accept it for himself, but for the Queen; valued at £600.

By means of the Jacquard loom, M. Ternaux succeeded in weaving Cashmere shawls equal to the Oriental on one side, called French Cashmere; and at a later period, M. Bauson, of Paris, achieved the manufacture of these shawls identical on both sides with the Oriental.

The importation of the Cashmere goat into France was first planned, and the funds for all expenses provided, by M. Ternaux, and carried out by the indefatigable zeal of M. Jaubert.

The wool imported from the East is of a greyish colour, but is easily bleached. Its price in Paris is about 6d. per pound avoirdupois. The waste in the picking, carding, and spinning amounts to about a third of its weight.

In the Oriental process all the figures in relief are made with a slender pirn, without the shuttle used in European weaving, by means of an intertwisting, rendering them in some degree independent of the warp. In Paris, the warp and weft are of pure Cashmere down; in Lyons, the weft is made of yarn, spun with a mixture of wool and spun silk; at Nimes, Thibet down, spun silk, and cotton are all worked up together; at Sèvres, Cashmere shawls, equal in stuff and style of work to the Oriental, are produced at a lower price, and possess the advantage of being woven without seams, all in a single piece, exhibiting all the variety and raised effect of the Eastern colours. The chief manufactory is that of M. Girard, where women and children alone are employed.

Casino, or Cassino.—A game at cards, played with an entire pack, by two, three, or four persons. In this game "great casino" is the ten of diamonds, and "little casino" the two of spades.

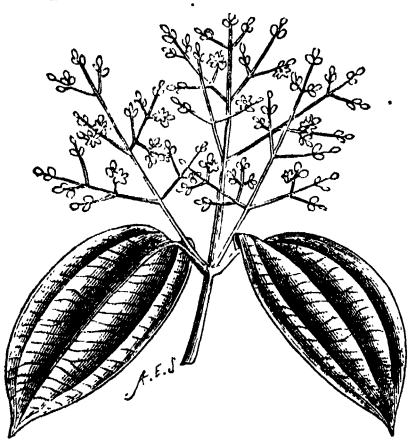
Cask-stand.—The use of a cask-stand is incidentally mentioned in our article on Casks. It is constructed of either wood or iron, is portable, strong, and firm when placed in its position; its height should be about a foot, and it must stand perfectly erect. Iron stands are preferable to wooden ones, as permitting a greater degree of cleanliness.

Casks or Barrels.—These articles, with which we have already dealt (*see* Barrel), must not be kept too dry, as in that case the staves and heads will warp, nor so damp that they are likely to grow rotten. Stands should be provided for their support. In the case of a hoop breaking away from a cask, and another not being readily procurable, a piece of strong cord or rope put round the cask in its place, and twisted tight by the aid of a stick, will be found of service, it being dangerous to leave a cask, containing, perhaps, choice wine, with one or more of its hoops off. A slight leakage in a cask may be temporarily stopped with a little wax or grease; but a larger one cannot be so easily dealt with, and in that case the only plan would be that of "racking" off the wine into another cask, which should consequently always be kept in readiness for such an emergency. Ale-casks may be cleaned with boiling water, containing potash and lime. For further hints, *see* Butt.

Cassava, the *Manihot* of botanists, is a shrub which is a native of South America, and is largely cultivated there, as well as in the West Indies, Africa, and other tropical countries. It grows in a bushy form, and is usually from six to eight feet high, and often much higher. The stem is white, and breaks easily. The roots are shaped like turnips, and grow in clusters. Sometimes they will weigh as much as thirty pounds each, and measure two feet across. The plant is chiefly valued for the sake of the starchy substance contained in its roots. This starch is popularly known as tapioca. There are two species of cassava plants, the one bitter cassava (*Manihot utilissima*), and the other sweet cassava (*Manihot aipi*). Both yield tapioca, but the roots of the bitter cassava contain prussic acid as well as starch. The poisonous properties are, however, quickly dissipated by heat and by pressure, and the starch which it yields is much richer than that obtained from the sweet cassava. The root of the latter is a common article of food in South America, and when boiled is as mealy as a potato. The expressed juice of the bitter cassava, when concentrated and flavoured, is the casareep of the West Indies. (*See* Tapioca.) This plant is called cassava in the West Indies, manioc or mandioca in Brazil, and juca or yucca in Peru and other parts of South America.

Casserole.—Boiled rice moulded in the form of a pie, and used instead of pastry for various dishes, is called a casserole, and the sweet or savoury preparations served inside are said to be *en casserole*. The rice needs to be boiled till it is tender enough to be beaten to a paste. When this has been done, and the rice allowed to cool, it must be pressed to the proper shape with the hands, brushed over with butter, and baked till it is lightly coloured. An easier way of making it is to press it into a mould, scoop out the inside, and fill the vacant space with a piece of bread cut to fit it. The rice must of course be flavoured to suit the preparation which is to be served in it.

Cassia.—A term of extensive application in botany. The *Cassia fistula* is well known, and grows in both the East and West Indies. It produces long, round, dark-brown pods containing a soft, blackish pulp, from which is prepared a laxative substance used in medicine. What is called *cassia bark* or China cinnamon is the produce of a tree which grows in China



CASSIA.

(*Cinnamomum cassia*). This bark resembles cinnamon both in appearance and properties, but its flavour is more pungent, and less sweet and delicate. *Cassia buds*, which look like cloves, are supposed to be the dried flower-buds or berries of the tree last mentioned. They are imported from China, and are extensively used in flavouring and confectionery. Their flavour is similar to that of the bark, which some think was the cassia of the Bible. Perfumers give the name of cassia to the *Acacia farnesiana* as well as to the *Cassia lignea* (cassia bark), both of them being odoriferous. The *Acacia farnesiana* grows in northern latitudes to a height of five or six feet, and in October and November bears globular flowers of a bright gold colour, very pretty, and used with others in making up floral bouquets. The perfume is one of the best, similar to that of the violet, but stronger, and highly useful in compounding delicate scents. M. Rimmel says: "The blossoms are gathered three times a week after sunrise: a very strong oil and pomade are obtained from them by maceration. In Africa, and principally in Tunis, an essential oil of cassia is made, which is sold at about £4 per ounce; but French and Italian flowers are not sufficiently powerful to yield an essence." From the bark of the *Laurus cassia* an essential oil is distilled, chiefly used for scenting soap. An essence extracted from the bark is known as essence of cassia or of *casse*, but it is not held in much esteem.

Cassimere. (*See* KERSEYMERE.)

Cassinette.—This material is made of cotton and fine wool, or of cotton and a combination of wool and silk. In either case the warp is of cotton; the fabric is twilled, and its twill is diagonal.

Cassino (Game). (*See* CASINO.)

Cassock.—This is a garment which may be worn by any who hold office in the Church. In form it is single-breasted, and fastened with buttons from the throat downwards; it has a narrow upright collar and close sleeves; round the waist there is a band of the same material about three inches wide, which is called a cincture. Some cassocks are made to fold over the front and kept close by the cincture. The materials used are silk, stuff, and cloth. Those made of silk look the best, but the stuff ones are oftener preferred, being cooler. The colours worn by the clergy of the Church of England are black. Purple is allowed to bishops. Choristers are sometimes habited in coloured cassocks, but black is the general colour. In the Church of Rome the priests wear black, the bishops purple, the cardinals scarlet, and the Pope white.

Cast-iron.—Cast, or pig, iron contains impurities in the shape of unreduced ore or earthy matters and a certain proportion of combined carbon, and its name is derived from the fact of its being cast by pouring it when fused into a liquid condition into a mould. There is now hardly a single article of domestic or other use capable of being manufactured in wrought-iron which is not also produced by casting; and many utensils, implements, architectural materials, and articles of furniture, which were formerly constructed of wood and stone only, are now made more or less exclusively in cast-iron. The art of casting iron is one of comparatively modern introduction, which was first known in England about the middle of the sixteenth century. Some authorities contend that it was invented in this country. It was at first applied to the making of pot and pans, and afterwards to the construction of fire-grates, ovens, &c. Stupendous works in cast-iron have been the most striking characteristics of modern times, and the mighty fabrics made of this material, the vast bridges, railway arches, palaces, jetties, piers, quays, embankments, ships, cannon, &c., attest the marvellous progress which the art has made. White cast-iron is the hardest and most durable; that of the grey kind is tougher and softer, and consequently less brittle.

Castanets.—The castanet is a kind of musical instrument made of ivory or hard wood, thin, and of a spoon-like shape. Castanets are used in pairs fastened to the thumbs of either hand, and beaten with the middle fingers. It is an old Moorish instrument, and derives its

name from *castana*, the Spanish for chestnut, which each pair when placed together somewhat resembles, and its music always accompanies certain dances of a national character. As an accompaniment to the guitar it is very effective.

Castile, Marseilles, Spanish, and Carlisle Soaps differ from one another in minor details only. They are made of soda, olive oil, and water. They are manufactured both white and marbled. The former of these is said to be the purer, and is used in medicine to form mild aperient pills. The marbled soap is said to be the stronger of the two. Soap is marbled with an insoluble matter in order to show that it does not contain much water. If it did the colouring matter would sink to the bottom. Therefore marbled Castile soaps have a small proportion of sulphate of iron and sulphuretted lye added to them in the process of manufacture. These soaps are expensive.

Casting Vote.—The vote of the chairman or president of an assembly when the numbers voting on each side of the question are equal. The chairman of vestries has a casting vote, so have the president or commissioner presiding at a meeting of the Poor Law Board, and the chairman of local boards and most public companies.

Castor Oil.—This is obtained from the seeds of the castor-oil plant (*Ricinus communis*, N.O. *Euphorbiaceæ*), which grows chiefly in India. As seen in this country, it is only an annual, four or five feet high, but in its native state it is quite a tree, attaining a height of twenty feet or more, and the thickness of a man's thigh. Castor oil, when fresh and pure, is almost colourless, has a mild taste and somewhat sickly smell. It contains three fatty acids in combination with glycerine, viz., ricinic, ricino-margaritic, and ricino-stearic acids, and is soluble in one volume of alcohol. When expressed from the seeds without the aid of heat (which is said to render the oil acrid), it is called cold drawn—and this is the mode of preparing it in England—the hydraulic screw-press alone being used, in an artificially-heated room. It is afterwards purified by rest and filtering, and bleached by exposure to light. The East Indian oil is prepared by boiling and straining, but the best is sold nevertheless as cold drawn, which it is not. The Americans prepare it first by moderate heat and pressure, and afterwards by boiling with water and skimming until the oil is clear: the volatile acrid oil is said to be driven off by this process, but great care is necessary not to push the heat too far, as the oil is apt to acquire an acrid peppery taste. American oil deposits a white substance called margarine in cold weather, and is objected to on that account. Castor oil has been imported from Italy, and this is of very superior quality. Castor oil is a mild yet efficacious purgative, especially valuable in inflammation and obstruction of the bowels, and in diseases of the parts contiguous, as the bladder, uterus, kidneys, &c. It is also the safest and best aperient during pregnancy and after confinement, and is a very suitable medicine for children. In colic, diarrhœa, both simple and choleraic, and in Asiatic cholera, it has been very largely used, and in most cases with great success. As an enema in gruel it acts admirably in obstinate constipation of the lower bowel. The dose for an adult is from one to two tablespoonfuls; for a child, about a tea-spoonful. There is a prevalent custom of giving castor oil to newly-born infants, which is not only a very objectionable proceeding, but is dangerous to life (we have known certainly one case where death was the result), during the first three or four months of infancy. Whilst still suckling, the mother should take the medicine; the infant should not have anything of this kind unless in an extremity. There are several modes of administering castor oil—some taking it floating on brandy or gin, others on water or milk; but there is no better mode of administration than that of beating it up as if it were an egg, with hot coffee, and a lump of sugar, if desired, and drinking it off before it rises to the surface: another cup of coffee should be in readiness to drink immediately after, and thus all unpleasant taste is avoided. It may be well to remark here that the seeds of castor oil are very acrid, and if swallowed give rise to great irritation of the stomach and bowels, causing vomiting and purging, and even death from acute inflammation.

Castors.—These are a troublesome form of addition to the legs of our chairs and tables, &c., whereby we are enabled to move such articles of furniture without difficulty or exertion of strength—troublesome despite their great utility, in consequence of the readiness with which they are broken or put out of order. Of late years, numerous ingenious plans have been adopted for their improvement by regulating the friction and pressure so as to increase their strength, the object in view being that of removing the great strain and pressure upon the central pin.

Casts, To Take, of Leaves, &c.—Casting affords a wide range for the amateur decorator, and as an amusement for leisure at home has few more attractive rivals. It is inferior to modelling, but, on the other hand, requires less skill, practice, and knowledge, for the production of satisfactory results. The beginner will find nothing more encouraging than the casting of leaves in plaster of Paris. Leaves vary in form to so wonderful an extent, and in every form are beautiful. Taking at first a single leaf, the operator may afterwards proceed to group them into wreaths and rosettes, and from this advance to arranging them for the formation of brackets, ornamental stands, mouldings, &c., for the decoration of rooms. Most fruits, berries, and many small animals may afterwards be cast, and from these the step to moulding and casting the human face divine, a beautiful hand, foot, or limb, is not far. Thus the amateur decorator may proceed, enjoying new delights in the pleasure of creating objects of beauty, and that of winning the admiration of his or her relatives and friends. Preliminary to casting is, of course, the formation of moulds in which to cast. For moulding a simple leaf, spread some dry sand upon a board, and upon this place your leaf, pushing under it enough sand to support the hollow portions, so that the leaf is retained in its natural position, and not flattened down. A little

thinly-mixed plaster of Paris, slightly tinted with ink to distinguish it from the outside plaster, is then poured over the leaf to form a thin inner mould. The plaster is mixed by putting water into a basin, and sprinkling into it as much plaster as will, when the superfluous water is poured away, render it of the consistence of honey. Brush over the first mould of stained plaster a little clay-water, and then form a thick outer mould with the coarse plaster. Allowing this to set, turn the mould leaf uppermost, and pick the leaf away from the tinted plaster, carefully cutting the plaster away where it overlaps the leaf, and brushing out the sand until it is completely removed. The cast-maker will then find that he has a very perfect copy in intaglio of the leaf, with all its veins and markings, its serrated or curved edges, &c. For making this mould, a coarse plaster is used, but one of a much finer description will be required for the actual process of casting. Before casting, the mould should be placed for a few seconds in water; this will prevent the cast sticking to the mould. Pour the plaster into the mould, and with the points of the hairs of a brush held perpendicularly, beat the plaster down so that it fills every interstice of the mould, and tap it slightly against the table for the same purpose. When sufficiently hard, the mould can be chipped away from the cast, the tinted plaster showing you when it is removed. The time plaster of Paris requires for setting varies with its kind and quality; if new, it will have set in about five minutes, if stale, it sets more quickly, in some cases with most inconvenient speed. When very stale it will not set at all. In order to cast from small animals, such as efts, snakes, and fishes, they must receive a preliminary coating of oil. Solid blocks of plaster are sometimes used, cut to the forms of vases, &c., from which moulds can be obtained, which, by casting, may be further decorated with forms of leaves and flowers artistically arranged upon them, and attached by a little liquid plaster. For brackets, a foundation of wood coated with plaster and similarly decorated, or a rounded pillar, may be made in the same way, with suitable mouldings and base, as a stand for a bust, vase, or figure. Plaster castings may also be employed to decorate the entablatures above doors and windows, the cornices of ceilings, or as paterae for their centres. Ornamental tiles may also be cast in plaster for room decoration, and these, if further adorned with colour and gilding, may contribute largely to the richness and tastefulness of a handsome apartment. For electrotyping and stereotyping, *see* under their respective headings.

Casts, To Take, of Persons.—In casting from living persons, the arrangements vary with the parts from which the cast is taken. To cast the hand, it may be placed upon a bed of sand, resting naturally as the leaf, described in the preceding article, does, or for the sand a pillow covered with a coarse towel may be substituted. A little oil is applied to the skin, and the plaster is then poured over the hand, which must, of course, be kept perfectly still. In extricating the fingers from the mould after it is set, a blunt knife or spatula is used to remove the overlapping plaster. Limbs are cast in the same way. To mould a mask or face, the head must be placed in a horizontal position, and towels arranged about the neck to prevent the plaster from running where it is not wanted. The hair of the head and face is covered thickly with soap, that of the head being pushed back from the forehead, as otherwise it might become fixed on the plaster, and cause great pain when the mould was removed. Over the skin a little oil must be rubbed, and two quills of sufficient length to pass through the plaster must be inserted in the nostrils, the eyes and mouth being kept closed. When the plaster is being poured on, any muscular action must be avoided; and in mixing the plaster, substitute warm for cold water, to prevent a feeling of sudden discomfort, which might otherwise result in a movement calculated to spoil your cast.

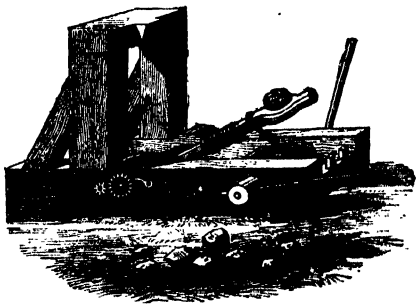
Catalan, as a word, is the same with Catalonian, and is employed to denote the wines of Catalonia, of which there are many varieties, mostly red, and sold under different names. When a merchant sells wine as Catalan simply, he affords no more clue to its real character than if, as many do, he calls it "port." The Catalan wines are largely shipped at the ports of Barcelona and Tarragona, and chiefly pertain to the class called ordinary, and on the spot they often sell for 6d. a gallon or even less. (*See* WINES.)

Catalepsy.—This is a nervous disease akin to hysteria, chiefly affecting women, but men and even children are subject to it during periods of great excitement, especially of a religious character. The disease is characterised by a sudden suspension of consciousness, the patient remaining fixed in that position where the attack has seized her; if she has been smiling or frowning, the smile or the frown is still on the face, the body or limbs, when moved into any particular position or attitude, retain that position until again altered. The eyes are sometimes open and staring, but seemingly unconscious of what is going on around; at other times they appear hermetically sealed. The patient utters no sound, save, in some cases, an occasional moan, and often appears as if in a "brown study." In this condition the person generally remains for some minutes, but the attack may extend over hours, or even, in extreme cases, three or four days. It is this latter occurrence which has given rise to the fear entertained by many people of being buried alive, and in confirmation of such a possibility, stories have always been current of persons having been found turned in their coffins. No well-authenticated case of this kind has, however, been recorded, and if it ever has occurred, it has been doubtless due to other causes, as, for instance, the movement of the coffin when there has been advanced decomposition. In the case of death there are, moreover, certain unmistakable signs of mortification always present in some spot or part, which, when necessary, can be sought out and made conclusive by the surgeon during the ample time allowed in this country before the

burial. In ordinary catalepsy it is difficult sometimes to know whether the patient is conscious or not. The pupil of the eye will usually contract, when a strong light, as that of a candle, is brought to bear upon it closely, the pulse is generally small and rapid, and the breathing in some cases scarcely perceptible. After a variable time, the patient heaves a deep sigh, and becomes suddenly conscious, but remembers nothing of what has passed during the seizure, and frequently for many hours previously. Catalepsy is sometimes allied with epilepsy, and in such cases there is generally some softening of the brain. It is highly important to remember this, in order that the great mistake may not be made of regarding a very serious malady as only hysterical or trivial. This disease is frequently feigned. *Treatment.* No definite plan of treatment can be recommended, except that generally adopted for nervous affections. (*See* HYSTERIA.) If the attack is protracted, the patient must be carefully watched, and if food is not taken in the ordinary way, it must be given in the form of injections of beef tea, milk, &c.

Cataplasm.—This is, properly speaking, a medicinal poultice, but the term includes also those poultices most commonly in use. Cataplasms afford not only warmth and moisture to the parts to which they are applied, but when some active agent is combined with the linseed-meal, bread, or flour which usually forms the basis, they do good in other ways, and especially as deodorisers and anti-septics. 1. *Charcoal poultice* (*cataplasma carbonis*) is made with half an ounce of powdered wood charcoal, two ounces of bread, one ounce and a half of linseed-meal, and ten ounces of boiling water. Mix the water, bread, and linseed-meal, then add half the charcoal, and sprinkle the remainder on the surface. This is a most useful application in foul-smelling ulcers, gangrene, &c. 2. *Linseed poultice* (*cataplasma lini*) is made by mixing half an ounce of olive oil with four ounces of linseed-meal, and adding gradually, whilst vigorously stirring, half an imperial pint of boiling water. The linseed used should be the powder of the cake from which the oil has been pressed (the latter, if retained, soon becomes rancid, and is worse than useless). The olive oil used in the poultice is simply to supply this deficiency. This poultice should, if properly made, be free from lumps, and as firm and tenacious as a pancake. 3. *Yeast poultice* (*cataplasma fermenti*) is made with six ounces of beer yeast, fourteen ounces of wheaten flour, and six ounces of warm water (not boiling). Mix the yeast with the water, add the flour, stir, and place near the fire until it rises. This is a capital poultice in indolent ulcers and sloughing bed-sores. 4. *Conium poultice* (*cataplasma conii*) is made by mixing one ounce of powdered hemlock leaf with three ounces of linseed-meal, and adding gradually, with constant stirring, half an imperial pint of boiling water. This poultice is said to relieve painful ulcers. 5. *Mustard poultice* (*cataplasma sinapis*) is made with one ounce and a half of mustard, the same quantity of linseed-meal, and half an imperial pint of boiling water. Mix the linseed and mustard well together, and add the water gradually, constantly stirring. This is a highly-esteemed and valuable poultice, useful in most inflammatory affections, such as pleurisy, bronchitis, &c., also in cerebral affections, as apoplexy and stupor, and in rheumatism. The poultice should be applied a little distance from the seat of disease, and should not be kept on too long, as in some cases, where the patient has been insensible to pain, it has produced unpleasant results. 6. *Chlorine poultice* (*cataplasma sodæ chloratæ*) is made by mixing two ounces of solution of chlorinated soda and four ounces of linseed-meal with eight ounces of boiling water. This is a useful poultice for foul and sloughing ulcers. 7. *Bread poultice.* This, according to Abernethy, should be made as follows:—Put half a pint of hot water into a pint basin; add to this as much of the crumb of bread as the water will cover; then place a plate over the basin, and let it remain about ten minutes; stir the bread about in the water, or, if necessary, chop it a little with the edge of the knife, and drain off the water by holding the knife on the top of the basin, but do not press the bread as is usually done; then take it out lightly, spread it about one-third of an inch thick on some soft linen, and lay it upon the part. Linseed poultices, according to the same high authority, should be made by pouring a little hot water on a small quantity of the meal in a well-scalded basin, stirring it briskly, then adding a little more meal, and again a little more water, alternately (still stirring), until sufficient has been made. 8. *Bran poultice.* This is usually made by putting some bran into a flannel bag and pouring boiling water upon it until it is completely saturated; it must then be placed in a large coarse towel and wrung out by twisting the towel. This is a useful application in colicky pains and rheumatism of the back.

Catapult.—The ancient catapults were engines of propulsion used in war. Some of them were of great size, and were used in sieges, while others were small enough to be carried about in the hand, and somewhat resembled cross-bows. Modern catapults differ



ANCIENT CATAPULT.

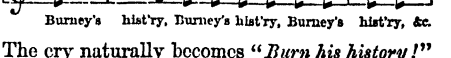
in form altogether from the ancient ones, being little else than toys, by which shot, stones, bullets, and other missiles may be discharged, often to considerable distances. The propelling power is gained by the use of an

india-rubber band, which is suddenly freed from some great tension. It is perhaps needless to say that catapults in the hands of careless and thoughtless young people may prove very dangerous instruments.

Cataract.—This is the name of a disease or opacity of the lens of the eye. Three kinds of cataract are usually met with, viz., hard, soft, and traumatic cataract. 1. *Hard cataract* is common to old age, rarely occurring before fifty. It begins with haziness or dimness of vision, which is constant and increasing, though varying sometimes, according to the light. If the eye is examined, the pupil being previously dilated with solution of atropine, the lens is seen to be opaque and streaked black or white, according to the position of the light brought to bear upon it, and to whether the mirror or lens of the ophthalmoscope is used during the examination. A mode of testing the existence of cataract has been proposed, which is called the catoptic test, and is as follows:—When a lighted taper is held before the eye of a healthy person, three images of it may be observed—(1) an erect image, which moves upwards when the candle is moved upwards; (2) another erect image, which also moves upwards with the candle; (3) a very small inverted image, which moves downwards when the candle is moved upwards. Now in cataract, this inverted image is from the first very indistinct, and gradually disappears; one of the other images soon follows, and in that form of cataract called capsular only one erect image is visible from the beginning. To make the test accurate, it should be conducted in a dark room, the pupil having been previously dilated with sulphate of atropine. In simple cataract the vision is never completely lost, the sufferer being always able to detect light from darkness. There are several operations for the treatment of cataract, all having the same object, viz., the removal or absorption by laceration of the lens. There is also an operation, not a favourite one, called the displacement operation, which consists in pushing the cataract away from the axis of vision. In operating for cataract it is usual to defer the event until objects are no longer visible. The patient should be in good health before, and must remain in a dark room for two or three weeks after, the operation. 2. *Soft cataract* is common to all ages, but especially to the young. It is generally of the colour of an opal, differing in this respect from the yellow or amber colour of the hard cataract. When born with this condition, the operation for removal by absorption should be performed, if possible, within four months from birth, in order to prevent the oscillation which characterises congenital cataract from becoming permanent. 3. *Traumatic cataract.* This is the result of a wound or injury, and requires the same treatment as the other forms of the disease. Cataract has been subdivided into capsular, anterior capsular, and posterior capsular; but a description of these would possess no interest for the non-professional reader.

Catarrh.—Catarrh, or cold, as its name implies, is a running or increased secretion from the nose, throat, windpipe, bronchial tubes, alimentary canal, or bladder, and is generally the result of exposure to cold. It may, however, according to an eminent physiologist, be caused by ozone in a state of electricity in the atmosphere. It may be also produced by irritating particles in the air. Simple catarrh, or cold in the head, is too well known to require much description. The most common symptoms are frequent sneezing, running at the nose and eyes, aching pains in the limbs, and a general feeling of misery. When the complaint attacks the throat, and passes down into the stomach, there is pain in swallowing, a feeling of sickness, if not vomiting, and frequently diarrhœa. If the windpipe and air passages are affected, then there is hoarseness and cough, with more or less mucous expectoration, and a general feeling of soreness over the chest. The treatment of catarrh consists in inducing, as soon as possible, a profuse perspiration by the aid of the hot water, vapour, or Turkish bath (*see* BATHS), by warm drinks, as mulled wine, whisky, or brandy, and hot water with an egg beaten up in it, warm gruel, &c. Ten grains of Dover's powder (for an adult), followed in the morning by a saline aperient, will do good. A cold may frequently be checked at the outset by a full dose of opium, morphia, or chlorodyne; but this practice should not be resorted to by unskilled persons, as it might, under certain conditions, do more harm than good. The dry system of curing a cold consists in abstaining from all liquids for forty-eight hours; but this remedy would be considered by many to be worse than the disease. Bed, or the warm room, with good nursing, will generally be all that is required in the treatment of this complaint. (*See* BRONCHITIS.) Catarrh is frequently epidemic. (*See* INFLUENZA.) For catarrh of the bladder, *see* BLADDER, COMPLAINTS OF.

Catch (Song).—A short humorous glee or part-song, generally composed in the form of a round (*which see*), the voices commencing one after another at regular intervals. By the rapid reiteration of certain words or phrases, they are made to appear in a totally different light, and this is the main purpose of the "catch." Thus the words, "Ah! how, Sophia, could you leave," &c., are converted by a gradual increase of the pace into "A house o' fire!" &c. An excellent example of the catch is one by Callcott, which he composed *apropos* of the rival claims of two celebrated works on the history of music, the first by Sir John Hawkins, the second by Dr. Burney. The catch is for three voices. The first voice asks, "Have you Sir John Hawkins' hist'ry? Some folks think it quite a myst'ry;" No. 2, "Music filled his wondrous brain," &c.; while No. 3 exclaims, "Burney's hist'ry pleases me":—



The cry naturally becomes "*Burn his history!*" and it is stated that for many years the reputation of Sir John Hawkins' work was materially affected by this musical witticism.

Catechu.—This is the extract of the

leaves and shoots of the *Uncaria gambir* (N.O. *Cinchonaceæ*), growing in the Indian Archipelago. Three kinds are known in commerce—(1) Gambir, or pale catechu; (2) Cutch, or black catechu; (3) Ceylon, or betel-nut, catechu. *Pale catechu*, or gambir, is prepared by boiling and evaporation, and occurs in cubes, sometimes massed together, of a yellowish-brown colour, the faces of which are about an inch square. It is composed chiefly of tannic acid, and a crystallisable substance called catechin, the latter imparting a peculiar sweetness to the drug. Pale catechu is used in the form of infusion (dose, one to two ounces), compound powder (dose, twenty to forty grains), tincture (half a drachm to two drachms), and lozenges (one to six). Each lozenge contains one grain of catechu. Owing to its astringent properties, catechu has proved a valuable remedy in diarrhœa, especially in combination with chalk and opium. The lozenges are useful in atonic dyspepsia, and are said to be of great service in the relaxed throat common to singers and public speakers. 2. *Cutch*, or black catechu, is not officinal; it is the extract of the heart-wood of the *Acacia catechu* (N.O. *Leguminosæ*), and is imported into this country in large black masses; its constituents resembling those of pale catechu. 3. *Ceylon, or betel-nut, catechu* is obtained from the seeds of the *Areca catechu*. It is not officinal. The term catechu is derived from *cate*, a tree, and *chu*, juice.

Catgut is the name given to small strings made of the intestines of animals. It is thus named because it was formerly made of the skins of the intestines of cats, but now those of sheep and lambs are chiefly used. It is employed in the manufacture of musical instruments, of clocks, of bows for archers, and of whipcord. To make it, the intestines are taken warm from the animal, and after being cleaned are soaked and scraped alternately until they are thoroughly purified. They are then placed for two or three hours in a weak solution of potash, and are afterwards passed through a hole in a piece of brass to make them smooth. After this they are dried and twisted either singly or collectively, according to the purpose for which they are intended. In order to free the catgut from any animal matter which would be likely to cause it to putrefy, it is customary to subject it to the fumes of burning sulphur, and great care is required to conduct this process successfully, for if the strings are not fumigated long enough they are apt to be out of tune, and if exposed too long they crack easily. Lyons in France, Italy, and Germany are famous for the manufacture of catgut. The Italian catgut is the best; it is known as the Roman string, and is remarkable for its strength and clearness. It is made from the intestines of bony sheep, and consists of two separate strings twisted together. Very strong coarse catgut is made from the intestines of horses, and it is used instead of leather for turning lathes and machinery. This kind of catgut cannot be employed for musical instruments. Catgut is not now employed as much as it once was, as gutta-percha and vulcanised india-rubber are used in its stead for some purposes.

Cathartics.—These, as their name implies, are cleansing or purgative medicines, all of which increase the natural or peristaltic movement of the bowels, but differ materially both in the extent and mode of their operation. They have consequently been divided into:—1. *Laxatives.* These include figs, prunes, honey, treacle, manna, tamarinds, cassia, sulphur, olive oil, castor oil, and magnesia, all of which in different degrees increase peristaltic movement and soften the fæces. 2. *Simple purgatives*, as rhubarb, senna, buckthorn-juice, aloes, and jalap. These act more powerfully than laxatives, and might, if space permitted, be subdivided into smaller groups, according to the peculiarity of their action. 3. *Drastic purgatives.* These include jalap, scammony, colocynth, croton oil, podophyllin, and gamboge, and differ only from the preceding in the degree of their action, and in producing more fluid stools. 4. *Hydragogue purgatives*, as gamboge, elaterium, and large doses of cream of tartar. These cause a very considerable discharge of fluid from the mucous membrane, and they thus relieve the portal veins, and through them the whole circulation. 5. *Saline purgatives.* These are the various salts of potash, soda, and magnesia, which produce watery stools, but not to such an extent as the hydragogues. 6. *Cholagogue purgatives.* These are grey powder, blue pill, calomel, aloes, podophyllin, large doses of taraxacum (dandelion), and colchicum. They act chiefly as their name implies, either directly or indirectly upon the liver, increasing the flow of bile, in all probability by emptying the bile-ducts and gall-bladder. The chief uses of purgatives are—(1) to unload the bowels; (2) to remove irritating matter; (3) to cause increased secretion from the different glands, as the liver, pancreas, &c.; (4) to unload the portal system, and thus relieve congestion of organs, as brain, kidneys, &c.; and (5) to act as counter-irritants by directing the nervous attention to the bowels, and away from some injured or inflamed part.

Cathedral.—A church wherein is a bishop's see or seat. The term is derived from the Greek, and seems to have taken its rise from the manner of sitting in the ancient churches or assemblies of primitive Christians. In these the council, *i.e.*, the elders and priests, was called "presbyterium." At their head was the bishop, who held the place of chairman, cathedralis, or cathedraticus; and the presbyters, who sat on each side, were also called by the ancient fathers "assessors episcoporum." The episcopal authority did not reside in the bishop alone, but in all the presbyters, whereof the bishop was resident. A cathedral in ancient times was therefore different to what it is now. The Christians, till the time of Constantine, had no liberty to build any temple. By their churches they only meant their assemblies, and by cathedrals nothing more than consistories. Several of the English cathedrals were made such on the dissolution of monasteries in the reign of Henry VIII. The Cathedral Acts are 3 & 4 Vict. c. 113; 4 & 5 Vict. c. 39; 6 & 7 Vict. c. 77; 16 & 17 Vict. c. 35; 27 & 28 Vict. c. 70; and 36 & 37 Vict. c. 39. As to Wales, see 6 & 7 Vict. c. 77.

Catherine-wheel.—In Gothic architecture this term is applied to a circular ornament which occurs in the upper portions of the north and south transepts of ancient cathedrals. The term is sometimes also applied to portions of a Gothic window when ornamented with rosettes and radiating divisions of different colours. In pyrotechnics it is a kind of firework, consisting of a tube of paper containing combustible materials for throwing out sparks of different colours twisted in a circular form about the edge of a round piece of wood, which is pierced to rotate when alight on a nail or pin, and does so until it is entirely consumed. The name has its origin in the wheel upon which St. Catherine of Alexandria was tortured to death.

Cat's-eye.—This is a semi-transparent gem, a variety of chrysoberyl, opalescent, or chatoyant, and usually cut with a rounded top (*en cabochon*). The ray across the stone is often very definite; the colour varies from a greenish yellow to almost black. Set in rings or pins they are very handsome, and fine specimens bring a high price. The same name is also given to a chalcedonic variety of quartz, found of a yellowish-green, yellowish-brown, blackish, and hyacinth-red colour. It has an opalescent lustre, is usually translucent, and easily broken. The chrysoberyl cat's-eye is more beautiful and valuable, but the two are often confounded, as they are cut alike, and really resemble each other.

Cats, Treatment of.—Before the origin of cat-shows in this country, our domestic cat was a little understood and very much neglected animal indeed—that is, as a rule. Within late years, however, much more care has been taken with their breeding and of their comforts. For the first time, perhaps, since its creation, pussy has been honoured by having more than one goodly volume written on her points and characteristics, and stories are therein told about the little fireside favourite which are wonderful indeed, and some of which would seem almost incredible, were they not so well authenticated. Pussy's character, too, has been greatly redeemed. We find, for instance, (1) that cats are not by nature thieves, if well fed and gently treated; (2) that they are quite as fond of their owners as dogs are; (3) that they are the very reverse of deceitful; and (4) that they are fonder of their owners than they are of their homes.

Two great mistakes are common in the treatment of cats—first, that of imagining they will be better mousers if starved; and second, that of turning them out all night.

Good diet regularly administered is essential to the well-being and comfort of our domestic cats. They should not be too much pampered or over-fed, but the food given to them ought to be abundant, fresh, and clean. They ought to have meat—boiled lights, for instance—at least once a day, and always a supply of fresh water, which they often prefer to milk, this latter being usually looked upon both by dogs and cats as an article of diet, and not of drink. In no case should they be allowed to roam abroad at night. They get into all sorts of danger and mischief, and also at times contract loathsome skin diseases. If cats are properly fed and housed they will very rarely be ill. In order to encourage a cat to clean her fur, a small piece of unsalted butter should be given her, after which she is sure to lick herself.

Kittens ought to be taught habits of cleanliness as early as possible. They should have a flower-pot saucer of sand or garden mould, and be encouraged to use it, and as soon as they are big enough they should during the day be enticed out of doors.

The ailments of cats are principally diarrhœa, bronchitis, and a species of mange, with many other diseases similar to those of dogs. The treatment should resemble to a great degree that of the ailments of mankind, only the doses should be very much smaller. In simple fever, or in the commencement of distemper, a teaspoonful of Mindereru's spirit should be given morning and evening; and it must be remembered that in all cases of illness, no matter of what nature, good nursing and quiet are most essential, for of all our domesticated animals, pussy is by far the most nervous, and attention to her comforts when ill often does more good than medicine. In bronchitis, when the cough is troublesome, a few drops of paregoric should be occasionally administered, and a dessertspoonful of Mindereru's spirit given every night; the neck is to be kept warm, and both it and the chest frequently rubbed with ammoniated liniment. Try, however, not to soil the fur. Simple diarrhœa should be treated with a dose of castor oil to begin with, and afterwards with two drops of solution of muriate of morphia and five drops of dilute sulphuric acid given twice or thrice a day. In all inflammatory diseases the diet must at first be low. In long-continued weaknesses we have a valuable remedy in cod-liver oil and quinine: dose, a teaspoonful of oil and one-eighth of a grain of quinine, twice a day. Cats are often troubled with chronic indigestion. In this case the trisnitrate of bismuth in three-grain doses twice a day is our sheet-anchor. For mange and skin diseases a little of the ointment of green iodide of mercury should be used sparingly, or the compound sulphur ointment more liberally, or the following invaluable prescription:—Take of creosote two drachms, solution of potash half an ounce, and olive oil three ounces and a half. Mix the creosote, and then add the potash, and shake. Meanwhile, give from one to three drops twice a day in milk of Fowler's solution of arsenic.

To physic a cat, roll her in a shawl, and get some one to hold her while you administer the medicine.

Cats (Various).—Cats in this country are by judges divided into two great orders, each order being divided into several classes, according to colour and points. The two orders are the long-haired and the short-haired cats. The first includes the Angora cats and the Persian, as well as the Abyssinian—this latter being a very long-bodied, exceedingly graceful animal, with very bright intelligent eyes, and a kind of longish chinchilla hair or fur, of a lighter colour next the skin. There is really very little difference between the Angora and Persian cats in shape, but the coat is somewhat

different in texture, being more like true hair in the Persian, while in the Angora it is both more abundant, softer, and more furry. The second order includes all the short-haired cats of this country. The classes usually found at large shows are—(1) tortoiseshell; (2) tortoiseshell and white; (3) pure white; (4) pure black; (5) brown, silver, and red tabbies; (6) red tabby and white; (7) brown tabby and white; (8) blue or Maltese; and (9) Manx cats. All these classes may be either short-haired or long-haired. As a rule we find considerable differences, both in the size and temperaments of the various cats. The pure tortoiseshell, males of which are sometimes, but very rarely, found on show-benches, are small-sized pusses, excellent mousers, exceedingly brave, and undying in their affection for master or mistress. The tortoiseshell and white are a shade larger, and probably a shade less virtuous. The pure white, who ought to have blue eyes, are of rather delicate constitution, often deaf, quiet and gentle, but tolerably good hunters. The pure black, whose eyes should be either dark hazel or a lovely sea-green, instead of the disagreeable yellow colour so often seen, are large noble fellows, with coats like silk. No white hair is allowable in this class; even the moustaches should be as black as jet. They are often cats of a very fierce disposition, and altogether lordly in their manners; they are good hunters, but like the large red tabby, prefer rabbits, leverets, and game of all kinds to rats and mice. The brown tabbies are the commonest of all cats; they grow to an immense size if properly treated, are exceedingly affectionate, fond of their owners and of children, splendid mousers, and altogether homely and useful. It is of tabbies that most of the wonderful cat stories are told. The blue or Maltese cat is a very pretty creature, mostly small. It is self-coloured, that is, all one colour, a beautiful bluish slate; even the moustaches should be of the same hue. They are somewhat rare in this country.

The Persian and Angora cats are somewhat different in shape from the short-haired order. The head is as a rule smaller, the features somewhat sharper, and the ears, instead of looking directly forward, are placed almost horizontally, so that they look groundwards. One point of beauty about the ears is what is called by fanciers the "aural tuft," a little bunch of hair protruding from each ear.

The wild cat is still extant, and in great numbers too, in some parts of Ireland, and more especially in the Highlands of Scotland. Although he is not quite the terrible creature that Pennant in his writings describes him, still he is extremely fierce. He frequents the rocky caverns and caves at the foot of lofty mountains, seldom venturing out by day, but roaming abroad at night to prey upon rabbits and hares, while even lambs do not escape the attacks of this feline marauder. The same animal is also found in most of the wilder wooded regions on the north of Europe, as well as in Asia and Nepaul. He is not much larger than some of the best specimens of the domestic cat, which latter are often bred up to twenty and even twenty-two pounds weight, while we have rarely seen the common wild cat over sixteen pounds. The skin of this animal is of very little value in this country, but in colder climates the fur is longer, and consequently of more utility. It is now a well-ascertained fact that in countries where the wild cat is common, the domestic cat often betakes itself to the woods, and freely interbreeds with it.

Catsup. (*See* KETCHUP.)

Cattle.—A collective word signifying four-footed animals, which serve either for tilling the ground or as food for man. They are distinguished into large or black cattle and small cattle. Of the former are horses, bulls, oxen, cows, calves, and heifers. Amongst the latter are rams, ewes, sheep, lambs, goats, kids, &c. Cattle are the chief stock of a farm, and pass under the denomination of the "live stock." They who raise cattle are called graziers. The Contagious Diseases (Animals) Act (32 & 33 Vict. c. 70) contains useful provisions for preventing and suppressing the spread of diseases among cattle. As to larceny of cattle, killing cattle, &c., see 24 & 25 Vict. c. 96; as to cattle assurance, see 29 & 30 Vict. c. 34; and as to injury to cattle by dogs, see 28 & 29 Vict. c. 60.

Caudle.—The word itself (Latin *calidus*, French *chaudeau*, Italian *caldo*) merely means something warm, and consists of oatmeal gruel with various additions. It is a nourishing beverage suitable for the sick and convalescent, and is considered by old-fashioned nurses to be particularly suited to ladies after confinement.

Caul.—Some infants when born have a thin membranous covering over the head; this covering is termed a caul, the word being derived from the Latin *caula*, a fold. The possession of a caul, whether by purchase or by birth, was long considered to bring good fortune to, and to guard from danger, the owner. This superstition came into Europe from the East, the Arabs especially believing in the protective and beneficent powers of the caul. In England this superstition was held more particularly by sailors, who deemed themselves safe from death by drowning if they had a caul in their possession. Within late years advertisements in newspapers have appeared at intervals offering cauls for sale, and the price asked has been as high as fifteen guineas, which shows the value set upon them.

Cauldron, or Caldron (L. *caldarium*—*calidus*, hot; *calco*, to be hot), is a large vessel made of copper or iron, used for heating liquids. It has a movable handle, by means of which it can be suspended from a hook over the fire. The word has come to be intimately associated with the scene in *Macbeth*, in which the witches are represented as saying, while they dance round the vessel—

> "Double, double toil and trouble;
> Fire burn, and caldron bubble."

Cauliflower.—This is a variety of the cabbage, and is one of the most delicious of vegetables. It was known to and esteemed by

the Greeks and Romans, but it does not appear to have been cultivated extensively in England until about the time of Charles II. Since that period it has increased largely, and at the present day it may be procured at its best in England. On the Continent English cauliflower-seed is more highly valued than any other.

As is well known, the flowery head of the cauliflower is the part used, and not the stalks. In order to free the plant from insects, it needs to be soaked in salt and water for some time before it is used. It should then be trimmed, and boiled in abundance of slightly-salted boiling water until it yields to pressure. When done enough it should be well drained, and served with or without sauce. Cauliflower is also excellent when served *au gratin*, that is, with white sauce, bread-crumbs, and grated Parmesan.

The cauliflower forms a wholesome, but not particularly nourishing, article of food. Like all members of the cabbage tribe, it is difficult of digestion, and ought to be avoided by those who have delicate stomachs. Owing to the large proportion of sulphur it contains, it is apt to induce flatulency. It is a particularly agreeable vegetable, and is, on the whole, less indigestible and richer in flesh-formers than cabbage.

Cauliflowers may be had nearly all the year round, but they are not easily grown. They need to be carefully protected during the winter, and must be in the ground a long time; therefore amateur gardeners generally avoid them, and content themselves with plants which do not require quite so much attention. The soil should be light and well manured, indeed it can scarcely be too rich. The seed is rather expensive, though very little of it goes a long way. The sowing for the principal crop should be made towards the end of the month of August, and the ground should be freely watered both before the seed is sown and afterwards. The little plants should be pricked out into a nursery-bed as soon as they are large enough. They ought to be strong in six or eight weeks, and then may be planted out, but when the weather is cold they should be covered with glasses, which should be removed to give them air when it is mild and salubrious. Care should be taken in removing them from the nursery-bed to handle them very tenderly, and to leave plenty of earth round the roots. If liked, a few plants can be put into a frame. Three sowings may be made in the year. Besides the principal one towards the end of August, there may be another one at the beginning of March and another in May. All the seedlings will need to be attended to in the same way. When the flower is formed, one of the large green leaves may be cracked in the stalk and gently turned over the head to cover it, and thus preserve its colour. The plants should be taken up as soon as they have attained their full growth. This may be known by the outer edges becoming more open and less compact. As soon as they begin to have this appearance, they will spoil if left longer in the ground. They should be pulled up by the roots, and if they cannot be used immediately, they may be preserved in good condition for several days by hanging them root upwards in a cool dry situation. Some gardeners tie the leaves over the heads before hanging them, and those who wish to preserve them for a length of time bury them in sand with sand sprinkled plentifully between the layers. In choosing cauliflowers, it should be remembered that the whitest and the most compact are the best. Those of a green or yellow colour are inferior.

Cauliflower Pickling.—Excellent pickle may be made of cauliflowers, though it is more usual to mix them with other vegetables than to pickle them alone. The best time is about the beginning of August, and the cauliflowers chosen for the purpose should be firm, fresh, and white, and not fully matured.

Caustic Soda. (*See* CAUSTICS.)

Caustics.—These are substances which when applied to a part destroy it. Their action is chiefly chemical, and depends in some cases upon the intense affinity for water which is characteristic of many of these agents, and in others to their combination with the albuminous principles of the tissues with which they are brought in contact. They act upon dead tissue even more powerfully than upon living. Caustics are employed—(1) as counter-irritants; (2) to destroy venomous bites, as those of serpents and rabid animals; (3) to remove morbid growths and exuberant granulations (proud flesh), &c.; (4) to make issues, and by a slow process more painful than the knife to make an opening into abscesses. The caustics most commonly used are:—1. *Nitrate of silver* (lunar caustic). This is prepared by dissolving with gentle heat three ounces of refined silver in two ounces and a half of nitric acid previously diluted with five ounces of water; the clear fluid is evaporated, and allowed to crystallise. It occurs in little pencils or sticks, and is applied both in this form and as a solution varying in strength from half a grain to thirty grains in one ounce of water. Nitrate of silver is a useful application in poisoned wounds, irritable and indolent ulcers, and in erysipelas. It has been used to make a line of demarcation between the inflamed and sound parts, and thus prevent the disease spreading. It is sometimes given internally in St. Vitus's dance, epilepsy, and in certain morbid conditions of the stomach, but should only be taken under medical advice. If its use is continued for some months, the natural colour of the skin undergoes alteration, and assumes a blue or leaden hue. 2. *Sulphate of copper*. This is used both solid and in solution in indolent ulcers, and with good effect. (*See* COPPER.) 3. *Glacial acetic acid*. This is a strong caustic and escharotic, and is used chiefly as a blistering agent. (*See* ACETIC ACID.) 4. *Chloride of zinc*. This is also a most powerful caustic and escharotic, and is used for the destruction of cancerous growths and malignant ulcers. This salt is very deliquescent, and therefore, in using it, great care must be taken that it is not allowed to touch the sound parts. Burnett's solution, used as a disinfectant and deodoriser, is a solution of chloride of zinc. 5. *Hydrochloric, nitric, and sulphuric acids*. These acids are powerful caustics; the first mentioned

producing white, and the second yellow stains on the skin, and all three destroying the tissues with which they come in contact. They are used in the removal of piles (care being taken to protect the adjacent parts with lint and some unguent), in warts, and in sloughing sores. Sulphuric acid, from its being perhaps most ordinarily in use, is generally that which is thrown at the face for malicious purposes, and the effect is sometimes terrible, complete blindness and hideous scars frequently resulting. 6. *Carbolic acid.* This acid is obtained from coal-tar, and is a powerful caustic and escharotic. It, as well as the other acids, is sometimes used to stop bleeding, and in a diluted form is the best of all applications for fœtid sores, chronic abscesses, and sinuses connected with diseased bone. Carbolic acid is fatal to the lowest forms of life; it is therefore a most valuable agent in arresting fermentation and putrefaction. What is called Lister's method of treating wounds, &c., consists in the liberal use of this acid in some shape or form. 7. *Hydrate of lime* (slaked lime). This is chiefly used diluted, and in combination with mercury forms the well-known yellow and black washes. 8. *Hydrate of potash* (caustic potash). This is obtained from a solution of potash by evaporation, and is moulded into sticks for medicinal purposes. It is sometimes applied to indolent ulcers. Being less deliquescent when mixed with lime, it was formerly used in that form. 9. *Hydrate of soda* (caustic soda). This is made by evaporating a solution of soda, and allowing it to solidify on a clean silver or iron plate. It is used as a caustic for the same cases as caustic potash, but is more convenient than the latter, because less deliquescent. Other caustics are the acid nitrate of mercury, corrosive sublimate, chloride of antimony, chromic acid, and arsenic. It may be well to explain that the term escharotic means simply a more powerful caustic producing an eschar or slough, from which it derives its name.

Cauterise.—This term is used to signify the application of caustics, as nitrate of silver, strong acids, and *potassa fusa*, as well as the actual cautery of red or white heat.

Cautery.—By this term is meant the actual cautery, or the direct application of heat to a part. There are two methods of applying this, which may be described:—1. *The actual cautery, or heated iron.* This is an iron rod with a round or oval knob at the end, and a wooden handle. The knob is heated to a red or white heat, and is drawn two or three times across the diseased or poisoned part, or in the case of hæmorrhage, across the orifices of the bleeding vessels. This form of cautery is not so painful as is generally supposed, the effect being but momentary, and is a most effectual remedy in destroying the venomous bites of snakes and rabid animals. It is also a most powerful agent in stopping hæmorrhage, and in some severe cases, when the bleeding vessels cannot be conveniently tied, it is the only plan that can be adopted for this purpose. The only drawback is that there is apt, in some cases, to be a recurrence of the bleeding when the slough or dead part comes away. This must be looked for, and as far as possible guarded against. After the application of the hot iron, the parts should be dressed with cold water. 2. *Galvanic cautery.* This is chiefly used in cauterising sinuses or cavities occurring in diseased bone, and in nævus or mother's mark. A platinum wire is, in the first place, introduced into the sinus, and is then heated by the galvanic current; in the case of the nævus, the wire is made to transfix it, and is then heated by the battery. The moxa may also be described under the head of cautery. This operation was introduced from the East, and for some time found favour in Europe, but it is now seldom used in England. It consists in placing upon the part to be acted upon some dry tinder, or linen impregnated with saltpetre, and setting it on fire, allowing it to burn away so as to form an eschar or slough. The part must be dressed, after the operation, with cold water. It is said to be useful in severe chronic rheumatism, and in long-standing disease of joints.

Caveat (that he take heed).—A warning or caution. This is the step taken to stop the grant of probates, administrations, decrees, licenses, dispensations, faculties, and the like, from being granted without the knowledge of the party who enters it.

Caviare is an article of food largely used in Russia, even by the common people, but reserved in England for the tables of the wealthy. It is generally served on dry toast, with a little lemon-juice squeezed over it. It is prepared from the hard roe of various species of sturgeon and other large fish, made by washing it in vinegar, and afterwards salting it. The species of sturgeon from which the best caviare is made is found in the Baltic and Caspian Seas. The chief seat of its preparation is Astrakhan, and the people of that city are accustomed to dry the sturgeon in the sun in front of their houses, and the smell attracts such large swarms of flies that the air seems alive with them. The best caviare is made from the sterlet, a particular species of sturgeon, and it is esteemed so delicious that it is reserved for the especial use of the Russian Court. An idea of the extent to which the trade in caviare is carried on may be formed from the fact that 400,000 lbs. of the relish are prepared annually on the shores of the Caspian Sea. The taste for caviare is an acquired one. When first tasted, its "ancient and fish-like smell" is exceedingly disagreeable to most people, and it is only after they have been educated up to it that they become fond of it. The liking for it was considered in Shakespeare's time to be a mark of refinement; hence anything that was above the comprehension of ordinary folks was said to be "caviare to the general." Hamlet uses this expression with reference to a speech in a play; and Mercury, in "Cynthia's Revels," when describing a coxcomb, says, "He doth learn to make strange sauces, to eat anchovies, maccaroni, and caviare." As the true caviare is generally eaten when in a state of decomposition, it can scarcely be regarded as wholesome. It is said that the fish is so prolific that when it is in full season, more than half of the weight of the female is taken up in roe alone.

Cavo-rilievo.—This term is applied to a peculiar form of rilievo in which the original surface is the highest, the retreating surfaces



CAVO-RILIEVO.

being cut into the material, giving the design the appearance of having been pressed into the stone, or other material, just as the design in relief of a seal is pressed into the wax. It is sometimes called intaglio relievato.

Cavy, the *Cavia cobaya* of naturalists, is a native of South America; it belongs to the natural family *Hystricidæ*, and the order *Rodentia*. This pretty little timid creature has now been quite domesticated in our country, and makes a very nice pet indeed, although it is supposed that it possesses little real affection



CAVY.

for its owner. The name guinea-pig is given to it doubtless from some fancied resemblance to a hog, and from the peculiar sound of its voice. It is cleanly in all its habits, but from the nature of its exhalations it is better as an out-door than an in-door pet. It ought to be kept in a hutch like a rabbit, but it should also have a little dark room, whence it can retire at pleasure. It may be fed once or twice a day with a little dry grain of any kind, and occasionally a little rice with a portion of green food, such as parsley, cabbage, dandelion, sow-thistle, &c. Give it bread as a change, and milk now and then, but never let it want for fresh water, and you will find it remarkably healthy and happy. It is to be had of all colours, black and white, or black and white and orange, but the tortoiseshell is probably the prettiest.

Cayenne Pepper is made from the dried pods and seeds of different species of capsicums. (*See* CAPSICUMS.) These when ripe are dried in the sun and mixed with a little salt, then put into closely-stoppered bottles, and stored for use. Cayenne pepper has a hot pungent taste, and possesses the property of greatly improving the flavour of various foods, and of assisting digestion. In medicine it is useful in all diseases where a stimulant or rubefacient is required. It is employed as a gargle for relaxed throat, and is administered internally in the form of pills. It is also taken in the form of lozenges. Cayenne for culinary purposes is prepared from *Capsicum frutescens*, as possessing a particularly pungent flavour. That for medicinal purposes is made from *Capsicum animum*, which yields the larger pods, or from *Capsicum fastigiatum*, which produces the small pods called chillies. This plant grows wild in the south of India, and is cultivated in tropical America and Africa. Chillies is a Mexican name signifying pods.

Cayenne Pepper, Adulterations of. (*See* ADULTERATIONS OF FOOD.)

Cedar Pencils. (*See* CEDAR-WOOD; PENCILS.)

Cedar-wood (Uses).—The wood of the cedar is chiefly remarkable for its durability and the peculiar repugnance to it which insects display. We are told that in the temple of Apollo at Utica, cedar-wood two thousand years old was found in a perfectly sound condition. It was in ancient times greatly in request for building purposes, and the reader will remember how in the Bible we are told that "Solomon raised a levy of thirty thousand men out of all Israel; and he sent them to Lebanon, ten thousand a month by courses; and he had threescore and ten thousand that bore burdens, and fourscore thousand hewers in the mountains. And he covered the temple with beams and boards of cedar. And he built chambers against it, which rested on the house with timber of cedar; and the cedar of the house within was carved with knobs and flowers: all was cedar; there was no stone seen." The ancient Egyptian ship-builders appear to have used cedar for the construction of their vessels; that of Sesostris, described as two hundred and eighty cubits in length, was made of cedar. It is, however, probable that many trees were anciently called cedar which are now known under different names. The cedar being difficult to rear and of very slow growth, its wood is comparatively scarce, and its uses are consequently limited. Cedar is largely used for cigar-boxes, for which it has qualities specially valuable; and it is found particularly suitable for the wooden portions of lead pencils. It is also frequently used as a lining-wood in certain kinds of cabinet work, and sometimes for inlaying. We now obtain most of our cedar-wood from America.

Ceilings, Colouring and Ornaments for.—In the decoration of ceilings, as in

everything else, all the old fashions are more in favour now than any modern devices. In early times the plain rafters of the upper floors were left in view, and looked well, without ornamentation; but sometimes the ceilings were of carved oak or chestnut, with square panels; the beams richly decorated with mouldings, the panels painted, and bosses or pendants at the intersections likewise boldly carved. Plaster was afterwards adopted, and decorated with ribs, panels, or coffers, scrolls, heraldic bearings, modillions, and other devices. Then the Italian and French fashion of painting the plaster was introduced, and scenes from ancient mythology and history, sacred and profane, covered the ceilings. Taste declined, and a mere central ornament to form a frame round the stem of a chandelier, and a cornice in relief round the top of the walls—extending downwards a few inches—plain white, or picked-out with gilding, or with two or three shades of colour, to match the wall-paper, and perhaps a contrasting colour to give effect to the rest, is a style which has prevailed extensively for many years past. But the more ancient fashions are again in the ascendant, as above named. Tinted ceilings are recommended by oculists, for the same reason that in southern lands they are universal, on account of the glare of the white. But where the latter are preferred, paper well varnished will be found both more ornamental and likely to remain clean longer than plaster. It will also conceal the cracks in the latter. Should coloured ceilings be desired at small expense, paper will form an excellent substitute for paint or stencilling.

Celery and Celeriac, and Uses.—The common celery (*Apium graveolens*) is a native of Britain, and grows wild nearly all over Europe. It belongs to the natural order *Umbelliferæ*. The wild plant grows chiefly in ditches and in sandy marshes near the sea. It is usually called smallage; it has a strong disagreeable taste and an offensive smell, but these qualities are changed by cultivation, so that the bitter and offensive become sweet, succulent, and aromatic. Smallage was first cultivated by Italian gardeners, and the result of their labours was the production of two plants, celery and celeriac. In the former of these the goodness lies in the stalks, in the latter it lies in the turnip-shaped root, but the flavour of the two is the same. Celeriac is more largely used on the Continent than in Britain. In some respects it is to be preferred to celery, for one reason because it is more easily cultivated, and for another because it is in season longer.

In a raw state celery is not suited to persons of weak digestion. When freshly cut it contains in 100 parts:—

Water	93·3
Sugar	2·2
Mucilage	1·6
Albumen	1·2
Cellulose	0·9
Mineral matter	0·8

There are two distinct varieties of celery—the red and the white. Of these the red is esteemed the more hardy, and the white the more delicate. In cultivation the plants are transplanted from the seed-bed into richly-manured trenches. These trenches may be made in July for early celery, and in August for late celery. The young plants should be six inches high, and they should be placed six inches apart. They must be liberally watered, and as they grow the earth should be raised up round them in ridges until little more than the leaf stalks is seen on the surface. This is done for the purpose of blanching the stems. This earthing up should be done at different times, a little at a time, and it should not be begun too soon, as the plants grow very little afterwards, and the blanching process does not require many weeks for its accomplishment. Celery-seed contains more of the essential oil, to which the peculiar flavour of the plant is due, than any other part of the plant. It is largely used for flavouring, and may be obtained when the stalks are not to be had.

In England, celery is usually eaten raw as an accompaniment to cheese. Its pleasant crispness makes it a general favourite. It is excellent served as a salad, either alone or mixed with other vegetables. It goes well either with Spanish onions, boiled beetroot, or boiled potato. Delicious soup and sauce may be made of it, or it may be boiled and served like sea-kale. It is, however, present many times when it is not acknowledged, and it is one of the ingredients that are used almost as a matter of course for flavouring soups and sauces.

Cellar.—A cellar ought to be underground, in order that its changes of temperature may be gradual and slow, sudden alterations from warm to cold, or the reverse, being injurious to the fermented liquors usually kept in that place. It should be dry enough to prevent corks and wood from rotting, and prevent the growth of fungus, although not so dry as to make the wood of the casks warp. It should be well drained, and the drains should be carefully trapped to prevent the escape of foul air into the cellar. It should not be so situated that heavy vehicles passing over or near it can disturb that complete repose which is essential to the proper maturing of the best wines. The openings to admit light should be small and few, and ought to admit no sunlight, the warmth of which would affect the temperature too rapidly. Strong currents of air, draughts, are mischievous in the wine-cellar, although a proper amount of ventilation is for many reasons desirable. The cellar should never be too small, although there are reasons why it ought not to be too large. Means for raising the temperature in cold weather should be provided, and the best of these will be a few gas-burners proportioned in number and arranged according to the space. Pure air and cleanliness are elements of success in cellar management of greater importance than most people attach to them. Strong upright stands, about a foot in height, should be provided for the casks, and these may be made of wood or iron. Care should be given to secure their perfect uprightness, as otherwise the lees of the wine will not settle properly in the middle or belly of the cask. The casks must be so sup-

ported on these stands, with the additional aid of wedges, that they are not easily moved or shaken. The casks should not be placed too closely to the wall or to each other, as they could not then be readily examined all round. Bins for bottled wines should be open to the air, and each bottle kept separate and in the proper horizontal position, and that the corks are not left so dry that they shrink and soon cease to exclude air, and so that the lees as they form in the bottle mix with the liquid portion of the wine. With reference to coal-cellars, we may add that they should not be too damp, as coal in that condition gives off when burnt fumes injurious to health. We may also add that the coals when shot down into the cellar should be afterwards mixed well together by the man sent with them for that purpose, and known as the "trimmer," as otherwise the heavy pieces will be all together and the small coal in separate heaps, and there will not be that proper proportion of each essential to the making up of a good fire and the avoidance of waste.

Cellaret.—The cellaret is a piece of furniture of a more or less decorative character, intended for the proper temporary keeping of wines and other liquors in bottle, when required for immediate use.

Cellular, Cellulose.—Two adjectives, both signifying one and the same thing, namely, that which is composed of cells. The skins, so called, of some of our newest and largest man-of-war ships are so built, honeycombed in a measure, to prevent danger to the entire vessel in event of the penetration of shot or shell, the ram or the torpedo. In the animal and vegetable kingdoms, the term cellular is one which it is somewhat difficult to define. Nature makes great and almost universal use of the cell, which in itself is simply a minute structureless bag. The contents of these cells give to the structure which is built up of them, its name and nature; fat, for instance, is only a collection of these cells containing oil, bone another containing earthy salts, and so on. What is called cellular tissue in physiology is the connecting or investing membrane, which you can see, for example, as a gauzy, cobwebby-looking tissue, if you pull asunder the fibres of a bit of raw meat. In botany, the term cellular tissue is used to designate those portions of plants where the cells do not unite in forming a continuous tube or vessel.

Cements (Adhesive Kinds).—Cement is any substance which causes other substances to adhere together, when applied to the surfaces of those parts to be placed in contact with each other. As a rule, the thinner the stratum of cement, the stronger the junction of the surfaces on which it is laid. Adhesive cements are many in number, viz.:—

Armenian cement (syn. diamond cement, Persian cement, Turkish cement, and jewellers' cement), for jewellers' work. *Beale's cement*, patented as fire-proof, for stone walls and steps. *Boiler cement*, to stop cracks in boilers and stoves. *Bottle cement*, used as sealing-wax for cask-bungs and corks. *Bruyère's cement*, for hydraulic purposes. *Cap cement*, for chemical and electrical purposes, necks of balloons, &c. *Chemical cement* (syn. soft cement). *Chinese cement* (syn. shellac and liquid glue), well adapted for fishing-rods. *Copper-smiths' cement* (syn. blood cement), used for rivets, edges of copper boilers, and joints. *Elastic cement*, composed of caoutchouc, for uniting cloth and leather. *Engineers' cement*, will join broken stones of any size; cisterns will never leak constructed with this cement. *French cement*, used by naturalists to mount specimens, by artificial-flower makers, and confectioners. *Gad's cement*, for work to harden under water. *Glass cement* (syn. glass flux), for mending china. *Gibb's cement*, patented in 1850, equal in hardness and durability, and superior in colour, to the best Roman and Portland cements for building purposes. *Grinders' cement*, two preparations for fixing pieces of glass whilst grinding, and one for lenses and fine work. *Iron cement*, for mending tanks, &c. *Japanese cement* (syn. rice glue), strong and colourless, for paper work; better than the French. *Letter-fixing cement*, to fasten metal letters to plate glass. *Seal-engravers' cement*. *Singer's cement*, for plates in voltaic troughs, &c. *Steam-boilers' cement*, for cracks in boilers and ovens.

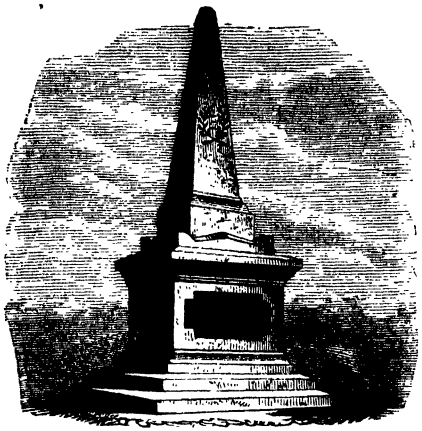
Cements (Plaster Kinds).—The term cement is applied by builders and architects to several species of mortars and such-like compositions, as a protective covering against the weather, or the deleterious effects of water; and also for the composition of statuary, cornices, and other decorations. There are several kinds in common use, of which are the following:—

Keen's marble cement, used as a stucco, and susceptible of high polish, for imitations of marble and scagliola in internal decorations. It will receive any mineral colour diffused through water in mixing the cement. *Laboratory cement* (syn. chemical mastic), used for lining casks or chambers to contain chlorine or vitriol. *Parker's cement*, for facing houses and water-cisterns. *Cement concrete*, for sea-walls and breakwaters.

Cemeteries.—Places set apart for the burial of the dead. In England they are usually divided into two portions—the one consecrated and the other not. In the consecrated portion the rites of the Church of England are performed, while in the unconsecrated no special form is binding. Cemeteries are often the property of private persons or companies, but all interments are subject to the legal regulations affecting public funerals. With the increase of population, their number is rapidly becoming greater, and it is desirable that when closed, they should be inviolate, and that it should be beyond the power of the proprietors to cover them with buildings. It follows that no leasehold ground ought to be allowed to be used as a cemetery. In our best public cemeteries, one or more chapels have been erected.

Cenotaph (from the Greek *kenos*, empty, and *taphos*, a tomb).—An empty or honorary tomb; a monument which does not contain the remains of the person by whom or in whose honour it has been erected. Cenotaphs were originally constructed for those, the resting-place of whose remains was unknown

—as in the case of people who were drowned, or who died at sea—or which were buried elsewhere. At the present time the term is also often used



CENOTAPH.

of a family tomb erected by a man in his lifetime. The cenotaph engraved above is one at Shanghai, erected in honour of the English and foreign officers killed in the Taeping war.

Censure.—A custom observed in certain manors in Devon and Cornwall, whereby all persons above sixteen years of age are cited to swear fealty to the lord of the manor, and to pay 11d. per poll, and 1d. per annum ever afterwards. These thus sworn are called censers. The word also indicates a judgment condemning some person, book, or proceeding, or a reprimand from a superior.

Census.—A numbering of the people. This was practised by the Romans, and was an authentic declaration made by the several subjects of the empire of their respective names and places of abode, before proper magistrates in the city of Rome, who were called censors, and in the provinces censitors, by whom the same were registered. The declaration was accompanied by a catalogue or enumeration in writing of all the estates, lands, and inheritances they possessed, together with their wives, children, tenants, domestics, and slaves. It is obvious that the census was an excellent expedient for discovering the strength of the state, for by it they learnt the number of the citizens, how many of them were fit for war, or for offices or employments of other kinds, and how much each was able to pay in taxes. In this country the census has been of comparatively modern growth. It takes place every ten years; the last census was taken on the 1st of April, 1871, under the Statutes 33 & 34 Vict. c. 107, 108, and 80.

Centaurea.—This flower may be better known as the blue corn-flower, and doubtless was originally brought into cultivation from the wild flower that may be seen growing amidst the corn. It is now grown as a garden flower, and is much used for decorating bouquets, its bright blue blossoms coming out well. It can be raised from seed in the spring of the year in the open border, but the more tender species should have the protection of the hot-bed. The plants grown in pots look well in balconies or windows. Tolerably rich soil is conducive to its perfection.

Centipede.—The common English centipede (*Scolopendra*), a brown-ringed insect, is found in damp places, under wood or bark. Its length rarely exceeds two inches, although in Epping Forest we have found it nearly four inches. It is distinguished by the possession of a body composed of from fourteen joints upwards, and as many legs on each side. It has powerful mandibles, and a hook near its mouth, from which poison can be ejected. Although comparatively harmless in this country, its bite in Africa and in the West Indies, where, instead of being brown, it is of a greenish hue, and is sometimes half a yard long, is always dangerous, and often fatal.

Central Criminal Court.—A court established in the year 1834 by the Statute 4 & 5 Wm. IV. c. 36, for the more effective and uniform administration of justice in criminal cases. It has jurisdiction over offences committed in the metropolis and certain adjacent parts, which, for the purposes of the Act, are to be deemed and taken as one county. The Judges of the Court are the Lord Mayor, the Lord Chancellor, the Judges of the three superior Courts at Westminster, the Judges in Bankruptcy, the Judges of the Admiralty, the Dean of the Arches, the Aldermen, Recorder, and Common Serjeant of London, the Judges of the Sheriffs' Court of the City of London (now the City of London Court), and any person who had been Lord Chancellor, Judge of the superior Courts, or who might be thereafter appointed by general commission of the Queen. This Court sits in the Sessions House of the Old Bailey, and there are usually twelve sessions held every year, at times fixed by any eight of the judges at Westminster. Two of the judges usually attend the sittings.

Centralisation.—The word indicates a system of government prevailing in countries where the control of local affairs is with officials appointed by the Ministers of State, which officials are in direct communication with, and under the instant control and inspiration of, such ministers, and where the funds of the State are largely employed in local objects. This is contrary to the English system, under which a large proportion of the affairs of each locality is managed by independent and self-governing institutions, such as municipalities and unpaid magistrates, who, although appointed by the Crown, and removable for just cause, are comparatively independent of the ministers of the Crown for the time being, as they are not paid for their services.

Centre-dishes.—In the arrangement of a table, the most conspicuous and elaborate of the ornaments should be placed in the centre, and the others (of which there should be duplicates) should be on either side of it. Epergnes, varying in price and in elegance, may be purchased made of glass, gold, silver-plated metal, and other materials. They are generally made to hold fruit and flowers, and upon the arrange-

ment of these the appearance of the table greatly depends. When the elaborate and expensive articles are not at hand, it is left to the skilful housekeeper to improvise a centre ornament out of the materials at her command. The ingenious and the artistic can accomplish a good deal in this way out of very simple materials.

Centre of Gravity.—Gravity is the force by virtue of which bodies tend towards the centre of the earth; a force acting equally whether they are at rest or in motion, and proportionally to their mass. The direction in which all bodies tend is the vertical; for when they take any other direction, the motion is due to some counteracting cause which overcomes for the time the force of gravity. The centre of gravity of the mass must therefore be in a line vertical to the base on which it stands, provided the body continues at rest; otherwise the centre of gravity would be virtually unsupported, and the body must fall, or in some other way alter its position. If the body consist of any homogeneous geometrical figure, the centre of gravity can be determined by simple rules of mathematics. Thus the centre of gravity of a sphere will be the point within that is equidistant from all points in the surface; that of a square or parallelogram is the point of intersection of its diagonals; that of a cylinder the point of bisection of its axis. The centre of gravity of bodies of irregular form, and that are not homogeneous in structure, can only be ascertained by experiment. If the weight of the mass is not too great it can be suspended by a string; the centre of gravity will be found to be in some part of the mass that is in a direct line with the vertical cord that sustains it; what is the exact point in that line will be ascertained by suspending the mass a second time in a different position, as the line which is now the virtual prolongation of the suspensory cord will cut the other at the point which is the centre of gravity of the mass. The stability of such a body as a loaded wagon will be best secured by placing the heaviest goods as near the bottom as possible, so that the centre of gravity shall be low; in loading a ship for sea, however, the centre of gravity should not be made as low as possible, because in that case the ship would be too stiff, as sailors say, giving her an uneasy motion, through an excessive tendency to right herself, or keep in a vertical position; if, on the other hand, the centre of gravity were kept too high, she would be called tender, that is, too susceptible to the motion of the waves, and unable to carry any press of sail.

Centrifugal Force.—A term formed from the Latin, meaning "fleeing from the centre." If a stone be fastened to a piece of string, held in the hand, and whirled rapidly round, the centrifugal force of the stone is sensibly felt, being equal to the force exerted by the hand in keeping hold of the string, and so to preventing the stone from flying away. If a tumbler containing water be substituted for the stone, and whirled with sufficient velocity in a vertical circle, the tumbler will be inverted in the course of each revolution without the water flowing out of it. This is due to the law that whenever a body has been put in motion in a particular direction, it always tends in virtue of its own inertia to move in the same direction. Hence the water continues to press against the bottom of the tumbler, even while inverted, in striving to get away from the restraining force which is drawing it inwards from its original course. This principle is practically applied in several ways. A most familiar one is the trundling of a mop to dry it, the result of which is that the water, being unrestrained, flies off at a tangent from the revolving mop-head. In many large manufactories goods are dried, after being washed, in the same way. In sugar refineries centrifugal force is applied in removing the syrup from the crystallised sugar; the refined article is put into cylindrical vessels made of wire gauze, and when rotated rapidly the syrup flies off in all directions through the gauze, leaving the crystals white and dry.

Centripetal Force.—A term formed from the Latin, meaning "seeking the centre." It is the force opposed to the centrifugal (*which see*), causing the stone and the tumbler of water, in the illustrations there given, to rotate round the centre instead of flying away. It is therefore equal in measure to the force which it thus restrains.

Cephaline.—A sort of band worn by ladies as a preservative against cold, fastened over the top of the head, covering the ears, and tied under the chin. It is usually made of wool, knitted, or in crochet, and is about two inches wide.

Cerate.—This is the melted honeycomb, from which honey has been extracted, of the *Apis mellifica*, or hive bee. *Cera flava*, or yellow wax, is what remains after the process of melting. When this is bleached by exposure to moisture, air, and light, it receives the name of *Cera alba*, or white wax. Yellow wax is used in the preparation of several ointments, as resin ointment (*basilicon*), and in some plasters. White wax is used officinally in the *Unguentum simplex*, or simple ointment, which is composed of white wax, two ounces; prepared lard, three ounces; and almond oil, three ounces.

Cereals.—These are the plants which are cultivated for the sake of their seed, which seed is used as food. They belong to the order of grasses, or *Graminaceæ*. They were named after Ceres, the goddess of the earth and the protectress of agriculture. Of all vegetable productions the cereals are most valuable to man. They supply albumen and fibrine, which are two out of the three most important of flesh-forming substances. They are found in all parts of the world. They do not belong to any particular genus amongst the grasses. The grains agree in general composition, but they differ from each other in form and size, and in the relative amount of their constituent alimentary principles. Many of them are employed in making bread. The most important amongst them are wheat, barley, oats, rye, rice, maize or Indian corn, and different kinds of millet. These have all been cultivated for ages, and it cannot be determined what was their original form or country. The only thing

that can be said is that wheat appears to belong to the temperate regions, maize and rice to the tropical regions, and barley, oats, and rice to the coldest regions. Wheat is the one most extensively used in making bread, and it is the one which has been most largely consumed by civilised nations. Besides being used as food, the grains of cereals are distilled, and fermented liquors are obtained from them.

Cerebellum.—This is the anatomical name for the small brain, which lies in the lower fossæ of the occipital bone, beneath the back part of the cerebrum, or large brain, from which it is separated by what is called the tentorium. It is composed, like the cerebrum, of grey and white matter, and is divided into two lateral halves, united by a commissure, and into an upper and lower part. The weight of the cerebellum is about five ounces and a half. It is not convoluted as the cerebrum is, but is transversed by numerous curved furrows; it is also of a darker colour. The cerebellum has been stated to be the organ of physical love, but experiments have not borne out this theory. It appears, however, to direct and harmonise muscular action, each hemisphere directing the muscles of the opposite side. This is proved by the fact that if in any animal a hemisphere is cut off from the *medulla oblongata* and spinal cord, there is a most remarkable disorder in the muscular movements of the opposite side: the animal falling on that side rolls round and round with great rapidity, the rotation, if permitted, continuing sometimes for several days. Similar disordered muscular movements have been observed in human beings suffering from disease of this organ or in the immediate vicinity of it. The cerebellum, as well as the cerebrum, may be regarded as simply a prolongation and fan-shaped expansion of the spinal cord.

Cerebral Affections.—These are so many in number, and of so much importance, that it would require a much larger space than that at our disposal to describe them properly. It will, therefore, only be possible to name those most commonly met with, and to say a few words upon each. 1. *Cerebral meningitis.* This is an inflammation of one of the membranes covering the brain, and is generally due to one of the three following causes—(1) to a wound or blow on the head, with or without fracture, when it is called traumatic meningitis; (2) to some old-standing disease of bone, the result of scarlet fever, it may be, in early life; and (3) to what is probably the most common cause of all, the tubercular or consumptive habit, when it is called tubercular meningitis. The symptoms of this disease are pain in the head, shivering, sickness, with occasional vomiting, hot skin, face generally pale, but with an occasional bright flush upon it, great intolerance of light, pulse sometimes slow and laboured, sometimes rapid and feeble. As the disease progresses—and the course is sometimes very rapid—delirium sets in, accompanied, especially in the case of children, by convulsions, and there is generally more or less squinting. This is succeeded by insensibility and death, very few cases recovering. The treatment consists in keeping the patient in a darkened room; in shaving the head, and keeping an ice-bag suspended from the bed-head in such a way that it is in complete contact with the shaven part without unduly pressing upon it; in giving, particularly at the outset, full aperients, especially calomel; in blistering the shaven surface; and in supporting the strength with beef tea and broth, iced milk, custards, &c. The thirst may be assuaged with cooling drinks of iced home-made lemonade and cream of tartar. 2. *Cerebro-spinal fever.* This is an acute epidemic disease, of which we have but little experience in this country. The symptoms are acute shivering; vomiting, often without feeling of sickness; pain in the back of the head and along the spine, for the relief of which there is a remarkable and typical drawing of the head backwards; neuralgic pain in the abdomen; purple spots appear on the skin, which, at first circumscribed, soon become dark blotches only; hæmorrhage of the nose, mouth, and bowels frequently sets in; and finally, insensibility and death, the latter occurring in from twelve hours to seven or eight days. The mortality from this disease is very great, in some epidemics averaging 80 per cent. The treatment adopted is that which has just been described for cerebral meningitis. Quinine may be useful, and opium or morphia is frequently necessary to relieve pain. The purple spots and the retraction of the head distinguish this disease from cerebral meningitis, but it may be mistaken for typhus fever. The history and progress of the disease will generally, however, be a sufficient guide to a correct diagnosis. (*See* Brain Fever.) 3. *Cerebral softening.* This is generally due to some disease of the blood-vessels interfering with the proper nourishment of some part of the brain, causing it to break down. It occurs most frequently in those who drink to excess, in persons suffering from kidney and heart disease, or who may have had an attack of apoplexy; also as the result of intense mental exertion. The early symptoms are not very well defined. There is loss of memory and giddiness, and this is generally followed by paralysis of some part of the body, usually one side (*hemiplegia*). No medical treatment is of any avail in this condition; careful nursing is all that can be done. 4. *Apoplexy.* (*See* Apoplexy.) 5. *Hydrocephalus*, or water on the brain, is a disease common to children, especially of a scrofulous tendency. The symptoms are well known. The upper part of the head enlarges, dwarfing the face, and making it appear weird and wizened; the anterior fontanelle (the opening in the front part of the head near the centre) does not close, and the blue veins appear prominently on the scalp; the legs seem incapable of supporting the body, and there is a general want of power. Children suffering from this affection are very subject to the diseases of childhood, and generally fall victims to one or other of them. In some cases, however, when they survive these, and the effusion is not of any great extent, they may live to adult life; but, as a rule, they die very young. The treatment consists in good nourishment, steel wine, cod-liver oil, and sea-bathing. Hydrocephalus may occur before birth, and

endanger the delivery of the mother. In such a case it is necessary to perform the operation of craniotomy. Cerebral affections, as epilepsy, fits, paralysis, &c., will be described under their respective headings.

Cerebrum.—This is the anatomical name for the brain, that delicate and important organ enclosed in the bony cavity of the skull which, as the seat of thought, feeling, and order, originates every intellectual effort and emotion, controls and harmonises every bodily movement, and in a sense gives life and animation to all. The brain is divided into two almost equal parts, which are closely joined together, and communicate freely with each other. It is composed of grey and white nerve matter, the former being superficial and very much convoluted, thus increasing its superficial area; the latter central, and making up the great bulk of the organ. The grey matter is the seat of sensation, the white is the seat of motion; hence the brain has been compared to an electric machine—the battery, namely, the grey matter, representing the thought or will, the wires, that is, the white fibres or nerves, acting as the messengers. For example, a person wishes to pick up a needle from the floor: the wish to do so arises in the grey matter, a message is sent by the nerves, or white matter, to the particular muscles, &c., required to perform the act, and it is done. Again, to continue the illustration, in picking up the needle, suppose the point runs into the finger. Now before the finger can feel pain, the brain is made conscious of it by the sensory fibres of the nerve close to the place pricked, and the feeling of pain is then transmitted back to the wound by the motor filaments of the same nerve, the whole matter occupying, perhaps, only a second of time. The brain is covered by three membranes—that most external is the dura mater, strong and fibrous, which lines the cavity of the skull; underneath this is a delicate membrane called the arachnoid; and nearest to the brain is the third membrane, called the pia mater, which dips into the convolutions of the grey matter, and by means of the blood-vessels which ramify freely on its surface, the necessary nourishment is supplied. The weight of the brain is about forty-two ounces. On its under surface, close to the middle line, on each side nine important nerves arise, which, commencing from before, backwards, are arranged in the following order:—1. *Olfactory nerve.* This supplies the mucous membrane of the nose, and is the nerve of smell. 2. *Optic nerve.* This supplies the retina, and is the nerve of sight. 3. *Motor Oculi.* This is the great motor nerve of the eye, supplying the chief muscles. 4. *Pathetic.* This is a motor nerve of the eye, supplying the superior oblique muscle. 5. *Trifacial.* This has both motor and sensory filaments—the motor go to the muscles of deglutition, the sensory supply the face with sensation, and are those generally affected in neuralgia of the face. 6. *Abducens.* This is a motor nerve of the eye supplying the external rectus muscle. 7. This comprises the facial nerve, or portio dura, which supplies the muscles of the face; and the portio mollis, or auditory nerve, which is the special nerve of hearing. 8. This comprises (1) the glosso-pharyngeal, supplying taste to the tongue and motion to the muscles of the pharynx; (2) pneumo gastric, supplying the larynx, lungs, heart, liver, and stomach; and (3) spinal accessory, supplying motion to some muscles in the neck. 9. *Hypo glossal.* This supplies the muscles of the tongue. The brain receives its blood from the internal carotid and vertebral arteries. For diseases of the brain, *see* CEREBRAL AFFECTIONS.

Ceremony, Visits of.—These are calls paid purposely to express condolence or congratulation, or for the purpose of making acquaintance, or after having received hospitality. The etiquette of these formal calls will be found described under the heading CALLS.

Cereus, or Torch-thistle, is a plant which is generally propagated by cuttings, and may be taken at any time of the summer or autumn, but the young shoot cuttings root easier. In some instances the shoots are exceedingly soft, something resembling warmed wax, while others are very brittle, and require care in handling. Coarse soil or rough rubbish, with a little leaf-mould, is best adapted for cuttings, which when grown will stand some amount of cold. Little water is required from March to October while growing, but when in blossom water must be freely given. It is called torch-thistle from the peculiar nature of the stems of the plant.

Cerise.—A colour, the name of which is that of the French for cherry, and used as descriptive of a dye applied to silks and other fabrics, and artificial flowers. It is a very fine shade of rose-colour.

Cerise To Dye.—The substances for dyeing all the family of reds—of which there are a great many varieties, including *cerise*—are cochineal, lac-dye, and madder, which, under proper treatment, yield permanent colours of considerable brilliance. Extremely beautiful but evanescent colours may also be obtained from Brazil-wood, safflower, archil, and some other substantives; but since the anilino or tar colours have been discovered, they have superseded all others.

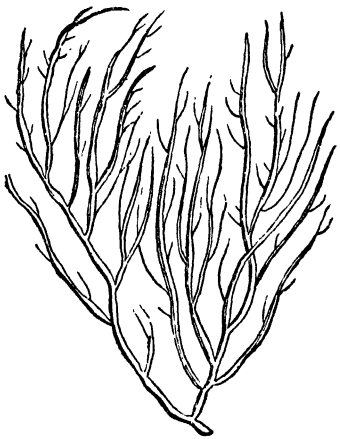
Certificate.—A written document given in testimony of the truth or validity of any fact; for instance, birth, marriage, death, &c. (*See* BIRTHS.)

Certiorari (to be more fully informed of).—A legal process by which a cause commenced in an inferior court is removed, together with the proceedings incident thereto, to a higher court for hearing and adjudication. It lies also (subject to various statutory provisions) for the removal of criminal proceedings.

Cerumen, or Ear-wax.—This is the secretion of the glands in the external auditory passage of the ear, which it serves to protect. It sometimes accumulates, giving rise to deafness, and must be removed by syringing with lukewarm water. If, as is generally the case, the wax is hard, it is advisable, twelve hours before using the syringe, to pour a little oil into the ear, and afterwards to plug with cotton-

wool, so that the oil does not run out. To permit this to be done properly, the person should lie on the opposite side. After syringing, a little wool should be kept in the ear for a day or two, as a precaution against cold.

Ceylon Moss.—One of the *Algæ* family; an order of cryptogamous plants, including the sea-weeds, *Fuci;* the lavers, *Ulvæ*, growing in salt water; and the fresh-water *Confervæ*. The Ceylon moss (*Plocaria candida*) is edible, and is used by the Chinese in the form of jelly, with sugar, as a sweetmeat; they also apply it in the



CEYLON MOSS.

arts as an excellent paste. From this moss they procure the gummy matter employed for covering lanterns, varnishing paper, &c. It is exported from the islands of the Indian Archipelago, and forms part of the cargo of nearly all the junks. The ordinary kind sold in Ceylon consists of several varieties of marine productions, intermixed with the genuine *Plocaria*. Two varieties of this moss are respectively called the *Agar-agar*, of Malacca, and the *Agal-agal*. Probably these sea-weeds are used by the salangana, or esculent swallow, in constructing the nests which are esteemed so great a delicacy by the Chinese. It is obtained on the rocks of Pulo Ticoos, and the neighbouring islands, and on submerged banks near Macassar, Celebes, where the Bajow-laut, or sea-gipsies, gather and send it to China; also on the reefs and submerged ledges near Singapore. The species called *Agal-agal* is peculiarly useful as a paste for gumming silks and paper, as it is not only as adhesive in character, but it is not liable to be eaten by insects. A beautiful kind of lantern, made of netted thread washed over with this gum, extremely light and transparent, is made by the Chinese. The Ceylon moss proper is sold on the spots where it is collected, at prices seldom exceeding from 5s. 8d. to 7s. 6d. per cwt.

Ceylonite.—This stone, which is also called pleonast, is a black and opaque variety of the spinel, and is sometimes used in jewellery. It owes its name to Ceylon, from which it was first brought. (*See* SPINEL.)

Chablis is one of the most celebrated of the white Burgundy wines. It takes its name from a village in the department of Yonne, in France, where it is made. Like all the white wines of the Burgundy districts, chablis is strong in alcohol and full of flavour. It is a particularly dry, flinty-tasting wine. It is not heady, but it acts very powerfully and quickly on the nervous system, producing a tingling sensation at the extremities. If indulged in too freely by those unaccustomed to it, it would cause the hands to shake as if the individual were attacked with ague. It is very largely used in France.

Chaffinch.—This bird, the *Fringilla cœlebs*, is one of the most beautiful, as it is one of the sweetest, of the feathered songsters that inhabit our woods and forests. It is known to almost every school-boy by such names as pink, spink, chaffie, boldie, or shilfie, not only by the bold trilling notes of its song and its lovely plumage, but from the artistic beauty of the nest it builds. The latter is variously placed, according to the nature of the country which the bird inhabits. It will build in the hedge-row as frequently as in any place; in larch, apple, Scotch pine, and other trees; and in the Hebrides, where trees are scarce, it will build its nest with just the same care, on a ledge of rock. In plumage, while the female contents herself with the quietest and most unassuming coloured dress any little bird can wear, the cock hops from branch to branch, discoursing his sweet little lay, in the very prettiest of colours, yet all so well arranged, and every feather so trim and clean, that there is nothing at all vulgar about the bird. The chaffinch is a bold, bright bird, and makes one of the most delightful of pets. It is to be regretted that



CHAFFINCH.

they are not duly appreciated in England, and even less so in Scotland, owing to a mistaken notion that they are destructive in the garden. It must be confessed that, seed-eaters as they are, they are at times very troublesome in spring; but the evil they do in spring is more than compensated for in

autumn, for then they greedily devour in large quantities the females of a kind of aphis that are exceedingly destructive to our forest-trees.

The chaffifch lays four or five eggs almost as pretty as herself, of a purplish buff and white colour, spotted and speckled with brown. It is supposed by some that the male and female birds separate on the approach of winter, and that while the cock birds remain and rough it, the females seek a milder climate. This, however, is open to doubt. Although during the moulting season rather delicate, they are nevertheless on the whole healthful and cheerful birds in confinement, and their song is very lovely. They may be fed on rape-seed previously soaked in water for twelve hours, with now and then a portion of hemp-seed. A little chickweed should be allowed, and occasionally a slice of apple to nibble at, or a leaf of lettuce. Mealworms and ants' eggs ought also to form part of the diet. When moulting, extra food should be given—hard-boiled egg, bread boiled in milk, and a little raw meat cut fine. The cage should be kept scrupulously clean, and it must never be forgotten that the little creature not only needs its daily supply of fresh drinking-water, but its shallow bath as well.

Chain.—The term chain used in surveying indicates a series of links each of a given length and in a given number. That most commonly in use consists of 100 links = 4 poles, or 66 feet; and 1 square chain = 10,000 links = 16 poles; 10 square chains = 100,000 links = 160 poles = 1 acre.

Chain-stitch.—This stitch, also called tambour stitch, is simple but very effective. The needle is put in on the right side of the material and brought through a little in advance; the wool or cotton is brought round from one side of the needle to the other; this loop is held by the thumb until the needle is drawn through it; the needle is then put in close to the chain made, and its point is again brought up a little in advance, and after the loop is made the needle is again drawn through. Thus the chain of stitches gradually lengthens. Three points should be observed. The needle should always be taken exactly the same distance every time; the space may be long or short, according to the fancy of the worker for long or short links, but however begun, it should be continued. The wool should be pulled through not very tightly, neither should it be loose. The lines should be strictly followed. The beauty of chain-stitch consists in the whole chain being regularly and evenly worked. Braiding patterns can be made of use for this work.

Chains, Gold, To Clean.—There are two or three ways of cleaning gold chains, and so giving them a bright fresh appearance almost equal to new. Make a lather of soap and water, and put into it a few drops of spirit of harts-horn; wash the chain in this, and shake it in hot sawdust till dry. Or, make a lather of soap and water, wash the chain and *boil* it in the lather for a few minutes. Take it out, and while wet, lay it in powdered magnesia which has been thoroughly beaten. When dry, polish it with a chamois leather, and if necessary use a soft brush for it. Or, wash it in soap and water, and put it while wet into a small bag containing either boxwood sawdust or bran. Shake it well, take it out after a time, and it will be bright and clean. It is said that if gold chains are kept in boxwood sawdust, they will preserve their bright new appearance.

Chair Covers.—A great variety of materials can be used for this purpose, at the same time some are much more serviceable than others. For drawing-room use, silk rep, fine woollen rep, or chintz wears the best. For dining-room chairs, soft leather is the most suitable; Banbury plush looks handsome, but it is hot in summer, and all the year round has the tiresome habit of clinging to dresses, &c. Cretonne chintz is pretty but not serviceable, because the colours wear off the surface. Cretonne made of fine wool wears well, and looks well in breakfast-rooms and best bedrooms. Chintz is really the most serviceable material, for when new it keeps clean for a considerable time, and when soiled can be calendered and made equal to new again and again. Over-covers made of brown holland, corded with crimson, look cool and pretty in summer; also those of crash worked in crewels have a pretty effect. Over-covers should be lined with thin calico, and they should be very carefully fitted to the chair before being made, for the strongest material will tear or fray if it has to bear any undue strain.

Chairs.—However decorative these important articles of furniture may be, they should always, both in fact and appearance, be suitable for their use. A chair that looks so fragile in its parts that some danger is apparently encountered by sitting upon it, however strong it may in reality be, does not accord with the rules of good taste, and a chair that looks "too fine" for its purpose is equally a mistake, whether its excess of "fineness" be apparent in extremely delicate colours in the upholstery work, in gilding, or in the excessive quantity and elaborateness of the carved work. The general principles upon which chairs of all kinds should be constructed to meet their most important requirements have already been touched upon under the head of ARM-CHAIR, and we need not here repeat them. One of the most sensibly constructed and oldest of chairs is that known as the Windsor chair. In the construction of a good chair of a durable kind the grain of the wood runs with its length, not across it; the surface of the seat should be large enough, and placed at that angle which gives the body real support, and should itself rest upon a stoutly-made frame; and the back and legs be not in one piece as they usually are, as if, forsooth, the great purpose of the back legs were merely to support the back, and in a way wherein it least needs support, instead of the seat, on which the stability of the back should in the main depend. An ordinary modern chair is weakest just where it should be strongest—in the back. The chairs of antiquity, such as we see they were in our museums, indicate much sounder principles of construc-

tion, as well as a much higher grade of artistic taste and feeling in their constructors, than modern chairs and chair-makers can boast. Stools preceded chairs in this country, and the addition of a back in the olden times increased their convenience without diminishing their strength. Arm-chairs similar to those now in use were introduced in the thirteenth century. Folding stools, called *fondesteuils*, were known in very ancient days, and the Anglo-Saxons had seats of a similar kind closely resembling the modern camp-stool. For covering or upholstering chairs, one of the best-wearing materials is Utrecht plush, and next to that is a woollen rep, the durability of which will, however, depend upon its being actually composed of wool. Dining-room and library chairs are commonly upholstered in leather, morocco being the strongest and most expensive covering. This leather is, however, so like roan, which is cheaper and inferior, that it will deceive even experienced judges unless they can examine it closely upon both sides. A little warm water and soap will suffice to clean the leather-work of chairs.

Chaise.—A two-wheeled vehicle for two persons, usually drawn by one horse; it has a calash top, and the body is hung on straps or braces. (*See* POST-CHAISE.)

Chalcedony.—One of the quartz group of precious stones. Its usual colour is greyish, but it occurs of a pinkish, bluish, or milky-white tinge. The blue shade is called sapphirine. Some specimens are nearly opaque, and others semi-transparent. It is found in various countries, and, like carnelian, is very suitable for seals. White chalcedony, with small red specks, is called St. Stephen's stone. With alternate stripes of white and grey it is called chalcedonyx. Another variety is the plasma, which is greenish, with minute spots of yellow and white, and is translucent: it was much used by the gem-engravers of ancient times. Mocha stone is also a chalcedony, is semi-transparent, has small tree-like figures in it, and may be prettily set for pins and brooches.

Chalcedonyx. (*See* CHALCEDONY.)

Chaldron.—An old English dry measure containing thirty-six bushels. It was formerly used in selling coal, which is now sold almost universally by weight.

Chalice (Latin *calix*, a cup).—This name was at one time used to designate an ordinary drinking-cup; it is now, however, used only to distinguish the wine-cup which is used in the administration of the sacrament of the Lord's Supper. Chalices are made of gold, though silver is the metal usually employed. They are occasionally studded with jewels. Other materials, such as glass and agate, used to be employed for them, but they were found to be too fragile for the purpose.

Chalk.—A soft limestone, white in colour, thick strata of which occur in the south-east of England. It is the predominant rock in the cretaceous formation (*creta* being Latin for chalk), which includes also the gault and upper and lower greensands. It extends with some intervals from Flamborough Head in Yorkshire, in a south-westerly direction to Dorsetshire, passing under the tertiary beds which occupy the London basin, and rising again to form the principal elevations in the south-eastern counties. Most of the cliffs and headlands from the Needles in the Isle of Wight to the mouth of the Thames consist of chalk. The upper beds are usually of a brilliant white, and full of flints in layers or nodules; the lower beds are often of a creamy colour, and destitute of flints. Chalk is in composition a carbonate of lime, but in some places it is mixed with magnesia, and the lower beds merge into chalk marl, in consequence of the presence of alumina. The chalk abounds in fossils, especially shells, sponges, crinoids, and fish-bones. In some places, too, nodules of pyrites are also very common. It is too soft and too absorbent to be of much value as a building material, but when burnt it yields a very pure lime, and the large pits that are everywhere to be found on the slopes of the hills show how extensively it has been worked for that purpose. It is largely used in several manufactures, such as that of alkali, bleaching-powder, &c.; it is also mixed with other ingredients to make some kinds of cement. Chalk is valuable to the farmer as a dressing to various kinds of soils. A mixture of it helps to render heavy clay lands lighter; and light sandy soils are rendered more fertile by it, as they are deficient in lime; boggy and undrained lands, where the vegetation is naturally rank, are sweetened, as the farmers say, by being treated with chalk.

Chalk Drawings, To Fix, &c.—Great painters, such as Raphael and others equally famed, have studied and practised the art of drawing by the aid of chalks. The style is comparatively easy: usually heads are the subjects chosen, but a diversity of subjects may be drawn. There are various methods for fixing other kinds of drawings, but as the least touch disturbs chalks, these are often left alone when finished. It is possible to fix them by dipping the drawing in milk. They require great care when kept in a portfolio, and should be framed as soon as possible.

Chalk, French.—This chalk is white, and bears the character of soapstone. Before the introduction of benzine and such-like cleansers, French chalk was much used to remove spots of grease, &c., from silk dresses. Fine shreds were scraped off, rubbed on the spot, and allowed to lie there for awhile; the atoms remaining were then brushed off, and the material was thus restored to its original state.

Chalk Mixtures.—These are made from the *Creta præparata*, or prepared chalk, the native carbonate of lime reduced to a fine powder. The officinal preparations are:—1. *Mistura cretæ*, or chalk mixture, composed of a quarter of an ounce of prepared chalk, the same quantity of powdered gum acacia, half an ounce of syrup, and seven ounces and a half of cinnamon water; the dose for an adult is from half an ounce to an ounce and a half. 2. *Pulvis cretæ aromaticus*, or aromatic powder of chalk, called also aromatic confection. This is composed of cinnamon bark, four ounces; nutmeg

and saffron, each three ounces; cloves, one ounce and half; cardamom-seeds, one ounce; sugar, twenty-five ounces; and prepared chalk, eleven ounces,—all powdered together. The dose is from ten grains to forty; for a child, two to six grains. When opium is added to the preceding, in the proportion of one grain in forty, it is called the aromatic confection with opium, the dose of which for an adult is from twenty to forty grains; for children, one to three grains. All these preparations are excellent astringents and antacids, and are largely used in the treatment of diarrhœa and cholera. They should, as a rule, be preceded by a full dose of castor oil, to remove obstructions, if any, and if continued for any length of time, it is likewise advisable to repeat the administration of the oil, in order to remove the concretions which may occur whilst taking these preparations.

Chalk Pencils (Crayons).—White, black, and red chalks are the best varieties, each of which possesses its own particular value to the artist. Black chalk comes from Italy, and the white from France. Artificial chalks are made of coloured earths and other pigments, which are rolled into solid sticks by the aid of milk or gin, which binds the ingredients together. Chalk pencils should be cut from the point, the reverse way to lead pencils. For spreading the chalks and softening and shading them, stumps of leather or cork are used: these are round and pointed, resembling cigars in form.

Challenge.—An objection taken by a litigant. It is more particularly applicable to "challenge of the jury," as it is termed, and this is of two kinds:—1. "To the array," by which is meant the whole jury, as it stands arraigned to the panel—for some defect in its summoning or constitution. 2. "To the polls," by which is meant exception to one or more of the jury, as being interested in the result, having a bias in the other party's favour, or being related to him, &c. (*See* JURY.)

Challenge of the Jury. (*See* CHALLENGE.)

Challenge to Fight is an indictable offence punishable with fine or imprisonment, or both. It has been decided that no words of provocation, however aggravating, can justify it.

Challis.—This is the name of a silk and worsted material. It resembles Norwich crape in some respects, but, unlike it, has not a glossy surface. Challis is fine, soft, pliant, and elegant in appearance; it was first fabricated about the year 1830. Norwich was then the seat of its manufacture, but now it is also made in the manufacturing districts of the north.

Chalybeate Waters are natural waters which contain iron in solution. They have a very disagreeable inky taste, or, as Mr. Weller expressed it, "a particklery unpleasant and wery strong flavour o' warm flat-irons;" but they have frequently proved of great service in strengthening the system, and afford an easy mode of introducing iron into the blood. They should be avoided when plethoric or inflammatory symptoms present themselves. There are two kinds of chalybeate water—carbonated and sulphated. The latter of these contains sulphate of iron. The springs of Moffat, Vicar's Bridge, and the Sand Rock spring in the Isle of Wight afford examples of the class. The carbonated chalybeate waters contain carbonate of iron dissolved in excess of carbonic acid. This water proclaims its own presence, for the stones near the mouths of the springs are marked with a red deposit of oxide of iron. Amongst the examples to be found in this country may be mentioned the waters of Cheltenham, Tunbridge, and Oddy's saline springs at Harrogate. Chalybeate waters are characterised not only by their taste, but by becoming of a black colour when mixed with an infusion of gall-nuts or of tea. Artificial chalybeate waters are made by adding protosulphate of iron and bicarbonate of potassa to aërated water. These are believed to possess some properties of equal value with the natural springs.

Chamber.—This word is rarely employed, excepting in country places and out-of-the-way districts. It denotes simply an apartment, generally a sleeping apartment, in a house. The word is also used to denote an assembly of persons met for a special purpose, such as the administration of justice, parochial or commercial affairs. Thus a Chamber of Commerce is a body of merchants met to advance the trade interests of the community.

Chamber, Court of Star. (*See* STAR-CHAMBER.)

Chamber-maid.—In an hotel or an inn, this is the person to whom the charge of the sleeping apartments is committed. It is her duty to provide the traveller with all necessaries connected with washing and sleeping, and in return for the attention she bestows upon him, he usually rewards her with a slight remuneration.

Chamber Nurse. (*See* NURSES.)

Chamberlain (*Custos cubiculi*, or *Cubicularius*).—A person having the care and direction of chambers. The term is variously used in our laws, statutes, and chronicles. For instance:—1. The *Lord Chamberlain* of Great Britain is the sixth high officer of the Crown, having the government of the Palace at Westminster, and upon all solemn occasions the keys of Westminster Hall and the Court of Requests are delivered to him. He disposes of the sword of state to be carried before the Queen when she comes to Parliament, and attends on the right-hand side next to the Queen's person. He has the care of providing all things in the House of Lords during its sessions. To him belong livery and lodgings in the Queen's courts, &c.; and the Gentleman Usher of the Black Rod, Yeoman Usher, &c., are under his authority. He also has the power of licensing theatres. 2. The *Lord Chamberlain of the Household*. He has the oversight and direction of all officers belonging to the Queen's chambers, except the precinct of the bedchamber. 3. The *Chamberlain of London*, who keeps the City money, presides over the affairs of the citizens and their apprentices, and presents the freedom of the City to those who have faithfully served their apprenticeship.

Chambers, Judges' and Masters', are the private rooms of the judges and masters, in which they decide points of practice and other interlocutory matters in an action. Their jurisdiction is partly under common law and partly under statute. By the Judicature Act, 1875, order 54, the Masters of the Queen's Bench, Common Pleas, and Exchequer divisions, and the Registrars in the Probate, Divorce, and Admiralty divisions, may transact all business and exercise all the authority and jurisdiction of a judge in chambers (subject to appeal to a judge), except matters relating to crime or to the liberty of the subject, and certain other matters.

Chamois Leather (Uses).—Leather bearing this name is so called because at one time the skins of chamois only were dressed in this particular manner—*i.e.*, impregnated with oil—but now the skins of goats, deer, and sheep are prepared in this way, and serve many useful purposes. The great advantage possessed by this kind of leather is that it can be washed without losing its colour, hence the name of washleather which it has received, and of which innumerable uses are made. Gauntletted gloves, linings of bags, coverings of whip-handles, &c., are also made of this leather in a better form.

Chamomile. (*See* CAMOMILE.)

Champagne Glasses. (*See* GLASSES.)

Champagnes, British.—Champagne is sold at such a high price, and is so much esteemed, that it is extensively imitated. A large proportion of the wine sold for champagne is nothing but light wine charged with carbonic acid gas. It is said that, even in Paris, two bottles out of every three sold for genuine champagne are spurious; and certainly this is the case with the wine sold in England. A very large proportion of imported champagne which is sold for 7s. 6d. per bottle is nothing but sparkling gooseberry or rhubarb wine, skilfully manufactured from fruit grown not far from the place where it is sold, and perfectly innocent of ripening on the vine-clad hills of Epernay.

Sparkling gooseberry wine is very good in its way, but it is not to be compared with true champagne made from the juice of the grape. It owes its flavour to sweetbriar, orris, or orange-flower water, besides which, it produces an entirely different effect upon the system. The juice of the grape contains a quantity of fixed acid, calculated as tartaric acid, which is only partially soluble in wine, and which is deposited on the sides of the cask in the form of "crust." Wines made from rhubarb, gooseberries, and similar fruits contain, besides the tartaric acid, other acids, such as oxalic and malic acids, which are freely soluble in the liquor, and thus give it a tart taste. In order to mask the acidity thus produced, sugar is introduced into the wine, and brandy is required to check the fermentation caused by the sugar. On this account British gooseberry wine is not so wholesome as genuine champagne.

Champagnes, Foreign.—Champagne wine, "the spring dew of the spirit," is the produce of the grapes grown in Champagne, formerly a province of France, but now a district comprehending the departments of Seine et Marne, Aube, Yonne, Haute-Saone, and Ardenne, in which localities are the noted vineyards of Ay, Avize, Verzenay, Epernay, and Rheims. Champagne was spoken of as a first-class wine in the thirteenth century, but it did not attain to its present position amongst wines until the seventeenth century. The best wines come from Epernay and Rheims, and are produced from grapes grown on a chalky soil. There are white and red champagnes, but the red, although of a good colour and flavour, is not so highly esteemed as the white. White champagne is either sparkling or still. The former of these, which is the most bright and captivating, and certainly the most popular, is the result of peculiar treatment during fermentation. In the process of manufacture, the wine is racked off, and fined in December, and three months afterwards it is bottled and tightly corked. Carbonic acid gas arising from incomplete fermentation is generated, and this dissolves in the wine, and imparts to it its effervescing qualities. The effervescence thus produced often causes the bottles to burst. From 10 to 25 per cent. of bottles of champagne are lost in this way. The average quantity varies with the season and with the quality of the wine. That champagne is regarded as the best which breaks the most bottles. This is one thing which makes champagne such an expensive wine. Sparkling champagne does not possess the delightful aroma which belongs to the creaming or slightly effervescent wine (*demi-mousseux*). The champagne most highly prized by connoisseurs is "still" champagne, which is thus named because it is bottled after fermentation has ceased. It is a much more wholesome wine.

The different varieties of champagne are named either after the manufacturer, or more rarely from the vineyards from which they were produced. In the neighbourhood of Epernay, which may be considered the head-quarters of the champagne country, are the residences of some of these manufacturers. Immense cellars for the storage of the wine are cut out of the calcareous rock. It is said that the cellarage of one well-known firm, "Moët and Chandon," is from four to five miles in extent, and contains on an average 5,000,000 bottles of champagne.

Among the best-known white champagnes are those of Sillery. These wines are of a clear amber hue, and possess a superior bouquet. They have a pleasant, dry, spirituous taste. The wines of Ay and Marcuil are less spirituous, but they have a bright sparkling appearance, and possess an agreeable pine-apple aroma. These wines, together with the white wines of Hautvilliers, Pierry, Epernay, Dizy, and the red wines of Verzy, Mailly, Bouzy, Thierry, and St. Basle, are highly esteemed by connoisseurs. Amongst the favourite brands, those of Roederer, Moet, Clicquot, Jules Mumm, and Perrier Jouet may be mentioned.

The fact that the sale of champagne is both large and remunerative has, of course, led to its being extensively adulterated. Bad champagne

is particularly injurious, and therefore experience and judgment are required in the selection of this wine. One way of testing it is to notice the character of the effervescence. Good champagne throws down its head rapidly, and when the effervescence has subsided the delicious aroma still remains. Mr. Brande says—"The prevalent notion that a glass of champagne cannot be too quickly swallowed is erroneous; and it is no bad test of the quality of champagne to leave it exposed for some time in a wine-glass, when, if originally of the highest order, it will be found to have lost its carbonic acid gas, but to have retained its body and flavour, which had before been concealed by its effervescence. Champagne, therefore, should not be drunk till this active effervescence is over by those who would relish the above characteristic quality."

Champagne, though it possesses only the ordinary alcoholic strength of natural wines, is very rapid in its effects upon the system. Its action, though strong, passes speedily away. It is exceedingly valuable as a stimulant and restorative, and is especially serviceable in cases of exhaustion. It allays irritability of the digestive organs; and in cases of excessive vomiting will sometimes remain upon the stomach when nothing else will. There is, however, no wine that is more unwholesome when in bad condition. The trade in champagne is a very important one. It has been estimated that the district produces 52,000,000 gallons of wine every year. Of these the best growths form but a small portion.

Sparkling champagne and all sparkling wines should be binned cork downwards in the coolest part of the cellar.

Champerty.—The unlawful maintenance of a suit in consideration of some bargain to have part of the lands or thing in dispute, or part of the gain. It is not champerty if the parties have a common interest, and a moral interest, as that of a parent in a child, suffices; nor is it champerty to mortgage the property in litigation in order to raise the necessary funds; but the courts will repudiate any agreement made between a creditor and a third person to maintain a suit of the former, and share the profits resulting therefrom—for this would be clear champerty. See 26 & 27 Vict. c. 125; and the Judicature Act, 1873, s. 24 and 25.

Champignon.—The champignon of the French (*Agaric oreades* of botany) is in England called the fairy-ring mushroom, while across the border it is denominated a Scotch bonnet. It is smaller than the common mushroom, and has a strong but pleasant smell. It is frequently offered for sale in large quantities, and is particularly suitable for making ketchup. It is also dried and powdered, and used for flavouring stews and sauces. In this condition it will keep for years in a closely-stoppered bottle. It grows in the fields in spots or circles, some of which are several yards in diameter. The circumference of the ring is marked with a bare path, something like a footpath, while the grass grows green in the middle. It used to be thought that these circles were the effect of lightning. According to the popular belief they were produced by fairies dancing on the spot. Until within the last twenty years a superstition prevailed in certain localities that the wrath of the fairies would pursue those who stepped across the charmed spot. Now scientific men have discovered that the grass dies because the spawn of the champignon and other fungi envelops its roots, and so prevents their



CHAMPIGNON.

absorbing moisture. The champignon is an excellently flavoured mushroom, but it is often rejected because it is confounded with poisonous mushrooms. Of the varieties that grow in rings, however, only one is unfit for food, and this (*Agaric dealbatus*) may be known by its strong unpleasant smell, by its turning greyish-brown in the zones when soaked in water, and by its *fine, narrow, crowded*, dingy-white gills. The true champignon has the *pileus* smooth, fleshy, wrinkled, convex, and compressed; the stem equal, twisted, and of a pale-buff or cream colour; the gills *broad* and *far apart*, and of the same colour as the *pileus*, but paler. It grows in the autumn in meadows and upon downs, and on many lawns. The *pileus* is from one to two inches in diameter. (*See* MUSHROOMS.)

Champion of the King or Queen.—An ancient officer whose business it was at the coronation to ride into Westminster Hall, armed *cap-à-pie*, while the king was at dinner, and throw down his gauntlet by way of challenge, pronouncing, by a herald, "That if any man shall deny the king's title to the crown, he is there ready to defend it in single combat;" which done, the king drank to him, sending him a gilt cup with a cover full of wine, which the champion drank, retaining the cup for his fee. This ceremony is now abolished.

Chancel.—The east end of a church, properly appropriated to those who conduct the service, and sometimes separated from the rest of the building by a screen (*cancella*), whence its name. (*See* CHOIR.)

Chancellor.—An officer supposed originally to have been a notary or scribe under the emperors, and named *cancellarius*, because he sat behind lattices, called in Latin *cancelli*, to avoid being crowded by the people. There are many officers in the State, the Law, and the Church bearing this title, as follow:—

The *Lord High Chancellor* of Great Britain and Lord Keeper of the Great Seal is the

highest judicial functionary in the kingdom, and superior in precedence to every temporal lord. He ranks immediately after the Archbishop of Canterbury. He is appointed by the delivery of the Queen's Great Seal into his custody. He is a member of the Cabinet, a Privy Councillor, and Prolocutor of the House of Lords by prescription, and vacates his office with the Ministry of which he forms part. When the Sovereign does not attend in person, the Lord Chancellor usually opens the session, and reads the royal speech on the occasion. When the Sovereign opens or closes the session in person, the Lord Chancellor stands on the right of the throne, and hands to her the royal speech opening or terminating the session. He appoints all justices of the peace and county-court judges throughout the country. He has a goodly list of Church livings in his gift officially. In the earlier periods of our history he was generally an ecclesiastic; and presiding over the royal chapel, he became "Keeper of the Sovereign's conscience," visitor in right of the Crown of all hospitals and colleges of royal foundation, and patron of all the Crown livings under the value of twenty marks per annum in the king's books. He is the general guardian of all infants, idiots, and lunatics, and has the general superintendence of all charitable uses; and all this over and above the extensive jurisdiction which he exercises in his judicial capacity in the Supreme Court of Judicature, of which he is the head. There is also a Lord High Chancellor of Ireland; but the office was abolished in Scotland at the time of the Union. (*See* CHANCERY.)

Chancellor of a Cathedral.—An officer whose duties usually are to hear lessons and lectures read in the church, either by himself or his vicar; to correct and set right the reader when he reads amiss; to inspect schools; to hear causes; apply the seal; write and despatch the letters of the chapter; keep the books; take care that there be frequent preachings, both in the church and out of it; and assign the office of preaching to whom he pleases. The above is a general epitome of his duties; but the customs of different chapters vary in detail, the chancellor's duties being in some cathedrals much more restricted than in others.

Chancellor of a Diocese or a Bishop is a law officer appointed to hold the Bishop's court in his diocese, and to adjudicate upon matters of ecclesiastical law. He is the Vicar-General of the Bishop, and must be a Doctor of Civil Law, so created in some university (37 Hen. VIII. c. 17).

Chancellor of the Duchy of Lancaster.—An officer appointed chiefly to determine controversies between the Sovereign and his tenants of the Duchy land, and otherwise to direct all the Sovereign's affairs belonging to that court. The jurisdiction of the Court of Chancery, as a court of appeal from the Duchy Court of Lancaster, was transferred to the Court of Appeal by the Judicature Act (1873). (*See* COUNTY PALATINE.)

Chancellor of the Exchequer.—A Minister of State, entitled to precedence in the Court of Exchequer, from which circumstance he derives his title. He takes care of the financial interests of the Crown and the State, in addition to his other Parliamentary duties. He is always a member of the Cabinet.

Chancellor of the Order of the Garter and other military orders is an officer who seals the commissions and mandates of the Chapter and Assembly of the Knights, keeps the register of their proceedings, and delivers acts thereof under the seal of their order.

Chancellor of a University is he who seals the diplomas or letters of degrees, &c., given in the University. The Chancellor of Oxford is usually one of the principal nobility, chosen by the students themselves in convocation. He is their chief magistrate. His office, which is held for life, is to govern the University, preserve and defend its rights and privileges, convoke its assemblies, and do justice among the members under his jurisdiction. Under the Chancellor is the Vice-Chancellor, who is chosen annually, being nominated by the Chancellor, and elected by the University in convocation. He is always the head of some college, and in holy orders. His proper office is to execute the Chancellor's powers, to govern the University according to her statutes, to see that officers and students do their duty, that courts be duly called, &c. When he enters upon his office, he chooses four pro vice-chancellors from the heads of the colleges to execute his duty in his absence. The Chancellor of Cambridge is also usually one of the first of our nobility, and in most respects the same as that in Oxford, but he is elected every three years. Under the Chancellor there is a Commissary, who holds a Court of Record for all privileged persons and scholars under the degree of Master of Arts, where all causes are tried and determined by the common and statute law, and by the custom of the University. The Vice-Chancellor of Cambridge is chosen annually by the Senate.

Chancery, Court of.—The Court of Chancery was the highest court of judicature in the kingdom next to Parliament. As a court of justice its powers and jurisdiction were chiefly in enforcing the rules of equity and conscience, and restraining the rigour of the common law, considering the intention rather than the words of the law. These powers and jurisdiction are now transferred to the High Court of Justice by the Judicature Act (1873), and it now exists as the Chancery division of that court. (*See* COURT AND COURTS OF JUSTICE.)

Chancery, Ward in. (*See* WARD.)

Chandelier.—This French word has been bestowed on those branches for candles which were at one period much used, but have now given place to gasoliers. These pendants from the ceiling were usually of bronze or glass; the latter produced the best effect. Candelabra (*which see*) were distinguished from chandeliers by the former standing either on the floor, or of smaller size suitable for placing on the table. These were used by the Romans, and were made of bronze or wood.

Chandler.—A chandler is literally one who makes or deals in candles, and the name is supposed to have been derived from the French word *chandelier*. The name is given, however,

to various trades, such as corn-chandler, a ship's-chandler, a tallow-chandler, and these uses would seem to point to the word being a corruption of the old Teutonic term *handler*, a trader. In Swedish a corn-dealer is still called a *korn handlure*.

Chantries, or Chantry-chapels, are not unfrequent in ancient parish churches, &c., and are so called because they originated in some endowment made by the founder for the saying of masses for his soul. The Reformation in this country put an end to the masses, but left the buildings, which are sometimes a useful appendage to the structure, affording additional accommodation. Chancels are sometimes called chantries. (*See* CHANCEL.)

Chapels.—In ancient times every subordinate ecclesiastical structure was a chapel. Dean Hook reckons the following sorts of chapels as existing in the National Church:—(1) Domestic chapels; (2) college chapels; (3) chapels of ease; (4) parochial chapels; (5) free chapels, exempt from episcopal jurisdiction; (6) chapels adjacent to some part of a church (chantries). Besides these there are chapels associated with cemeteries, workhouses, prisons, and other institutions. Outside the English Church the places of worship used by all other denominations are very commonly called chapels, though Dean Hook says—"The places in which Dissenters, whether Romish or Protestant, assemble, are not chapels but meeting-houses." He adds—"It is indeed surprising that Protestant Dissenters should be desirous of appropriating to their places of assembly a name of which the origin is to be traced to Romish superstition." His surprise should logically extend to Protestant Churchmen; but is uncalled for. Chapel is also a term used by printers for meetings held among themselves, and for the members, who collectively form a chapel. The head of the fraternity is styled the "Father of the Chapel." This use of the word is supposed to be due to the fact that the first printing-office in England was a chapel in Westminster Abbey. In Belgium and elsewhere on the Continent the name of chapel is sometimes given to small structures, like shrines, erected in the open fields. They have no roof or other protection.

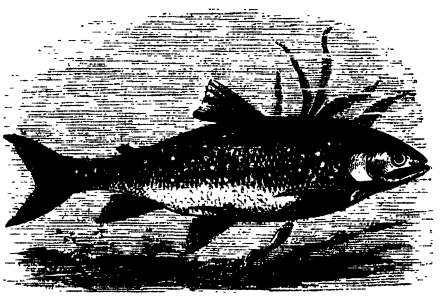
Chaplain.—A person authorised to officiate in the chapels of the Queen, or in the families and oratories of noblemen. The clergymen attached to the army and navy, to gaols, public hospitals, workhouses, &c., are also called chaplains.

Chapman (from the Saxon *ceapman*, a cheapener, or one who bargains).—Formerly any tradesman; at present, a dealer in petty articles at no stated place of business. These are sometimes called petty chapmen, and are, practically and legally, under the same regulations as hawkers and pedlars.

Chaps (in Hands, Lips, &c.), To Treat.—These are the effects of cold upon the skin, and are commonly seen on the face, lips, and hands. They are frequently caused by not carefully drying these parts after washing; but the skin is, in some people, especially those of a scrofulous tendency, so extremely sensitive, that in spite of every precaution chaps will occur. The best treatment is to rub the camphor ball, or pomade divine, over the affected parts every night at bedtime, and if the hands suffer, kid gloves must be worn night and day. Glycerine, or equal parts of glycerine and brandy, may be substituted for the camphor. The latter alone is a favourite remedy with some people, and often does good. Carefully drying with a soft towel after washing is essential; and those people who suffer from this condition should avoid, as far as possible, sudden changes of heat and cold.

Chapter.—In ecclesiastical polity a society or community of ecclesiastics belonging to a cathedral or collegiate church. The chapter now consists of a dean and canons, or prebendaries—the dean being the head. The chapter was formerly the standing council of the bishop, and during the vacancy of the see had the jurisdiction of the diocese. In early times, the bishop was the head of the chapter; afterwards, abbots and other dignitaries, as deans, provosts, treasurers, &c., were preferred to this distinction. The deans and chapters had the privilege of choosing the bishops in England; but King Henry VIII. got this power vested in the Crown, so that their office in that respect is ministerial only, as they are compelled to elect the person nominated by the Crown; and as the same prince expelled the monks from the cathedrals, and placed secular canons in their room, those he thus regulated were called deans and chapters of the new foundation. Such are Canterbury, Winchester, Ely, Carlisle, and some others.

Char.—This fish (the *Salmo salvelinus*, natural family *Salmonidæ*, also called case-charr, the Salvelian charr, and Alpine salmon) is found in abundance in the Highland lakes of England and Wales and Scotland. It is not unlike a trout, but the body is longer



CHAR.

and more slender. The belly part is red, the back an olive colour, with white spots. It comes to shallow water at certain seasons, and is then fished for by the Highlanders, who wade into the water waist deep; a cast is made with bare hooks called grapplers; these sink through the shoal, and in about a minute the line is jerked up, and generally one or two

fish secured. The flesh is reddish, and of great delicacy.

Character.—In criminal proceedings witnesses may be called to prove the good character of a prisoner; and if they speak to nothing else it is not the custom for the counsel for the prosecution to reply. It is not permitted to state any particulars of the prisoner's conduct, either in proof of his good or bad character; but if he call witnesses to his good character, a previous conviction against him may be put in evidence. Witnesses to the bad character of a prisoner can be called only in contradiction of the witnesses to his good character.

Character, False. (*See* SLANDER.)

Character to Servants.—It is not legally compulsory on a master or mistress to give a discharged servant any character, and no action can be maintained for the refusal; but if a character be given it must be a truthful one, for if a false good character be given, and the servant afterwards rob his new master, the person who gave such false character is liable to an action, and to compensate for the entire loss, and he is liable to punishment, in certain cases of false character, under 32 Geo. III. c. 56. And if a bad character be untruly and maliciously given, the party giving it will be liable to an action for defamation, although, until the untruth of the character given and express malice have been proved, the communication is presumed to have been privileged, and no action is maintainable. (*See* SLANDER.)

Charades, Acting. (*See* ACTING CHARADES.)

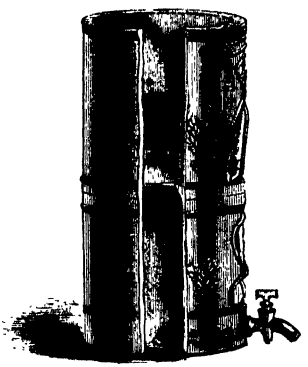
Charades, Verbal.—When acting this class of charades it is necessary for at least one of the party to introduce the word acted into the conversation, because the spectators listen as well as look, and as they are expected to guess the word chosen, they expect to have the chance of hearing it spoken once by one member of the acting company. For further directions, *see* ACTING CHARADES.

Charcoal, Animal. (*See* ANIMAL CHARCOAL.)

Charcoal Biscuits present charcoal powder in a convenient form for internal administration. They may be eaten like other biscuits, half a one or a whole one at a time, and are particularly beneficial in cases of flatulency. They may be procured of almost any chemist.

Charcoal Drawings, To Fix.—This style of drawing is bold and effective; it is not very often practised. The drawings should be framed, as they will not bear much disturbance. Their beauty is spoilt if rubbed; and their nature is such that they cannot be fixed, like prints and lead-pencil drawings.

Charcoal Filters.—Animal charcoal possesses a power of purifying water that is not enjoyed by any other substance. On this account it is employed in the manufacture of filters for purifying water. These filters contain a stratum of sand and coarsely-powdered charcoal. The sand removes any impurities which may have arisen from the contact of the water with leaden pipes or cisterns, the charcoal purifies the water from dissolved organic matter, and thus it is rendered fit for use. Water, no matter how it is obtained, is continually striving to unite itself with the bodies with which it comes in contact. Water which is obtained from deep wells is generally wonderfully pure. It has passed through a natural filter by percolating through the mineral strata of the earth, and thus it has been freed from suspended matters, both mineral and organic.



CHARCOAL FILTER.

At the same time, in the course of its journeyings it may have dissolved a portion of the saline and earthy substances which have come in its way, and this causes the hardness which so often belongs to spring water. The charcoal filter will not affect this condition. It is useful for purifying water which has been taken from a river or a shallow well, or from any place where it is likely to become charged with organic impurities, which impurities are more dangerous than any other. Water of this character should always be regarded with suspicion, and it should not be drunk until it has been passed through a good charcoal filter, for charcoal has the power of depriving water of any injurious quality of the kind that it may possess. The necessity for this can scarcely be too strongly insisted on, for impure water has produced death and disease in many a district, which might have been prevented if charcoal filters had been used.

It should always be remembered, however, that the purifying power of charcoal is limited. Very impure water causes it in time to lose its efficiency; and though, in ordinary cases, it will act satisfactorily for many months, it should occasionally be cleansed, and thus re-fitted for use. In order to decide whether or not water is properly purified, it may be tested with a little permanganate of potash, which can be purchased of any chemist. This substance gives a beautiful red colour to water, but when organic matter is present it becomes decomposed, and consequently loses its red colour. Therefore, any one who takes two waters, and mixes a small quantity of permanganate of potash with each, may conclude that the one

which is the more brightly coloured of the two is the purer. It has been calculated that a grain of permanganate is decomposed by a grain of organic matter.

Portable charcoal filters may easily be purchased. In these the water is passed through a sponge, in order to remove the coarser impurities before it reaches the sand and charcoal. This sponge should be thoroughly cleansed at least once a week. When it is inconvenient or impracticable to procure a proper filter, it will not be found difficult to prepare one as follows:—Procure a large flower-pot of common red ware, cover the hole at the bottom with fragments of broken flower-pots too large to go through the aperture, and place upon this a layer of powdered charcoal two inches deep. Press it down with a rammer, and put well-washed sand over it three inches deep, and over all put a layer of moderately coarse and well-washed gravel. These three separate layers ought to half fill the flower-pot. Fasten a wire round the rim of the pot, and tie three stout cords upon it. By these cords suspend the filter thus prepared from an elevation, fill it with water, and place a jar under it just large enough for the tapering end of the flower jar to enter its upper part. The water will percolate through the charcoal, &c., into the vessel underneath it. As a matter of convenience, a hole may be drilled in the lower jar, in which a tap can be inserted for the purpose of drawing out the water. A filter thus prepared will cost very little, and will last for a long time. A stonemason will drill the hole in the lower jar for a trifling remuneration.

Charcoal Fires.—When a strong fire is wanted free from smoke, charcoal is used for fuel. It is prepared for the purpose by piling pieces of wood of equal length round a sort of chimney made of stakes driven into the ground. The wood is stacked in rows, and the outermost stakes are of course slightly inclined towards the chimney, though the inner ones are in an upright position. The empty space between the stakes is filled with inflammable materials, to which fire is set, and the wood outside is covered with turf and soil. Charcoal-burners understand when the wood is sufficiently charred by the character of the smoke which issues from the wood. When it is ready it is drawn out, and the fire is extinguished with cold water. In England, charcoal is not so much used as fuel for cooking as it once was, although it is still employed in old kitchens. On the Continent it is largely used. It possesses the advantage of giving great heat without flame or smoke, and so it is particularly suited for a fire for soups, stews, preserves, and similar preparations. In kitchens where a good deal of cooking is carried on, it is a convenience to have a charcoal furnace fixed separately in some convenient situation, such as the scullery, and upon this the cook can prepare a number of side-dishes, sauces, and various small things, quite apart from the ordinary stove. These furnaces may be procured large or small. They are built of brick, the front and sides are covered with Dutch tiles, and the edges are bound with iron. When not in use they may be covered with a board and used as tables. When wanted for use, a little charcoal can be introduced into the fireplace. It will burn up readily and can be put out quickly, and will prove of great service.

When using charcoal for fuel it should be remembered that the fumes of burning charcoal are dangerous. Charcoal is carbon, and when burning it unites with the oxygen of the air, and forms carbonic acid gas. If a charcoal fire is burnt in an apartment to which fresh air has not free access, this poisonous gas will spread through the room, and any person sleeping in it will be in a few hours suffocated. Any one who is so unfortunate as to be in a position of danger from this cause should be at once carried into the open air and placed on his back, with a pillow under his head. Cold water should be dashed freely over him, hot water and mustard poultices should be put to his feet, and turpentine to the calves of his legs, and strong ammonia should be held to his nostrils. His body should be rubbed briskly, and, if possible, he should be made to swallow a little brandy and water. Rooms which have charcoal fires burnt in them should be freely and continually ventilated. A little freshly-slacked lime should also be thrown into them daily. Coke, which is dense charcoal, is used as fuel for locomotives, and occasionally for household purposes.

Charcoal Fumes.—A slowly-burning charcoal fire gives off a great deal of carbonic oxide, which is a colourless gas, having a faint oppressive odour. It is very poisonous when breathed, so much so, that if there should be only one per cent. of it in the air it will speedily produce a peculiar sensation of oppression and tightness of the head. It is the evolution of this gas which makes it so dangerous to have slow charcoal fires in bedrooms at night: if the fire were more brisk, the oxide would be burnt at the expense of part of the oxygen in the room, and carbonic acid gas, a less noxious, though still an objectional product, would be the result.

Charcoal Pencils.—These are made of vegetable charcoal. Willow is the best for the purpose, because in this wood the softness is equal in all parts of it. Charcoal is very effective as a drawing material, and is also very durable. These pencils require to be cut from the point—the reverse way to lead pencils.

Charcoal Powder is valueless for most purposes, excepting when freshly charred and freshly powdered. It should be carefully preserved in a closely-stoppered bottle until it is about to be used. It is employed to restore tainted meat and impure water; syrups and other aqueous solutions filtered through it are presented free from lime and saline matter. While purifying the liquids it at the same time clears and brightens them. Both wood charcoal and animal charcoal are used as deodorisers and disinfectants, but animal charcoal is the better of the two. Charcoal powder is administered internally in diseases of the digestive organs, such as constipation, diarrhœa, dyspepsia, dysentery, heartburn, and especially flatulency. It is also most valuable

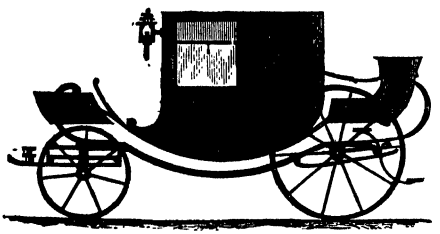
if taken as a preventive when cholera and fevers prevail. It is an excellent tooth-powder, for it both cleanses the teeth and sweetens the breath; and, mixed with lard, it is occasionally employed as an ointment. Charcoal powder is also put round vessels in order to assist them to retain their heat.

Charcoal, Properties of.—Charcoal gives out more heat in burning than an equal bulk of wood, but it does not produce a flame. It is infusible, and, provided air is excluded, it undergoes no change, whatever may be the heat to which it is subjected. At ordinary temperatures it is indestructible by exposure either to air or water; hence it is a common practice to char the ends of wooden piles before driving them, and also the insides of water-butts. At high temperatures, carbon has a great affinity for oxygen, and hence charcoal is often used to reduce the oxides of metals to the metallic state. Wood charcoal has the same properties as animal charcoal (*which see*) as a decoloriser and deodoriser. On this account it is useful in sick rooms, absorbing the gases which would otherwise contaminate the air; and even meat that has become putrid will be deprived of all offensive odour if covered with a thin layer of powdered charcoal. It is a very bad conductor of heat.

Charcoal, Vegetable. (*See* VEGETABLE CHARCOAL.)

Charge has several significations—(1) the instructions given by a judge to the grand jury, or the judge's summing up of the evidence on a trial by jury; (2) the periodical address of a bishop or archdeacon to his clergy; (3) the taking proceedings against a prisoner; (4) an obligation imposed on property; (5) a commission or profit; (6) a military or naval attack; (7) a load or burden, &c.

Chariot.—A general name for ancient carriages in which men rode. A modern chariot differs from a coach in having but one seat inside. There is a seat in front for the



MODERN CHARIOT.

driver usually, but not always, and sometimes there is a seat behind. Other modifications occur, but the vehicle is less used now than formerly. In the old posting days, the travelling or posting chariot was a vehicle of some importance.

Charities, or Public Trusts, are under the immediate control of a board of commissioners, termed the "Charitable Commissioners for England and Wales," who are appointed to secure their due administration under certain Acts of Parliament passed in the reign of Queen Victoria, and known as the "Charitable Trusts Acts." These are principally the 16 & 17 Vict. c. 137; the 18 & 19 Vict. c. 124; the 19 & 20 Vict. c. 76; the 20 & 21 Vict. c. 76; the 21 & 22 Vict. c. 51; the 22 & 23 Vict. c. 50; and the 35 & 36 Vict. c. 24.

Charities, Organised.—These are quite a feature of the present age, which, as a rule, resolutely sets its face against indiscriminate charity, and knows nothing of the sumptuous hospitality of the Middle Ages, when an open house was kept for all comers by the nobles, landowners, and monasteries. And yet matters have improved greatly for the better since those days, for the sick, and the poor, and the insane, and the destitute—who were then almost entirely uncared for, the monks and nuns being their only friends—are now housed, and fed, and looked after, either at the public expense, or by institutions supported by private charity. (*See* ASYLUMS, HOSPITALS, INDUSTRIAL SOCIETIES, LUNATIC ASYLUMS, POOR LAWS, REFUGES, WORKHOUSES.) The only danger in the present day is, perhaps, lest charity become too far organised, to the entire extinction of private benevolence. Should this ever be the case, it could not but be regarded as a great national calamity, for there are certainly many cases of distress where relief can be best and often solely afforded by the ready and sympathetic hand of the private individual. Cases have occurred, and are constantly occurring, in which the person seeking relief has actually perished before the aid of a charitable society, with its preliminary array of inquiries, regulations, &c., can be extended. Organised charities are excellent in their way—nay more, many of them, as hospitals, lunatic asylums, &c., provide the relief in the only available form; but the subscription of sums of money to this or that charity or institution should not prevent the private individual from himself seeking out cases of distress, and relieving them to the best of his ability.

Charity.—Under the head of ALMSGIVING we have spoken of charity as the principle from which voluntary gifts to the poor proceed. In the Bible, charity means love, and acts of charity deserving of the name emanate from kindness and affection. As a matter of fact, however, it has been found that great mischief sometimes arises from want of proper discretion, and in consequence powerful charity organisation societies have been formed, in the double hope of checking imposture and of discovering and relieving genuine cases of distress. It is undoubtedly the case that indiscriminate charity often fosters mendicity, idleness, and other social evils, and it is apparent that in such cases it does harm more than good. The bold and persistent beggar is relieved, while shrinking and modest want is neglected. As has been stated when speaking of the system of organised charities now in force (*see* CHARITIES, ORGANISED), the true rule should be to search diligently for real cases of distress (in too many cases they may be found almost at our own doors), and then exercise our charity and benevolence to the utmost.

Charm.—The old superstitious idea respecting the efficacy of "charms" has died away in civilised countries, and the so-called charms now worn are mere trinkets attached for ornament to the watch-chain. These usually consist of miniature drums, tiny pistols, triangles, and such-like; they are worn principally by women, it being considered a sign of effeminacy for men to display trinkets. (*See* AMULET.)

Charpie.—This is a coarse but useful substitute for lint. It has been largely employed in dressing those wounded in battle, and in the surgical cases of hospitals, where lint is not procurable or is too expensive. It is, as its name implies, of French manufacture.

Charqui.—Charqui is another name for jerked beef, which is a South-American method of curing meat. Charqui is muscular fibre without fat. The beef is cut into thin strips, which are immersed in sea-water or saltpetre, and dried by exposure to the rays of the sun. When cured it will keep almost any length of time, and preserve its nutriment, although to palates not accustomed to it it is somewhat tasteless. The flesh of the vicuna, and that of the alpaca, are sometimes used to make charqui. The labouring classes in nearly every part of South America and the West Indies live almost exclusively on jerked beef. The mountain cattle of Chili are also much used to make charqui. In Nicaragua, tasajo is made somewhat in the same way; but tasajo contains much rancid fat, whilst charqui is nothing but fibre.

Charta, Magna.—The Great Charter of the liberties of Britain, and the basis of our laws and privileges, was originally granted by King John, in 1215, and was several times confirmed during the reigns of Henry III. and Edward I. This charter confirmed many liberties of the Church, and redressed many grievances incident to feudal tenures, of no small moment at that time, though now they may seem comparatively trifling. But besides these provisions, care was taken therein to protect the subject against other oppressions—from unreasonable amercements, from illegal distresses, or other process for debts or services due to the Crown, and from the tyrannical use of the prerogative of purveyance and pre-emption. It fixed the forfeiture of lands for felony in the same manner as it remained until a recent period (*see* ATTAINT, ATTAINDER), prohibited the grants of exclusive fisheries and the erection of new bridges so as to oppress the neighbourhood. With respect to private rights, it established the testamentary power of the subject over part of his personal estate, the rest being distributed among his wife and children; it prescribed the law of dower as it has continued until a comparatively recent period (*see* DOWER); it prohibited the appeals of women, unless after the death of their husbands. In matters of public police and national concern, it enjoined a uniformity of weights and measures; gave new encouragement to commerce by the protection of merchant strangers; and forbade the alienation of lands in mortmain. As regards the administration of justice, besides prohibiting all denials or delays of it, it fixed the Court of Common Pleas at Westminster, so that the suitors might no longer be harassed with following the person of the king in all his progresses; at the same time, it brought the trial of issues home to the very doors of the freeholders, by directing assizes to be held in the proper counties, and establishing annual circuits. It also corrected some abuses then incident to the trials by wager of law and of battle; directed the regular awarding of inquests; prohibited the king's inferior ministers from holding pleas of the Crown or trying criminal charges, whereby many forfeitures might otherwise have unjustly accrued to the Exchequer; and regulated the times and places of holding the inferior tribunals of justice, such as the county court, court-leet, &c. It confirmed and established the liberties of the City of London, and all other cities, boroughs, towns, and ports of the kingdom. And lastly (which alone would have merited its title as the Great Charter), it protected every individual of the nation in the free enjoyment of his life, his liberty, and his property, unless declared to be forfeited by the judgment of his peers or the law of the land. This excellent charter, so equitable and beneficial to the subject, is the most ancient written law of the kingdom. By a statute, passed in the twenty-fifth year of the reign of Edward I., it is enacted that it shall be taken as the common law; and by another, passed in the forty-third year of the reign of Edward III., all statutes made against it are declared to be void.

Charter.—An instrument or written evidence of a grant of certain privileges or exemptions, under the seal of a sovereign, lord, church, chapter, or community, &c. It is derived from the ancient Latin word *charta*, a public or authentic act. It also signifies a privilege, immunity, or exemption.

Charter-party denotes the instrument of freightage, or articles of agreement for hire of a vessel. The charter-party must be in writing, and should be signed by both the proprietor or master of the vessel and the merchant who freights it. By such a document the ship is chartered to the merchant, who is called the charterer. A charter-party differs from a bill of lading, in that the former is for the entire freight or lading, and that both for going and returning; whereas a bill of lading is only for a part of the freight, or at most only for the voyage one way. There are certain terms usually to be found in all charter-parties—*e.g.*, a statement of the burden of the ship; an undertaking by the shipowner that the ship, being seaworthy and furnished with necessaries, shall be ready by a certain day to receive the cargo; shall sail when loaded, and deliver her cargo at her port of destination (the act of God or the king's enemies excepted); the charterer undertaking to load or unload the ship within a certain number of days, called the lay or running days, and if he detain her longer, to pay demurrage, *i.e.*, a certain sum of money for each extra day, and also to pay freight agreed.

Chartreuse.—This is the name of a very well-known liqueur, originally made by the

monks of La Grande Chartreuse, a celebrated monastery near Grenoble, in France. The convent is situated in a wild and romantic valley, 4,000 miles above the sea-level. It is surrounded by Alpine forests, and down the mountain gorge a rapid river leaps from rock to rock, carrying its fertilising waters to the valleys below. Here, in the latter part of the eleventh century, St. Bruno established a little community of priests, and took the name of the place for that of the order. The Carthusians have since become famous in history; but they will be known for all time as the inventors and makers of the famous liqueur chartreuse.

For many years the sale of this cordial yielded a large revenue to the coffers of the convent, the amount having risen as high at one time as £8,000 a year. In 1864, however, the Pope prohibited the monks from manufacturing it any longer for sale; and as the recipe was never published, the original liqueur has been lost to the world—that now sold being only the nearest guess which it has been possible to make. "The original liquid was made," says the late Mr. Kettner, "from a plant having the beatific name of *Angelica Archangelica*, gathered with an Ave, concocted near the fumes of burning censers, distilled amidst spiritual songs, bottled by dedicated hands, corked with fervid ejaculations, labelled with the holy sign of the Cross on the trade mark, packed in straw and hammered in cases to the tune of vesper bells and matin songs, and charged with a blessing for the entrails of the faithful, to help digestion, to spur the kidneys, and to make the soul happy after dinner." There are four varieties of chartreuse—a pure spirit, which is of a clear light green, and very fiery; another lightish green, which is sweet but strong; a yellow, which is the best; and a white kind, the mildest form of all.

Charwoman.—The origin of this word is not known. It may have been derived from the Saxon *cerre*, which means a time or occasion. It signifies a woman who is hired by the day to do domestic work, generally of the rougher kind. When the press of work is considered too heavy for the ordinary domestics to perform, the charwoman is called in to fill up the gap and restore the equilibrium.

In some houses a charwoman is a regular institution. It is probable that the mistress is of opinion that to hire occasional help is more economical than to keep always in the house a sufficient staff of efficient servants. Almost all experienced housekeepers decide, however, that this opinion, except in very exceptional cases, is a mistaken one. The expense of a charwoman is not defrayed when her wage is paid. At a very moderate calculation she costs, in money *value*, quite as much as the money she receives. She considers herself entitled to the best of food and to plenty of beer; and such is the influence of example that the servants, when she is present, think they ought to have the same. Besides this, it is to be feared that, in some instances, she regards as her perquisite, and takes possession of, various little items in the way of tea, sugar, cold meat, bread, soap, and any little thing that may happen to be lying about, enough to prove of considerable assistance to her for some days to come. Charwomen, as a rule, belong to an ignorant class. Their entrance into a house is often liable to demoralise the servants. They bring information about the habits and customs of other mistresses and other servants which is enough to upset the most amiable and reasonable young woman, and to convince her that opulence and freedom reign everywhere excepting in the particular house in which she happens to dwell, and that kindness and generosity characterise all employers but her own.

A little observation will convince any one that the houses where charwomen work regularly are the houses where the servants are continually changed, and also where there are the most frequent complaints of too much work and too little pay. Considerations of economy, as well as of comfort, lead to the employment of an extra servant rather than to the occasional engagement of a charwoman. Of course, there are exceptions to every rule, and charwomen are occasionally to be met with who are helpful and kindly and reasonable. But they are rare, and the mistress who is so fortunate as to engage such a one is to be congratulated.

That is one side of the question. The other is that a charwoman's life is, at best, a very hard one. It is all spent in doing disagreeable dirty work—such work as the regular domestics regard as too hard for themselves. In nine cases out of ten the charwoman is either a widow, with children to support, or a married woman whose husband does not earn enough to keep up the home, and who, therefore, has to take her share in providing the money for necessaries, while it may be she has, at the same time, the care of little children. She comes daily into homes very different to her own, where plenty reigns, and where, perhaps, the pampered menials throw away what would be so gladly welcomed by her own children; where inmates scarcely ever regard her with sympathy, but only look upon her as a disagreeable adjunct to what is to them an unpleasant necessity, the washing day or the thorough clean. When we remember all this, and remember also that she is ignorant, that no elevating or refining influence has been brought into her life, can we wonder that her one idea appears to be to get as much out of her employers as she can? Let us extend to her a little human sympathy, and being so much more fortunate than she, be careful that we do not fall into the same mistake, and repay extortion with undue exaction.

Chasing.—Chasing and embossing are terms used in the plate-working branch of our metal manufactures, the terms being used respectively as the work is superficial or deep. It was a branch of ornamentation used by the gold and silver workers of very ancient times, and relics of their work show how greatly many of them excelled in it. It closely resembles engraving in its nature, and embodies the effects of linear decoration with those of relief, diversity of surface, texture, and colour. Work of this kind is often of high artistic excellence, and very costly. The method of performing

the work is a simple one. The article from the hand of the brazier passing into that of the artist, he transfers his design to its surface by the aid of tracing-paper. The parts that are to project considerably are bulged out from the inside if the object to be ornamented is a hollow one, such as a tankard or tea-pot, and the lines to be sunk are indented by the aid of blunt steel punches of various kinds and shapes. Some parts of the ornaments are soldered on, and the rest of the work is finished with gravers, burnishers, &c. In some silver articles thus ornamented, particularly where figures are introduced, a fine dead white or malled ground appears, which is obtained by the application of heat from a charcoal fire, combined with pulverised charcoal and saltpetre applied over the surface to be thus changed, and a pickle of *sal enixum* applied after a red heat has been obtained. In some of the very rich and massive pieces of plate, the designs are first carefully modelled in wax, and then copied in plaster of Paris, before they are transferred to the metal.

Chasuble.—This is a vestment worn principally in the Roman Catholic Church, and for a short period after the Reformation was known as The Vestment in the Church of England. Originally its form was that of a circle, with an aperture in the centre through which to pass the head. It is now more pointed in form. Chasubles are sometimes plain and sometimes elaborately embroidered with coloured silks. Velvet, satin, and silk are the proper materials, but sometimes plain linen is used.

Chatelaine.—The real meaning of this French word is "lady of the manor;" but in England it is always understood to refer to a chain attached to a lady's waist, with numerous appendages in the form of useful articles, such as keys, scissors, thimble-case, pincushion, penknife, pencil-case, &c. The Roman ladies wore chains with lockets and keys and various trinkets. Within the last few years the fashion of wearing chatelaines has been revived. They, with their appendages, are usually of steel or silver.

Chattels originally meant movable goods, but now the term applies to all sorts, movable or immovable, except such as are in the nature of freehold, or parcel of it. They are either (1) *personal*, i.e., belonging immediately to the owner's person, and for which, if they are injuriously withheld from him, he has the remedy of a personal action; (2) *real*, which either do not appertain immediately to the person, but to some other thing by way of dependency, as a box containing title-deeds and documents relating to land, or issue out of some immovable thing, as a lease or rent for a term of years, and which concern the realty, *i.e.*, lands and tenements, for instance, an interest in advowsons, statutes, and the like.

Cheapness, Advice on.—In the matter of buying it should always be remembered that cheapness alone does not constitute sufficient reason for the purchase of an article. It may be of very inferior quality, or damaged, or in some way defective, and all these things should of course be taken into consideration. Excessive cheapness affords fair ground for suspicion in some direction or another; and as a rule it will be found that those purchases which are made at a fair average price will give in the end the greatest amount of satisfaction. On the other hand, what reduction in price may be obtained by paying cash instead of taking credit must always be regarded in the light of honest and thoroughly satisfactory economy. (*See* BARGAINS.)

Checks.—The method of weaving materials into checks is an ancient one, and the fabric is said to be stronger when the lines of threads cross each other in a rectangular form. There are linen and cotton checks: the former have a fine and silky appearance; the latter are strong and somewhat rough in character, and are used chiefly for aprons, for pinafores worn by workers in mills, for shirting worn by sailors, for dusters, &c. Checks are made principally at Kirkcaldy, in Scotland, and Blackburn, in Lancashire.

Cheddar Cheese. (*See* CHEESE.)

Cheese was well known to the ancients. It is mentioned in the Bible: for in the first book of Samuel we are told that David was directed to take ten cheeses to the captain of his brethren. It is mentioned, too, in the works of Homer, Aristotle, Euripides, and Theocritus. It is simply milk or cream curdled by being warmed and mixed with rennet, after which the curd is separated from the whey, reduced by pressure to a solid mass, and occasionally salted, dried, and coloured. It is the usual form in which caseine (*see* CASEINE) is presented as a separate article of food.

The quality of cheese depends chiefly upon the kind of milk of which it is made. The best cheeses are those which contain a certain proportion of the constituents of butter. There are three principal kinds of cheese—cream cheese, whole milk cheese, and skim milk cheese. In the very richest cheeses, cream is added to the milk to enrich it. In the poorer kinds it is made from milk twice or thrice skimmed.

It is not entirely the quality of the milk, however, which determines the quality and flavour of the cheese. The completeness with which the curd is separated from the whey, the addition or omission of colouring and flavouring ingredients, the length of time allowed for ripening, the temperature of the place in which it is stored—all influence it, and alter its character so decidedly as to make a perceptible difference in its taste.

Cheeses are generally named after the particular localities which produce them. Amongst the cheeses most celebrated in England and abroad may be mentioned:—

Stilton cheese—which is the finest made in England. It owes its excellence to the rich pasture on which the cows are fed, and also to the introduction into its composition of additional cream. It is principally made in Huntingdonshire, Leicestershire, Rutlandshire, and Northamptonshire, and in shape is twice as high as it is broad. This cheese ripens and

becomes mellower with age. In order to improve its flavour it is frequently kept in a warm situation, and is wrapped in straw. Holes are pierced in it, and port wine is poured into these in order to improve its flavour. This cheese, and also the *Brie* cheese of France, which somewhat resembles it, are known all over the world. Stilton cheese is liable to ferment and burst during the process of manufacture, owing to the difficulty of expelling the whey from curd containing butter.

Cottenham cheese is not unlike Stilton cheese in taste and appearance, but the cheeses are differently shaped, being flat instead of high.

Cheddar cheese may be taken to represent the average composition of a whole milk cheese. It is made in Somersetshire, where the rich pastures yield grass which give to it a peculiar flavour. During the process of making it the whey is several times skimmed off, beaten, and poured again over the curd to scald it. It is a fine spongy kind of cheese, and contains a quantity of fatty matter. It is made into round thick cheeses of a considerable size. It is considered by connoisseurs to be little inferior to Parmesan.

Cheshire and *Gloucester cheeses* are named after the places noted for them. They are famous in every English household. The Cheshire and the double Gloucester are made entirely from new unskimmed milk; the single Gloucester from half new, half skimmed. A smaller proportion than usual of rennet is used in turning the milk for these cheeses, and this it is that renders them so delicate and mild in flavour. They are often made up in large round cheeses, from 100 to 200 lbs. in weight.

Wiltshire cheese is like inferior Cheshire or Gloucester cheese. The outside is generally coloured with red ochre. In the same way, Norfolk cheese is dyed yellow with saffron.

Suffolk, *Essex*, and *Sussex cheeses* are made from milk thrice skimmed. They are so hard that they have been made the subject of many a joke. It is said of the Suffolk Bang cheeses that "dogs bark at them, pigs grunt at them, but neither of them can eat them."

Derbyshire and *Dunlop cheeses* are white and buttery. They very much resemble each other.

Lincoln cheese is very rich; it is made from a mixture of new milk and cream. It will not keep longer than a month or two.

American cheese is made from skimmed milk, of which about a gallon is usually required to make a pound of cheese. The manufacture of this kind has increased to a very great extent in the United States and Canada during late years; for while in 1850 the quantity produced was but 1,000,000 cwts., in 1875 it exceeded 3,000,000 cwts.

Cream cheeses vary considerably in composition. Sometimes they are made from raw cream only, sometimes from a mixture of milk and cream. They are made from the fresh curd moderately pressed, and in small oblong or square cakes. They are not allowed to ripen. These cheeses are made at Bath, York, and elsewhere.

Neufchâtel cheese is imported into England in little pillars. It is very much like the best British cream cheeses in quality, but when it is exposed to the air it does not run into a liquid as they are apt to do, but shrinks and dries up. It can seldom be obtained until it has been kept for some time, and then vegetable growths appear on it, which impart to it an offensive odour. Cream cheese is more digestible than ordinary cheese.

Among the foreign varieties of cheese, *Parmesan* is perhaps the most celebrated. It is made of skimmed milk, and owes its rich flavour to the fine sweet herbage of the meadows of Lombardy, about Parma and Pavia, where the cows are pastured. It is prepared in a peculiar way with a good deal of labour and trouble, and is flavoured with saffron. It is distinguished by its power of keeping, and after being kept for some time becomes hard, and needs to be grated before it can be used.

Gruyère cheese is made in a small town in Switzerland in the canton of Friburg. It is very popular on the Continent. It is firm and dry, and very strong in flavour, and is not generally liked by English people. It is prepared from a mixture of goats' and ewes' milk. Gruyère and Parmesan cheeses are used in the preparation of macaroni and other foods. Swiss cheeses are frequently flavoured with herbs. Besides Gruyère and Neufchâtel, *Schabzieger* is one of the principal Swiss cheeses.

Roquefort is the best French cheese. It is prepared from ewes' milk, and posseses a peculiar flavour, which Baron Liebig tells us it owes entirely to the places where the cheeses are kept during maturation. Roquefort, although scarcely so rich, somewhat resembles Stilton cheese. The *Dutch cheeses*, like the American cheeses, are made from skimmed milk. Ordinary Dutch cheeses are made from milk thrice skimmed. The variety most highly esteemed is the *Schapekase*, or ewes'-milk cheese. *Edam* cheeses are very highly salted. The best Dutch cheeses are named *Gouda* cheeses. They owe their peculiar flavour to the muriatic acid which is used instead of rennet to turn the milk. They are in a round form, and weigh from three to fifteen pounds each. In *Westphalian cheese* the curd is allowed to become slightly sour before being pressed. These cheeses are formed into small balls or rolls, which weigh from one to two pounds. *Italian cheese* is exceedingly salt, from being preserved in brine. It is only used as an accompaniment to macaroni. *Bavarian cheese* is very much like Swiss cheese, and is often sold for it in Austria, France, and other countries. Amongst other foreign kinds may be mentioned *Camembert*, a French cream cheese; and *Gorgonzola*, a fine Italian cheese, somewhat resembling a rich Stilton.

Cheese is generally chosen by taste, some preferring one kind and some another. Strong pungent cheeses are the most economical. People who live in towns will find it best to buy cheese as they want it; those who live in the country may buy a large piece in the autumn for winter use. When a whole cheese has been purchased, it is frequently found that it becomes dry before it can be used. This may be prevented by cutting off as much as is

required for present use, and spreading a thin layer of butter over the cut end, and afterwards tying a cloth or strong brown paper over the place. The cheese should be stored in a cool and damp rather than dry situation. Cheese that is too dry for eating may be stewed or toasted. As a rule, it will be found that the poorer the cheese is, the better it will keep. Almost all varieties, however, if well salted and perfectly freed from whey, may be preserved for years.

Cheese, American. (*See* the preceding article.)

Cheese-cakes are now understood to mean any delicately-flavoured preparation of custard, more or less rich, baked in pastry. They are thus named because the original country cheese-cakes were made, like cheese, from the curd of milk which had been curdled with rennet. Cheese-cakes are usually named after the flavouring ingredient; thus there are lemon cheese-cakes, almond cheese-cakes, savoury cheese-cakes, orange cheese-cakes, &c. All cheese-cakes are served cold.

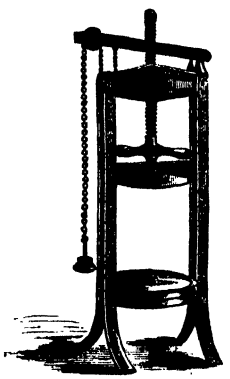
Cheese-cloths are coarse cloths used in the manufacture of cheese. When the curd is formed, the vat in which it is to be pressed is covered with one of these cloths, and the curd is put into it with a skimmer, and pressed down with the hands occasionally. When a sufficient quantity has been used, the cheese is subjected to pressure for an hour or two, when it should be taken out, and another cheese-cloth put round it; and so on till the cheese is dry. It is most important in making cheese that the cheese-cloths should be changed frequently, as if this is not done the cheese will not dry equally.

Cheese-hoppers.—Cheese is very liable to become the seat of growth of various animal organisms. The larvæ or maggots of a fly (*Piophila casei*, or *Tyrophaga casei*) flourish upon it. These constitute what are called hoppers or jumpers. The best way of preserving cheeses from this insect is to rub or brush them frequently, and to store them in a dry airy place. Decayed cheese should not be allowed to stand near sound cheese, as the mischief, if it does exist, is sure to spread.

Cheese-mites.—The common cheese-mite (*Acarus domesticus*) is found in almost every kind of cheese that is a little decayed, and especially in the harder parts. It exists in great numbers, and is so small that its form can only be observed by the microscope. The individuals gather together in groups in the hollows and chinks of cheese, and they set to work and gnaw away at the substance, reducing it to a fine powder. If this powder is examined under the microscope, it will be found to consist of larvæ, cast skins, and fragments of cheese, eggs, old and new, cracked and empty, and excrement, in addition to numerous spores of microscopic fungi. These mites are daily swallowed in large quantities by careless cheese-eaters, but it does not appear that any harm results from the practice. If it were so, there would be numerous instances of suffering recorded, but there is not one. There are other species of mites found on cheese, but this one is the most common. The production of mites in cheese may be checked by pouring spirits into the affected parts.

Cheese of Fruits.—An agreeable confection made by boiling various fruits in water till they are soft enough to press through a sieve, and afterwards boiling the pulp with sugar till they will solidify when cool. The preparation, when done enough, is poured into small tin moulds which have had powdered sugar sprinkled upon them. Stone fruits, such as cherries and plums, make the best cheese. Gooseberry cheese is also made. Fruit cheeses are generally used for dessert.

Cheese-press.—When cheese is made in small quantities, the whey is expelled from the curd in rather a clumsy fashion, and the cheese is pressed by means of weights piled on the cheese-vat. When it is manufactured in factories, proper cheese-presses are employed, which are much more convenient in their application, and more uniform in their results, than the old apparatus. These improved cheese-



CHEESE-PRESS.

presses usually depend upon the action of a lever, and they are, as a rule, ingeniously contrived and elegantly formed; but for all that, the process of cheese-making is with them the same as of old. There are nearly 2,000 cheese factories in the United States and Canada, where cheese is produced in large quantities. During the last five years a few have been opened in England also.

Cheese-scoop is a small instrument used for testing cheese. It is of a cylindrical form, and can be pushed right into the centre of the substance. It is mostly used in trade, for the satisfaction of purchasers, by vendors who wish to try the quality of a cheese without cutting into it. Ornamental cheese-scoops of silver or plated metal are also used at table. They are used for Stilton and similar cheeses.

Cheese (Uses).—There are good reasons for regarding cheese as wholesome and valuable food, but its true position as an article of diet has not been entirely established. Chemically con-

sidered, it is exceedingly rich in nutritive elements; indeed, a good specimen of cheese, properly used, constitutes an article of considerable dietetic value, for the proportion of nitrogenous matter in a given weight far exceeds that of meat. Besides this, its readiness for use at all times, without any trouble of preparation, the ease with which it can be transported from one place to another, the satisfactory way in which it can be preserved for months and even years, all commend it to popular favour. Of course cheeses vary in quality; but the poorer the cheese, the greater the proportion of flesh-forming food that it contains, and the richer the cheese, the larger the proportion of fat or butter.

English people consume more cheese than any other nation upon earth. Amongst the poorer inhabitants of rural districts, such as Somersetshire, Wiltshire, and Dorsetshire, the cheaper kinds of cheese are largely used instead of meat; while those who can obtain meat employ cheese rather as a relish to be eaten with bread than as a direct article of nourishment. The inhabitants of the United States use about half as much cheese as the English do. Many well-informed people are of opinion that cheese is worthy of a more liberal consumption than now is afforded to it. Standing in the way of its more liberal use there is a wide-spread belief that cheese is difficult of digestion. This is to a certain extent true, and those who have delicate stomachs find it very objectionable on this account. For healthy and physically strong individuals it is most wholesome and excellent food. The hard-working man who is in the open air all day, and who exercises his muscles continually, and whose digestive organs are in perfect order, would do well to expend his money in cheese rather than in meat, for it contains double the quantity of nutritive matter. It must be remembered, too, that the digestibility of cheese varies according to its nature. The poorer kinds of cheese—those made from skimmed milk, and which, therefore, contain the largest proportion of casein—are by far the most difficult to digest. The softer stronger-tasted cheeses, which contain a larger proportion of butter, are much more easily digested.

Whether cheese is considered digestible or not, there is a popular belief that it possesses a power which makes it valuable, particularly after taking other food, and that is the power of promoting the digestion of other food. Shakespeare formulated this idea when, in *Troilus and Cressida*, he made Achilles say, "Why, my cheese, my digestion!" This belief is well founded. Caseine, which forms the base of the substance called cheese, is easily decomposed, or put into a condition in which it causes other things to change. When introduced into the stomach it starts a change in the food; and this is right, for unless the food is placed in a condition of change, it cannot be converted into chyle. Therefore cheese taken in small quantity aids the digestion of other food, by its stimulating action on the stomach. This is probably why so many people have acquired the habit of taking a small quantity of cheese after food.

It is not generally known that cheese is liable, in the process of decay, to develop poisonous qualities. The instances of this have been chiefly observed in Germany, but a limited number of cases have also been met with in Cheshire. Dr. Pavy says—"The symptoms produced from cheese-poisoning have very much resembled those arising from sausage-poisoning, viz., gastro-intestinal irritation, with great depression. They have shown themselves within half an hour, or a few hours, after the cheese has been eaten. According to Westrumb, poisonous cheese presents no peculiarity in its appearance, taste, or smell; but Hünefeld says that it is yellowish and tough, with harder and darker lumps interspersed, and that it has a disagreeable taste, and becomes flesh-red instead of yellow under the action of nitric acid."

Cheffonier, or Chiffonier.—This is an ornamental and useful piece of furniture which has a place in every well-furnished house, and is found convenient in nearly every room. It has a drawer, and is a cupboard, and may serve as a small sideboard, being at the same time plain or elaborately ornamental, in keeping with the other furniture of an apartment. It is useful in the ordinary parlour, is not out of place in the drawing-room, and in the dining-room will serve as a kind of supplementary sideboard.

Chelsea China.—This is one of the oldest kinds of English china. It is said that the manufactory was established by the first Marquis of Hertford; it stood in that part of Chelsea now known as Cheyne Walk. Workmen from Dresden, and clay from Saxony, were brought over, as at that period it was supposed that the particular clay required for porcelain could not be obtained in England. The early specimens were made to represent Oriental china, which was at that period highly prized. The French style was next copied, and later that of Germany. King George II. took much interest in this manufacture. In the latter part of the eighteenth century it was transported to Derby. The first specimens of Chelsea china were marked with an embossed oval, on which was a raised anchor; the later productions bore a red or gold anchor; in some instances two anchors were impressed.

Chemicals.—As chemistry has to deal with the constitution of all bodies, organic as well as inorganic, the range of substances that may come under the designation of chemicals is almost unlimited. The term is, however, more specifically restricted to those articles, either simple or compound, which are in general use in the laboratories of experimental, manufacturing, and pharmaceutical chemists. Amongst these will be included many of the elements, the more important of the acids, the alkalies, a wide range of salts and minerals, alcohols, ethers, and other organic compounds. Many of these are requisite for the purpose of analysis, and others are used in immense quantities by manufacturers. Those which are of chief importance will be found described under their several names or classes.

The elements, so far as they are at present known, together with their atomic weights, are given in the following table. Some of these occur in their native state, but almost all are generally found in combination with some other element or elements. The last that has been discovered is gallium, as lately as 1875, and its atomic weight has not yet been determined:—

Elements.	Atomic Weight.
Aluminium	27·5
Antimony	122
Arsenic	75
Barium	137
Bismuth	210
Boron	11
Bromine	80
Cadmium	112
Cæsium	133
Calcium	40
Carbon	12
Cerium	92
Chlorine	35·5
Chromium	52·5
Cobalt	59
Copper	63·5
Didymium	96
Erbium	112
Fluorine	19
Gallium	
Glucinum	9·2
Gold	197
Hydrogen	1
Indium	76
Iodine	127
Iridium	197
Iron	56
Lanthanum	92
Lead	207
Lithium	7
Magnesium	24
Manganese	55
Mercury	200
Molybdenum	96
Nickel	59
Niobium	94
Nitrogen	14
Osmium	199
Oxygen	16
Palladium	106
Phosphorus	31
Platinum	197
Potassium	39
Rhodium	104
Rubidium	85
Ruthenium	104
Selenium	79·5
Silicon	28
Silver	108
Sodium	23
Strontium	87·5
Sulphur	32
Tantalum	182
Tellurium	129
Thallium	204
Thorium	238
Tin	118
Titanium	50
Tungsten	184
Uranium	120
Vanadium	137
Yttrium	62
Zinc	65
Zirconium	89

Chemise.—This article of female underwear is made of fine linen or calico, and trimmed with embroidery, frilling, or lace. *Chemises are cut in different styles*, according to the width of the material, but the quantity required is usually from two yards to two yards and a half. Those purchased ready-made are frequently made of very wide calico, and are cut without gores. In the present way of making them they have no seam on the shoulder, and no sleeve put in. A band of insertion goes round the neck. Small tucks ornament the front, and embroidery is sewn round the neck and arm-holes.

Chemisette.—This article of feminine attire is worn under a low bodice, and is, in point of fact, a habit-shirt, cut low instead of high at the neck. It is trimmed with embroidered insertion, lace, muslin edgings, or blonde lace, and tulle puffings, which should be just seen above the edge of the bodice. At present its use is rather superseded by the practice of sewing the lace or quillings of tulle on the body itself. The chemisette was known many years ago as a "tucker" or "modesty," and habit-shirts are called chemisettes in France. The puffings of tulle and lace which fill up the front of a V-bodice are sometimes called by this name.

Chemists and Druggists.—Persons selling or compounding poisons, or assuming the title of chemist and druggist, are required to be qualified, and to pass an examination to prove such qualification, before being admitted to practise. A register of qualified practitioners is directed to be kept, and their assistants and associates are also required to be registered. The Acts affecting chemists and druggists are the 55 Geo. III. c. 194; the 15 & 16 Vict. c. 56 (the Act for Regulating the Qualifications of Pharmaceutical Chemists, 1852); and the 31 & 32 Vict. c. 121 (the Pharmacy Act, 1868).

Chenille.—This passementerie is so called from its supposed close resemblance to a species of caterpillar—*chenille* being the French word for caterpillar. This twisted velvety thread presents a very handsome appearance. Fringes and tassels are made of it, besides many other ornamental trimmings for dresses and mantles. For needlework it is sometimes brought into requisition; probably it would be oftener used were it not for the difficulty of procuring variety of colours and difference of shades, and also if the work were not so expensive; for chenille is sold by the yard, and some colours cost 3d. and 4d. per yard. For needlework the soft chenille is required—not that made on fine wire. Berlin silk canvas is the proper kind, and the stitch worked should be tent-stitch. Short needlefuls must be taken, as the chenille is spoilt if it is passed very often through the holes, and the pile is soon worn off if the thread is not carefully drawn through the canvas. Flowers look specially handsome and

natural when worked in chenille, particularly those flowers which are of a velvety nature, such as the auricula. If the canvas is grounded, wool is used.

Chenille Needles.—These needles have wide eyes, because the chenille is easily injured, and the thread would be rubbed bare if it could not pass through the needle without difficulty. Unlike rug needles, these have sharpened points.

Cheque-book.—A book used by a person who has a banking account, and containing blank cheque forms (*see* BANK CHEQUES) and counterfoils on which may be entered the principal particulars of cheques filled up and paid away or otherwise disposed of. These counterfoils are retained for the purpose of comparison with the pass-book (*see* BANK BOOKS) that any error or wrong payment by the bankers may be readily detected. Cheque-books should never be left lying about, but always kept under lock and key; if this rule be strictly adhered to, the risk of forgery by abstraction of blank forms, &c., may be to a great extent avoided. Bankers generally charge their customers for cheque-books at the rate of 1d. for each form, this being the cost of the impressed stamp only.

Cheques, Bank. (*See* BANK CHEQUES.)

Cheques on Bankers, Crossed and Open. (*See* BANK CHEQUES.)

Cheques, Rules respecting. (*See* BANK CHEQUES.)

Cherries (Liqueurs).—Kirsch wasser, or eau de cérise, is a liqueur prepared from bruised cherries, and makes a dangerously strong and seductive cordial. Maraschino is also made from the cherry, but this is obtained by distilling the pulp of the cherries mixed with honey. The best maraschino is made by the Italians from the Marasca cherry, which grows plentifully in Dalmatia—the choicest near the town of Zara. Imitations of maraschino are made by using the kernels of the Morella cherry, and also by sweetening and flavouring Kirsch wasser, but they fall short of the piquancy of the real mixture. Kirsch wasser is a common liqueur amongst the Swiss and Germans, and increases in quality and value with age.

Cherries, Preparations of.—Cherries are used for making jam, syrups, sweetmeats, tarts, entremets, puddings, paste, cheese, and endless other compounds which the ingenuity of the cuisinier has invented. (See "Cassell's Dictionary of Cookery.")

Cherries (Various).—The cherry (*Cerasus*) is generally regarded as a native of this country as well as of the south of Europe, although it has been contended by some that it has only been naturalised in these countries, having been originally brought from Kerasunt, on the shores of the Black Sea, from which place they say it takes its name. Cherries were grown in England in Saxon times, and were used in the fourteenth century in the preparation of broth. They were called *chyryse*, and there is a Saxon word nearly resembling it. Whatever may have been its origin, it has long been, and deservedly remains, one of the most popular of our stone fruits. Of garden cherries there are a great variety. These have been classified by Dr. Robert Hogg into two chief classes—the Geans and the Griottes. The Geans (*guigne*) are the heart-shaped fruit, the juice of which is sweet; and in this class we have Black and Red Geans, and the well-known Black and Red Hearts. In the Griottes the fruit is round, like an apple, and the juice slightly acid. The Morella belongs to this latter class, though it sometimes inclines a little to the heart shape. In this class there are four varieties—namely, Black and Red Dukes and Black and Red Morellas. The wood of the cherry-tree is much used by turners and cabinet-makers, and for musical instruments. In its wild state, the *Cerasus avium* grows very freely, and is very valuable as a timber tree. The gum of the cherry-tree is said to be very nourishing; and Hosselquest, the Swedish botanist, tells of a siege in which one hundred men were sustained for two months chiefly upon this gum.

The cherry-tree is a hardy plant, and ripens in Norway as far north as lat. 63°, and in some parts of Germany the high-roads are lined for many miles together with avenues of cherry-trees. The fruit of the cherry-tree is wholesome, cooling, nutritive, laxative, and anti-scorbutic, but should not be too freely indulged in in a raw state.

Cherry-brandy is made from the black Morella cherry, or from the black geans. Care should be taken, however, to remember that the former is slightly acid, and the latter sweet, so that they will require different treatment as to sweetening. The fruit should be gathered before it is quite ripe, and carefully crushed before being added to the brandy. (See "Cassell's Dictionary of Cookery.")

Cherry-laurel.—This is a common shrub, to be found in most country gardens, and is often mistaken for the true laurel or sweet



CHERRY-LAUREL.

bay. In botany it is called the *Cerasus Laurocerasus*, and is readily propagated by seeds, layers, and cuttings. The leaves and kernels

of the small berries abound with prussic acid, and are therefore highly poisonous, and should never be used for cooking purposes except with great caution. They are good for flavouring sauces and puddings, but for the reason just given should be sparingly employed. A decoction made by macerating the leaves and steeping them in water is the celebrated laurel water, or cherry-laurel water, sometimes still used for medicinal purposes, but which is by no means a safe mixture in ignorant hands.

Cherry-wood.—The wood of the cherry-tree is employed in the construction of some articles of furniture, as chairs, and is both neat and durable. The stems of tobacco-pipes are often made of the cherry-tree, and so are tobacco-pipes, and sundry small articles, as boxes, &c.

Chervil.—This is a very old-fashioned pot-herb much valued by housewives for use in soups and garnishing. It is a small plant (*Anthriscus cerefolium*), and grows freely in most soils. In Scotland it is commonly called myrrh by the peasantry. Its leaves emit a strong aromatic flavour, which is much liked by bees, who are sometimes charmed back to their hives by the smell of it. The roots are poisonous, but the leaves, which are tender, add a relish to a salad. The ancients used to make a dish of it by serving up with oil, wine, and gravy. It is much grown in France, and some varieties make a really ornamental border for flower-gardens.

Chess.—The origin of the game of chess is involved in much obscurity; it is, however, certain that it, or a game very like it, was known in Hindustan some five thousand years ago. Thence it seems to have spread through Persia and Arabia into Europe, taking up a strong position everywhere, on account of its intellectual nature and absorbing interest. Chess, like draughts, is played upon a board containing sixty-four squares, and coloured black and white or black and red alternately. This board should be so placed that each of the two players may have a white square at his right hand. Each player has sixteen pieces or men at his disposal, one set being, for the sake of distinction, white, and the other black or red. These chessmen are generally constructed of boxwood, ebony, bone, or ivory. It may be remarked *en passant* that, although chessboards are sometimes coloured black and red instead of black and white, and although chessmen are sometimes red and white, it is usual to speak always of black and white squares and black and white men. The sixteen pieces allotted to each player are of six kinds, as follow:—

Eight Pawns (abbreviated P), and represented in chess diagrams . 

Two Knights (Kt) . . . . . 

Two Bishops (B) . . . . . 

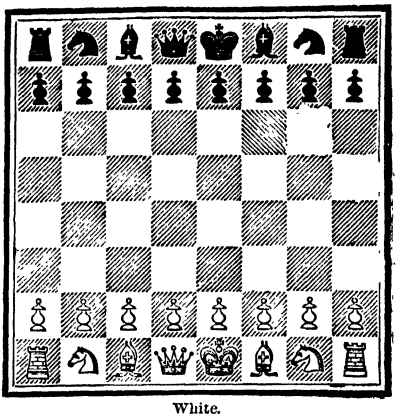
Two Rooks (R), sometimes known as Castles . . . . . 

A Queen (Q) . . . . . 

A King (K) . . . . . 

These pieces are arranged on the chessboard at the commencement of a game, as is shown in the accompanying diagram:—

Black.



White.

It will be seen that the rooks occupy the corner squares; next to each rook is a knight; next to each knight a bishop, leaving the two centre squares on either side for the king and queen. The position of this last is determined by her colour, for it should be noted that the queen always starts on a square of her own colour—the black queen on a black square, the white queen on a white square. The pawns are ranged in the second row, in front of the other chessmen, and are distinguished in chess parlance by their position at starting. Thus—it being premised that the rook, bishop, and knight on the right hand of the king are known as the *king's rook* (K R), *king's bishop* (K B), &c.; while those on the left hand of the queen are known as the *queen's rook* (Q R), *queen's bishop* (Q B), &c.—the pawn standing before the king's rook is known as the *king's rook's pawn*, that before the king's knight as the *king's knight's pawn*, and so on.

And now to explain the powers and moves of the different pieces. The *king* can move in any direction over the board, but only one square at a time, and that only when not prevented by the interposition of a hostile or friendly piece. Of course, if the interposing piece may be captured, well and good; the king then (and this holds good of *all* cases of capture) takes up the position previously occupied by the captured piece. The *rook* can move any number of unoccupied squares in a straight or horizontal line, to the right or left, backwards and forwards indiscriminately; he may capture a hostile piece at any distance from him on his line of march, if all the squares between be unoccupied, but he cannot leap over a piece, the power of performing this feat being reserved to the knight alone of all the chess-pieces. The *bishop* moves diagonally only,

backwards and forwards, over the whole length of the board, subject to the interposition of other pieces, as with the rook. The diagonal movement of the bishop keeps it always on squares of the same colour as that on which it started; but since each player has two bishops, one of which starts on a white and one on a black square, the two combined cover all the squares on the board. The *queen* combines all the powers of both rook and bishop, and is by far the most valuable piece on the board. She can move in every direction at will, subject of course to the interposition of other pieces, which, however, if hostile, may be captured by her if desired. The movements of the *knight* are somewhat erratic, and anything but easy to describe. The length of his journey is confined to two squares, neither more nor less. This move, too, cannot be made at will, but in one particular manner, combining in fact the shortest move of both the rook and the bishop—one square horizontally and one diagonally. In this way it will be found that the square on which he alights is always opposite in colour to that from which he started. As already mentioned, the knight is the only piece allowed to pass over another; he cannot, however, move to an occupied square, unless he intend to capture the piece so occupying.

The *pawn* is the least valuable of all the pieces, and is most circumscribed in its movements. It can only advance straight forward along the line on which it is placed, and but one square at a time, except on the first move, when it may advance two squares; it is never allowed to move backwards. Should a player be fortunate enough to advance a pawn to the eighth square (the limit of the board) without being captured, he must exchange it for any superior piece (excepting a king); as a rule, a queen (as the most valuable piece) would be chosen, and in consequence, the advance of a pawn to the eighth square is technically known as "queening a pawn." The pawn cannot capture on his line of movement, but must move one square diagonally (like a bishop) to take a piece. The pawn may also capture *en passant*, which may be described as follows:—Supposing white has advanced a pawn to his fifth row of squares, and black has an unmoved pawn on his second row of squares, and in the next line on either side of white's pawn. Suppose the player of the black pawn now exercises his right of moving it two squares, white has the privilege of taking it *en passant;* that is, since the black pawn has been moved *over* the square on which it could be taken by the white pawn, the white pawn is allowed to capture it, moving up, however, to occupy the square it would have taken in capturing the black pawn if moved one square only.

The object of each player at chess is to *checkmate* the hostile king, thus winning the game. Unlike the other pieces, the king cannot be captured and removed from the board. If the king be within the line of movement of any of the adverse pieces, he is known as in "check"—that is to say, he is attacked by that piece, and he must free himself from the assault. This he may do either by capturing the piece giving check, by moving out of its range, or by interposing another of his pieces, thus covering himself from attack. As the king must always be relieved from check, so also he must not move into check—*i.e.*, he must not be moved within the range of an adverse piece. Should a king be in check, and unable to free himself from the attack, he is "checkmated."

Perpetual check consists in an alternation of checks, in which the king can only escape one attack to be subjected to another. Should this happen, the game is drawn. The game is also drawn in the event of *stalemate*. This occurs when one of the kings is in such a position that he cannot be moved without going into check, while at the same time his player has no other piece which can be moved on the board.

Once in a game each player is allowed the privilege of *castling*. This is a combined move of rook and king, the king moving two squares towards the rook, and the rook crossing over the king and taking up a position next to it on the other side. The conditions attached to *castling* are:—(1) Neither king nor rook may have been previously moved in the game; (2) there must be no piece intervening between king and rook; (3) the king must not be in check; (4) the king must not pass over or on to a square attacked by a hostile piece.

Very much has been said and written as to the relative values of the pieces at chess, and the opinions of experts differ much on the point. In Staunton's "Handbook" the following numerical estimate is given:—

Pawn	1·00
Knight	3·05
Bishop	3·50
Rook	5·48
Queen	9·94

The laws of the game of chess have never been satisfactorily settled; and at the present time such differences of opinion exist as to many minor points that we omit to supply a code.

Chest, Ailments of.—The chief of these are consumption, pneumonia, bronchitis, pleurisy, heart disease, angina pectoris, and muscular rheumatism, each of which will be found described under its respective heading.

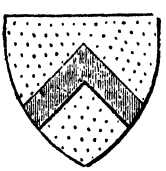
Chest for Linen, &c.—These chests are large in size, and usually made of oak, and frequently ornamented with carving. In the days when housewives spun the household linen, and took a pride in its quality and quantity, they also took a pride in the receptacle provided for it, and thus these chests were made substantial and ornamental. In the present day, these old chests are sought for with eagerness by people who furnish their houses with old oak furniture, and they are often assigned a place of honour in sitting-room or hall. Closets are used now for storing of linen, as the shelves are found to afford more convenience than a deep chest.

Chestnut.—The edible chestnut (*Castanea vulgaris*) is found in most warm countries, but its fruit does not ripen except in climates where the grape flourishes in the open air. The Spanish chestnut (*Castanea vesca*) is a stately tree, which yields a nut exclusively used as an article of food by the lower classes in many

parts of Southern Europe. It is sometimes eaten in a raw state, but is highly indigestible, and even when cooked does not suit weak stomachs. Still, it is a valuable article of food in many countries, and is boiled and eaten like mashed potatoes. It contains a large proportion of starch, and 15 per cent. of sugar, and is often ground into a flour from which cakes are made. Chestnuts can be preserved so as to keep good for several years, and in this state prove a valuable addition to the peasant's store. A sweetmeat is made of them by dipping them into clarified sugar. In this country they are chiefly used, when roasted, for dessert, and also for stuffing turkeys at Christmas-tide. There are many kinds of chestnuts, the best being called by the French *marrons*. The horse-chestnut is entirely different from the edible chestnut.

Cheval Glass.—This is a looking-glass on a very large scale. It is made to stand on the floor, and affords the advantage of the full length of the figure being reflected in it. Thus the drapery of the skirt and the general effect of the dress can be seen at once. These glasses are expensive luxuries.

Chevron.—A figure in heraldry representing the couples or rafters of a house, generally supposed to signify the foundation of his family by the bearer. The chevron consists of two broad bands joined together at the top, and descending to the extremities of the shield, as shown in the illustration. The *chevronel* is a diminutive chevron.



CHEVRON.

Chick-pea (*Cicer*).—A genus of plants of the natural order *Leguminosæ*, sub-order *Papilionaceæ*, having pinnate leaves, single, axillary-



CHICK-PEA.

stalked flowers, and two-seeded pods. The common kind (*Cicer arietinum*) grows wild in the corn-fields of the countries bordering the Mediterranean, and in many parts of the East. It is an annual, two feet in height, stiff, and covered with glandular hairs. The seeds are about the size of common peas, are curiously wrinkled, are full of farina, and have a bitterish taste. They are used as food, boiled or roasted, and are the most common "parched pulse" of the East. In French cookery they form an important article, and are called *garvance*, and in English *caravance*, but in India *gram*. This plant is extensively cultivated in the latter country, as also in Egypt and Syria. Its cultivation extends as far north as the south of Germany; but the climate of England does not agree sufficiently well with it to make a crop profitable. The seeds of the chick-pea form one of the substitutes for coffee, while the herbage serves as nutritious food for cattle. This plant has been in use from the earliest times. It has a curious peculiarity which deserves mention—viz., in great summer heats it perspires, and the drops that exude from it leave crystals of almost pure oxalic acid.

Chicken-pox (*Varicella*).—This is a contagious and infectious disease, characterised by a specific eruption, which makes its appearance on the trunk, face, and extremities, and runs a definite course in about ten days. It chiefly attacks children, but when epidemic no age is exempt. The exact nature of this disease has given rise to much learned controversy. One eminent authority, who had carefully studied it during an epidemic, declares that it is small-pox in a modified form. Other writers equally eminent have striven to refute this opinion; and though the balance of evidence appears to be in favour of the latter, there is still some difference of opinion respecting it. Be that as it may, the eruptions of chicken-pox and very modified small-pox resemble each other so closely that, during an epidemic of the latter, it is the wisest course to consider the doubtful cases as having their origin in the poison of small-pox, and to take precautions accordingly. We have seen three children in one family attacked one after another, of whom the first certainly had modified small-pox, the eruption being both pustular and depressed, whilst in the other two cases the eruption never passed beyond the vesicular stage; and in the absence of the history of the first case, from whom they undoubtedly took the disease, they would have most certainly been said to be suffering from chicken-pox. The symptoms of chicken-pox are—first, a primary fever of more or less intensity (sometimes scarcely noticeable), which lasts from two to three days; and second, an eruption, at first a papule, then a vesicle, and subsequently an incrustation, which runs the course already mentioned. The eruption, appearing first, as a rule, on the chest and back, comes out generally in crops, then dies away in the order it occurs, and frequently leaves a pit or mark. It varies also in different cases, sometimes appearing in large vesicles or blebs, at other times assuming a globatic appearance, to which the names of glass-pox and swine-pox have been given. Very little treatment, as a rule, is required. An aperient at the outset, light and nutritious food into which milk should largely enter, and confinement to a well-ventilated room for a few

days until the rash has disappeared, are all that is requisite. The rash, if irritable, may be smeared with glycerine or cream, and children must be prevented from scratching, lest troublesome sores result. When the crusts or scabs are beginning to fall off, warm baths, with carbolic soap, will be found useful; and as this is both an infectious and contagious disease, due regard must be paid to the separation of the affected from the non-affected, especially in the case of schools and large families.

Chickens.—There is no reason for believing that the flesh of any bird is injurious to man, and the chickens of domestic poultry are generally considered more digestible than any other food. On this account they are regarded as especially suited for invalids, and are considered a delicacy by those in good health. They are served in all sorts of ways—roasted, boiled, fricasseed, sautéd, devilled, &c., and in all are good.

Various distinctive names are given to fowls, according to their age and quality. There are pullets, or hen chickens, cockerels, or cock chickens, capons, and fowls. As a rule, those chickens are the best which have white flesh, small bones, and short legs. Chickens with black legs should be roasted; those with white legs are the best for boiling. Chickens are best for being kept a day or two after they are killed. They are most easily plucked while they are still warm, and in order to make them look plump and good should afterwards be plunged just for an instant into boiling water. They should not be drawn till they are wanted, as they will keep much better without. According to Dr. Smith, the average chemical composition of the flesh of poultry when fit for market is as follows:—

Water	74·0
Nitrogenous matter . .	21·0
Fat	3·8
Salts	1·2

Chickens are the cheapest in November. Spring chickens may be procured in April.

Chickweed.—A common garden and wayside weed, called by botanists *Stellaria media*. It is an annual, and its well-known green soft leaves and little white petals may be seen all the year round. It is a favourite delicacy with many cage-birds, such as larks, starlings, and canaries. To the last-named, however, it should be given but sparingly, and principally in the springtime of the year or in summer, but not later, however, than September.

Chicory.—Chicory, which for the last century at least has been used as an adulteration of coffee, is prepared from the *Cichorium intybus*, which is a herbaceous plant, full of milky juice, and to be found in most European countries. In England it grows wild by the wayside hedgerows, but it is also cultivated largely both in this country and also in Belgium and France, and the foreign is considered superior in quality to the English. Its properties are not the same as those of the coffee-berry; and of late years, under the Adulteration Act, it has been made illegal to sell it with coffee, unless each packet is distinctly marked as containing chicory. It is by no means, however, to be regarded as valueless; in fact, it is of itself a useful article of food, and on the Continent it is largely consumed, not merely as a mixture with coffee, but as an independent beverage. Dr. Pavy says:—"In Belgium, as much as five pounds a head are used in the year, counting the whole population; and in some parts of



CHICORY.

Germany, women, it is said, are regular chicory topers." Chicory possesses an aromatic oil, starch, sugar, nitrogenous substances, and salts; and though inferior, its action is in the same direction as coffee. When mixed with the last-named, it imparts both colour and body, and is considered by most people to improve the beverage, so that it can scarcely be called an adulteration; and, indeed, the sale of coffee and chicory since the passing of the Act referred to has continued to an almost undiminished extent. Chicory is made by roasting the roots of the plant after cutting them into small pieces, the process being much the same as that of coffee-roasting.

Chicory, Adulterations of.—Chicory, although used to mix with coffee (*see* CHICORY), is itself very liable to adulteration, and a multitude of common roots are used for that purpose. Roasted beans, peas, carrots, parsnips, mangel-wurzel, acorns, horse-chestnuts, Venetian red, reddle, and red clay, dog-biscuits, logwood, and mahogany dust, and even the burnt livers of bullocks, dogs, and horses are said to have been employed for this purpose. This is a formidable indictment against a substance which has itself been forbidden as an adulterant; but an easy way to avoid the deleterious substitutes offered under its name is to buy the chicory whole and grind it at home.

Chilblains.—This is a low form of inflammation of the skin, caused by sudden changes of temperature, as, for instance, putting the hands and feet close to a fire when they are very cold. It occurs most frequently in persons of weakly constitution, whose circulation is feeble. The symptoms are itching and occasional pain, with some irregular purply redness of the skin and slight swelling. This is the first

stage, and where the disease frequently stops. In the second stage, the skin becomes darker in colour, and a vesicle or blister appears. In the third stage, the vesicle has broken, and an indolent ulcer remains. The treatment in the first stage is to rub the part night and morning with stimulating liniment composed of equal parts of compound soap liniment, compound camphor liniment, and laudanum, and keep it completely wrapped up with cotton-wool. In the second stage, care must be taken not to break the blister; the liniment must therefore be only painted on with a camel's-hair brush. In the third stage, the ulcer must be dressed with the *ceratum resinæ*. (basilicon), and wrapped up as just recommended. Tonics, especially iron, and warm clothing (lamb's-wool socks and gloves should be worn) are advisable in all these cases, as the disease is one of debility. Those who suffer from chilblains should not go too near the fire when cold.

Childbirth (Hints and Arrangements).—It is scarcely necessary to tell a prudent woman how incumbent it is upon her to arrange beforehand all that is requisite for her accouchement; a few hints, however, on this and other matters connected with it may be useful. Both doctor and nurse, then, should be engaged about the sixth month, so that when necessary the patient may know where and to whom to send. The baby-clothing (always well aired), and indeed all the usual requisites, should also be ready at the same time. This will prevent the hurry, confusion, and excitement, which are most injurious to the patient in cases of unexpected or premature confinement. The confinement should take place in a well-ventilated room containing a fireplace, and none should be admitted except those who have some duty to perform. The patient should sit up as long as possible, as the time will thus seem less; and the nurse must give her every encouragement, especially laying stress upon the fact that the process to be gone through is a perfectly natural one and free from danger. It is essential also that the nurse should be cheerful as well as skilled, and should, under no circumstances, betray nervousness. A cup of warm tea will refresh, and may be taken with safety. Should there be great exhaustion, a little brandy may be given in milk, but not otherwise, stimulants, as a rule, doing more harm than good A fit of shivering frequently comes on at this period, about which there need be no alarm, as it soon passes off. An extra blanket may, however, temporarily be placed over the patient. It is usual for the infant, upon its introduction into the world, to make its presence known by crying lustily; in the absence of this welcome sound it will be advisable to excite respiration by slapping the chest with the open hand, and this failing to produce a protest on the infant's part, then the end of a towel may be dipped in cold water, and the face and chest slapped until it cries. The infant should be wrapped in warm flannel previous to the bath, which should not be delayed. It is a prevalent custom with some people to administer a dose of castor oil to the infant soon after birth. This is a most pernicious practice, and has been attended by serious results. Should medicine be required during the nursing period, the mother should in the first instance be the recipient, as medicine thus taken will generally act upon the child through the milk. Lastly, the mother should not sit up before the tenth day, and for the remainder of the month should not undergo any physical exertion of any kind: the neglect of this precaution will often lay the foundation of much trouble and disease in after-life.

Childermas.—The 28th of December, or Holy Innocents' Day, was called Childermas, because of the services in commemoration of the massacre of the children by Herod at Bethlehem.

Children, Behaviour to.—The faults of children are to a great extent caused by the way in which they are brought up. Children who are over-indulged are almost always spoilt; children who are tiresome are those who have discovered that they can obtain their own way by importunity. We often speak of our children's faults and the best way of eradicating them, but parents do not endeavour as much as they ought to correct their own faults of behaviour towards their children.

The great principle to be observed in the treatment of children is *quiet kind firmness*. If every child were fully persuaded that when his parent commanded a thing it must be done, forbade a thing it must be left undone, promised a thing the promise would surely be performed, threatened a thing the threat would certainly be fulfilled, there would not be so many disobedient children as there are. But this is a state of things difficult to arrive at. For mothers especially, who have their children constantly about them, who are perhaps wearied by the children's play, and who long for rest and quiet, how much easier it appears to yield to the little ones, and to let them have their own way "just this once." But the momentary quiet is purchased at a dear cost. The next time the child desires anything contrary to his mother's wish, he draws on experience for his guide in action, and his importunity is increased, only, perhaps, to be successful once more, till, in a very short time, he has become one of the tiresome spoilt children who are such an annoyance and a trouble to all about them.

Let every mother and father who have allowed themselves to slide into habits of this kind resolutely set to work and watch *themselves*. Let them refrain from giving even the most trivial order that they are not in a position to enforce, or make any threat or promise that they are not prepared to fulfil, and in a very short time they will be rewarded by finding that order and obedience reign where anarchy prevailed before; and, more than that, they will find their children both happier and more contented for the change.

Children's dispositions vary so much that it would be as impossible to lay down any general rule for their treatment as it would for a physician to write a prescription which should be administered in every disease. The wise parent adapts his conduct to the character of the child. But all children are better for being

treated with kindly firmness. Passionate children should be treated very quietly. Generally speaking, it is best to wait until the storm is over before reproving them for their conduct. If any attempt is made to do it whilst in the midst of their fury, it will most likely make matters worse. Obstinate children—and there are many such—need very judicious treatment. They possess a very valuable quality, which, if rightly directed, will make them useful, strong members of society; if misdirected, will make them a misery to themselves and others. A writer of wide experience in the management of children says:—"The wisest plan to pursue with very obstinate children is to be very careful not to rouse unduly this spirit of opposition, for every encounter will but tend to strengthen it. The young child will never perceive that you refrain from commanding it to do this or that. It is impossible, of course, to avoid a conflict now and then, but I should not make it of long duration. If it steadily refuse to do a thing it is told to do, and a few trials seem to have no effect, you yourself retire from the field. 'Retire, and leave the naughty child the victor!' you exclaim. Yes; it will not care for its victory if you openly tell it that you will not force it to obey you, but that as it refuses you cannot esteem its conduct, and therefore you do not wish for its presence or companionship. You will break its will far more effectually in this way than if you strove with it unceasingly or had recourse to the rod, and it will love you all the more. It will be ashamed of its victory, and will regard it as a worthless trophy when it finds it has not had to fight for it."

One word must be said about the method of punishing children. Punishments cannot be entirely dispensed with, as all who have any experience with children know. They should, however, be exceptional, and they should be reserved for real, serious offences. Above all, they must not degenerate into a method of relieving the annoyance or the bad temper of the elders. Neither must unfortunate occurrences, which arise from accidents or from mere exuberance of spirits, be met with punishment. If they are, a sense of injustice may rankle in the bosom of the child which will produce lasting injury.

Children, Clothing of.—The question, "What must we provide for the children's clothing?" is one which has to be regarded in varying aspects. In some homes it is merely a question of taste. The mother needs only to consult the children's well-being, comfort, and appearance; she decides what will be the best and prettiest for them; then she exhibits the glittering coin in the silken network, and straightway drapers, milliners, and dressmakers appear, like the good genii in the fairy tale, and all the trouble is taken out of her hands. In other homes it is an affair of contrivance and management. The children want so and so. To defray the necessary expense there is but—so much. What will be the best way of providing for their wants?

Whatever the pecuniary circumstances, however, there are some considerations which ought to influence every mother in arranging the details of her children's clothing, and it is to be feared that these are too often forgotten or ignored. The natural use of clothing is to preserve the body in health, comfort, and beauty. Therefore every mother should see that the dress of her children is adapted to the climate, is light in weight so as not to induce debility, is loosely made so as not to interfere with the functions of the body, and is simply and plainly made so as to harmonise with the position and character of a child.

If a child is to be healthy its body should be kept at a *moderate* heat. It is said that of the children born in this country, one-sixth die from the effects of cold. An infant is more susceptible of cold and has less power to maintain its own heat than a child that can run about, and consequently requires to be more carefully protected from cold. The little child needs more warmth than the youth, and the youth more than a man. If, however, too little clothing is bad for a child, too much clothing is also to be deprecated. Dr. Conquest says:—"Hot clothing is extremely detrimental; it induces great delicacy and feebleness of the frame; it is the cause of excessive and constant perspiration, which being absorbed by the clothing, renders it continually damp, and thus makes it a ready dispenser of the heat of the body. The excessive action of the skin, and the general enfeeblement of the frame thereby produced, render the constitution susceptible of the slightest impression of cold, and unfit it to encounter the common vicissitudes of weather without suffering important disturbance. An excessive temperature, sustained by a load of clothes, has destroyed many a delicate child, hurried him into a consumption, or caused him to be cut off by catarrhs, or affections of the lungs. Many good constitutions are thus ruined, and many nervous and pulmonary complaints brought on, to embitter existence, and to reduce the sufferer to the level of a hot-house plant."

So much for the dress being adapted to the climate. As to its being light in weight, it is evident that a heavy dress must interfere with the activity of a child, and prevent him moving about with his natural lightness and life. How could a little one who carried the burden of a heavy garment be said to "feel his life in every limb?" A light dress gives freedom to the limbs, and is the only one that is consistent with healthy and unfettered growth. Dr. Combe says—"Dress should be free and unrestrained, and as *light* in weight as possible;" and on this account he recommends flannel to be worn next the skin. Almost all doctors agree that flannel is particularly suitable for children's clothing. It preserves the body at an equal temperature, promotes the action of the skin, and encourages and absorbs perspiration. If the skin is tender and easily irritated, very fine flannel may be procured. None but those who have been accustomed to wear this material know how comfortable and stimulating it is. Night-dresses made of flannel are particularly good for children.

As to the dress of children being loose, it will be thought that very few mothers would be so

cruel as to fasten clothes tightly on the body of a growing child. Still, we know that fashionable mothers are to be found who, under the idea of giving to their daughters an elegant figure, permit them to wear tight stays, and so prepare the way for disease in various forms. It is said that the children of savage tribes, who are never fettered with clothes at all, but who are permitted the free use of their limbs, are able to crawl about when they are four months old, and can almost always run alone before they are a year old. In the account of the American exploring expedition in the South Seas, it is stated that the children of the islanders, themselves handsome and stately, ran about at the age of nine months. The savage Indian and American tribes, too, have exceedingly beautiful and healthy children, but their limbs are never confined with bandages. Dr. Conquest says:—"The modern art of dressing not only impedes the growth of children, but most sensibly diminishes their enjoyment, for every attentive observer must have noticed the evident pleasure experienced by them when undressed and permitted to roll about free and unharnessed. The prejudicial effects of bands tightly buttoned about the necks of children may be daily observed in the bloated fulness of their countenances, and in the difficulty of their breathing. Tight garters have, in many instances, brought on an enlargement of the knee and leg, and a diseased state of the veins, in consequence of interfering with the freedom of circulation in the lower extremities. Children that wear them are apt to fall when walking, and cannot walk so far with as without them. No custom is more injurious than that of affixing bands round the chests and waists of tender girls. The ribs, during the period of growth, are readily moulded to the artificial form admired by depraved taste, and the naturally somewhat flat, broad, and expanding waist of woman gradually becomes, by the falling in of the ribs and by their distortion, the rounded waist so pleasing to the eye of the improver and modeller of God's last, most beautiful, and perfect work. These unnatural practices, even at a very early age, have hurried many a lovely child into a premature grave, by interrupting the regular action of the bowels, impairing the energy of the digestive organs, and very frequently laying the foundation for cough and eventually for consumption."

The boots and shoes of children are a frequent cause of discomfort to them. We laugh at the Chinese for crippling their children's feet, but we do not think that in a mild way we do the same thing, and by forcing children to wear tight shoes cause them to suffer from corns or bunions all their lives. So many mothers have an idea that a child's boots must be tight at first, and that they will become easy when he has worn them a while; but the child's foot is growing. If his boot stretches with being worn his foot will, very likely, be a little stretched also, so that it is important that even with new boots the foot should enter comfortably and easily. It is said that Frederick the Great of Prussia employed an aide-de-camp to wear his new boots for him till all the stiffness had gone out of them and they were perfectly easy.

Good taste requires that a child's dresses should be *simply* made. Nothing can be more out of place than a number of frills and furbelows and flounces upon a little child. The dress of those advanced in age may be elaborately ornamented, but healthy innocent little children are in themselves such beautiful objects that they need no superficial adornment; and those who would bestow it upon them are simply decorating the frame at the risk of causing the picture to pass unnoticed.

Children, Diseases of.—It is customary to speak of the diseases of children as if they were a very large and distinct class; but this is not correct, as in reality children are subject to very few maladies which are not the common lot of all. There is, however, so great a distinction in the influence these diseases exercise upon the future life, in their great frequency, and in their enormous mortality, that they have given rise to a specialty of study, and to some extent a special classification. Statistics show that, of a thousand children born, more than a quarter die before the end of the fifth year, and at the age of fifteen only six hundred and eighty remain. Many of the diseases which make up this mortality are inherited or congenital; more are induced by unfavourable surroundings, as neglect, foul air, improper or insufficient food, &c., at an age when all the organs of nutrition are in full activity. Sick children, not being able to describe the symptoms of their malady, it is left very much to the skilled observation of the physician, aided by whatever history he can glean from those in attendance to discover its nature. This is often rendered more difficult by the foolish practice of making bugbears of the doctors and physic, thus rendering a dread of both on the part of the child difficult to overcome, which has often proved a serious obstacle to treatment in dangerous illness; parents and nurses should therefore guard against it. The chief diseases of children which may be considered special, but are not all really so, are rickets, chronic hydrocephalus (water on the brain), convulsions, measles, scarlet fever, chicken-pox, croup, whooping-cough, &c. These are described under their respective headings.

Children, Duties of.—One way of making a child conscientious and trustworthy is to give him small duties to perform. These, of course, should not be too arduous; they should be easy of accomplishment and agreeable in their nature, but the parent or teacher should see that they are punctually and faithfully performed. It would be far better not to impose them at all than to allow the child to *shirk* them. A child who has it in charge to keep a drawer tidy, to put away certain books after lessons, to water daily a plant in the garden, or to place his father's slippers ready for him, will become pleasantly conscious of being useful, and will learn something of the happiness that arises from thinking of others, in a way that must influence for good his after-life. But, excepting when a different state of things cannot be avoided, a child's duties should be merely

nominal. His life should be free from care; for there are few spectacles more sad than that of a little child becoming prematurely wise and prudent under the burden of a responsibility he is too young to bear.

Children, Education of.—The large subject of education will be discussed fully in another place (*see* EDUCATION), but a word or two needs to be said here about the best way of teaching *young* children. A child's education begins as soon as he opens his eyes to the light. During the first two years of life he is ceaselessly learning. He is learning from colour, size, distance; learning to compare, to remember, to discriminate, to judge, and to imitate. In a little while he begins the stupendous task of learning a language, and soon is able to understand and communicate human thought; for true education means a great deal more than simple book-learning—it means the cultivation of every power, mental, moral, physical, and spiritual.

Of course, every wise parent is anxious that his child should undergo as perfect a process of training as possible, and the only difficulty is how to set about the work wisely and well. Children differ so entirely from one another: one child seems to learn a thing almost instinctively, and another needs line upon line and precept upon precept. Some teachers who have spent years in the education of children have come to the conclusion that, though much may be done in the way of acquirements, very little can be done in the way of moral influence, and that each child is what generations that have passed away have combined to make him. This is partly true, no doubt, but the child's future will be regulated to a great extent by the *direction* his faculties receive; and the first efforts at direction must be made in very early life—"As the twig is bent, the tree is inclined."

The great law of education is exercise. If the intellect is to be cultivated, it must be exercised; if the physical powers are to be strengthened, they must be exercised; if the qualities of self-denial, and endurance, and fortitude, and generosity, and truthfulness are to be developed, they must be called into exercise. Thus one way of teaching a child to speak the truth is to expect him to be truthful, and to rely upon and trust what he says. Ignorant, thoughtless persons so often say to children, "Speak the truth; don't say what is not true." In doing this, they are adopting the most likely means of leading a child to be untruthful. Then in the matter of generosity and consideration for the feelings of others, expect him to be considerate, and be careful to thank him and recognise his thoughtfulness when he is so, and the amiable trait will grow with exercise. At the same time, only reasonable expectations must be formed. The late Rev. F. W. Robertson, of Brighton, once said that parents and teachers expected *too much* of their children. They are angry and disappointed if the little ones do not exhibit the ripest of virtues, and blame them if they do not exercise an implicit truthfulness and a self-abnegation which they would never think of practising themselves. This is unfortunate. A child has gone a long way in the right direction if he gives his brother *as much* cake as he keeps for himself; it is unreasonable to expect him to give away voluntarily the lion's share of the good things of his little life. How few grown-up people there are who think of dividing their treasures at all!

As to intellectual acquirements, there is not much fear that in the present day they will be neglected. The children of respectable intelligent parents—that is, of parents who are interested in the subject of education—are more likely to have this pressed upon them too much and too early than too little and too late. If they are precocious and anxious to learn, keep them back; encourage them to take physical exercise, and educate them by developing their powers of observation and discrimination rather than by allowing them to keep to their books. If the child is slow, be patient with him. Instead of forcing him to learn lessons he dislikes, and so establishing his distaste for learning, try to encourage in him a love of it for its own sake. Teach him through pictures and with games. Read pleasant little stories to him until he longs to read them himself. In nine cases out of ten, it will be found that the mental powers are not lacking; they are only dormant, and with gentle nurture and judicious care will soon become strong and powerful.

One element, and that the most powerful, in a child's education must not be forgotten. It is the influence of example. What we wish our children to be, *that* we must be ourselves. If we look back upon our own childhood, we shall acknowledge that the precepts of our parents we soon forgot; but their characters stand out and influence our lives still. It will be the same with our children. No words of exhortation are so powerful as the "living life."

Children, Manners of.—One of the strongest qualities of a child is his power of imitation, and his manners are, to a great extent, those of his companions and associates. Thus the child who lives in a refined home, and is surrounded by elevating associations, is necessarily more polite and polished in his manners than one who lives in a home where everything is done roughly, and where each one looks after and scrambles for himself. Pecuniary circumstances have nothing to do with the atmosphere of the home; the children of *rich* parents are frequently rude and uncouth; the children of *refined* parents are rarely so.

It must be understood, however, that the parent would be most unwise who trusted to the influence of association alone to form the manners of his children. There are certain little details of behaviour which need to be pointed out, and little observances to which attention must be called, and which must be daily practised, before any child can become inured to the manners and customs of good society. Attention should be paid to these while children are yet quite young. As soon as a child can feed himself he should be taught not to make a noise in eating; not to drink when food is in his mouth; to use his knife for

the purpose only of *cutting* his food; to be careful, in handling his knife, not to touch the steel part but only the ivory; to take liquid from the *side* of the spoon, and not to put the spoon itself into the mouth; to sit upright, and not to handle anything at table; to avoid leaving the table before others, or without permission; and to be considerate and thoughtful for the comfort and convenience of those about him. These may be regarded as trifling details, and it may be thought that they would come naturally to every one. It is not so, however; and they are really of importance, for they stamp the social status of a child, and show what sort of training he has had more unmistakably than anything else can. The easiest way for a child to learn to behave nicely at table is for him to take his meals regularly with those who are particular about behaviour, who notice at once any failure in good manners, and insist upon its correction. It is unreasonable to allow a child to behave carelessly every day, and then be disappointed if on some particular occasion he displays his ill manners. If he is to be depended upon to behave well in company, he must behave well regularly in private. Whatever the customs of the family may be, it is a good thing for children to dine occasionally with their parents. Their manners can then be noticed, and if they are not quite what they ought to be, means should be taken to make them so.

It is not only at meal-times, however, that good or ill manners exhibit themselves. The ordinary intercourse of every-day life furnishes ample opportunity for their exercise. Some one has defined politeness as "real kindness kindly expressed." So it is in its essence, for the secret of good manners consists in avoiding everything that would be unpleasant to others. Still, the details of refinement must be inculcated if a child is to grow up a "gentleman" or "gentlewoman;" and any neglect of them in early life can scarcely be remedied afterwards.

Children, Rearing and Food of.—We know that food does for the body what fuel does for the steam-engine; it supplies it with warmth, it repairs its wear and tear, and it gives it strength and power. With children it has to do more than this, for it has to supply the material out of which the body is to grow. Therefore if children are to become strong and hearty, if they are to be enabled to do good work in the world, they must have plenty of good wholesome food, and this food must be given regularly.

There are certain distinct functions which must be performed by food. The muscles must be repaired and maintained out of the flesh-formers, or what is called the nitrogenous substance in food; the bones must be solidified and strengthened out of the mineral element; the warmth of the body be sustained by the heat-givers or carbonaceous substances; while the work of transport and moistening must be performed by water.

When the young infant first comes into the world it is fed entirely on milk, which is the food provided by Nature for its use. Milk has been called Nature's pattern food. It contains the various principles needed for the body in their proper proportions, and it may well be taken as a guide for the kind of food required in later life. When, unfortunately, the infant is deprived of the food that ought to be his, the object to be aimed at is to procure for him food which shall resemble as closely as possible Nature's pattern food. Asses' milk, and next to this cows' milk, are more like a mother's milk than anything else; but cows' milk contains a smaller proportion of butter and a larger proportion of caseine than mother's milk, and therefore it is necessary that a little cream should be added to it, and that it should be diluted with water to adapt it to the requirements of the child. Of late years Swiss milk has been much recommended for infants' food, and certainly it is most valuable. There have been repeated instances in which this milk has agreed with a child when cows' milk could not be employed. The mother, however, who has her child's welfare at heart will not needlessly bring it up on artificial food. There is no *real* substitute for the food specially provided by Nature. As Dr. Chevasse says:—"It is impossible to imitate successfully the admirable and subtle chemistry of nature. The law of nature is, that a baby for the first few months of his existence shall be brought up by the breast, and nature's law cannot be broken with impunity." "The fact is proved," says Miss Martineau, "that in England 100,000 persons die needlessly every year, and of this number 40,000 are children under five years of age. Of all the infants born in England, above 40 per cent. die before they are five years old. Yet what creature is so tenacious of life as a baby? Those who know the creature best say they never despair of an infant's life while it breathes, and most of us have witnessed some recoveries which are called miraculous. There is also no creature so easily managed as an infant, and so easily kept healthy and happy, merely by not interfering with the natural course of things. How then can this prodigious amount of killing go on in a country where infanticide is not an institution? It is precisely because the natural course of things is interfered with that infants die as they do. Nature provides their first food, and if they do not get it, whose fault is it?"

After a time the child begins to have teeth, and their appearance may be taken as a sign that other and stronger food is required. The process of weaning should be a very gradual one, and the change from a milk diet must not be sudden. Farinaceous foods, such as *baked flour*, barley-meal, groats, rice, corn-flour, revalenta arabica, rusks, and similar substances may be added to the milk at two or three of the daily meals. Great care and cleanliness should be taken in the preparation of these foods. If they are burnt or ill made or lumpy, the delicate stomach of an infant will revolt at them. Little by little the child should have less of the breast and more of artificial food, until at last he is weaned entirely. It is very important to remember that it is not what a child swallows, but what is digested and assimilated, that does him good. Milk is so nourishing and so wholesome that a portion—two, three, or four pints daily, according to the

age of the child—may be taken with other food up to the age of five years—that is, of course, if good pure milk can be obtained, and it is an unfortunate thing for the little ones when it cannot.

When a child is twelve months old the amount of solid food may be larger than at any previous period. The growth of the system has to be provided for, besides its support and the repair of its daily wear and tear. If provision is not made for all this, the health will assuredly suffer. The raw yolk of an egg, or the yolk of an egg slightly boiled, a little good beef tea or mutton broth, or light puddings, may be given. As the child grows older the quantity of food should be increased, and the substance of it varied, although it should still be simple and easy of digestion. When the majority of the teeth have come, a little flesh meat, very finely minced and made into a savoury mess by the addition of crumbled bread, gravy, salt, and a little potato, may be given. Doctors disagree about the desirability of giving meat to quite young children. If it is provided under medical advice, well and good, but for ordinarily healthy children it is better not to give meat every day until the teeth have come. Till then the stomach is not strong enough to digest solid food, and if not digested, meat will do harm rather than good. It has a tendency to produce eruptions and to heat the system unduly. The mother must, however, decide this question for herself, according to the constitution of the child. It has been before stated that the object in providing food is to build up the system and cause the child to grow up strong and healthy. Therefore it is not sufficient that the child's hunger should be appeased. The mother should be careful to select such food as will afford the greatest amount of sustenance, and will build up a strong, healthy, vigorous constitution. Perhaps it will be best to mention some of the foods that are most likely to do this, and on this point Dr. Barker, in his work on children, gives some valuable hints. The food should at all times be that known to be most readily assimilated, and containing adequate nutriment, as, for example, *breakfast:* cold, toasted stale bread, with a small quantity of butter, honey, jelly, jam, or marmalade; good milk alone, in any quantity, or mixed with warm (not hot) water in about equal proportions, and slightly sweetened with honey or loaf sugar. Bread soaked in scalding water, then pressed as dry as possible, afterwards covered with cold milk, and flavoured with salt and sugar, is greatly relished by some children, and forms a good meal for the morning; if long persevered with it is apt to cause constipation or other derangement. Especially is this the case with skimmed milk. Sometimes it is necessary to lessen the quantity of milk, or omit it altogether for a time if, after boiling, it be still found to disagree. An excellent occasional variety will be found in pure cocoa or chocolate, boiled in a small quantity of water, and afterwards diluted with plenty of good milk. In this some bread or stale French roll may be soaked. As another change, some coarse Scotch oatmeal may be stirred in the water while boiling—the boiling to continue for twenty minutes or longer—then poured into soup-plates or saucers, covered with milk, and sprinkled with salt or sugar. This is "porridge," and forms an excellent meal in constipation, which a few breakfasts will generally obviate. Wheat-meal may be prepared in the same way. Where the child can take but little breakfast, a new-laid, uncooked egg, well beaten up, the cup then slowly filled with milk, and the whole sweetened agreeably and strained, will form a useful preliminary to the ordinary breakfast. To the age of four or five years this may be given the first thing in the morning, after which the child may, if so disposed, again sleep awhile, and on waking be encouraged to take its ordinary breakfast. *Dinner* ought not to be later than two o'clock, and should consist of a little well-made broth and a slice of bread crumbled into it. When the teeth are sufficiently numerous, the lean of nicely boiled or roasted mutton or beef, as being the most nourishing and digestible for children, may be given. This ought to be previously cut up quite small, or minced, scraped, or even pounded, then flavoured with salt, and subsequently most thoroughly chewed by the child, who must not be allowed to eat fast, and thus cause digestive derangement, besides waste of food, since if so eaten it is not assimilated, and does not nourish. More than ordinary care is necessary in this particular, children being apt to acquire a habit of rapid eating, that is sure to be followed by disturbance, so especially does healthy digestion depend on slow feeding and thorough trituration (grinding) of the food. Sameness, either as to the kind of food or the cooking, should be avoided when it can be judiciously, otherwise the tone of the stomach becomes injured. Variety has its uses also in regulating the bowels and other functions. Hares, rabbits, pheasants, partridges, poultry, pigeons, and the more digestible fish, fresh and in small quantities only, may now and then be substituted for meat. The flesh of immature animals, veal, lamb, &c., is unfit for children; so are all rich, coarse, indigestible things, as pork, goose, duck, fat and salted meats, which often give rise to sickness, spasm, looseness of the bowel, skin diseases, &c. Rich cakes, pastry, new or heavy bread, and sweetmeats are objectionable. Vegetables, daily, in moderation, are necessary, not only for variety, but for preventing scurvy and other diseases. The choice, according to the season, may be made from potatoes, turnips, cauliflowers, broccoli, French beans finely cut, parsnips, carrots, artichokes, asparagus, fresh, well cooked, and seasoned with salt, &c. The use of salt should be insisted on, for besides other advantages it acts as a preventive of worms, to which children are liable. All gristle, skin, splinters of bone, and indigestible portions must be carefully sought for and removed. Old mealy potatoes, well cooked and carefully washed, are preferable to new. A dislike to vegetables should be early and steadily discouraged. A child's dinner should always be varied with some kind of nice pudding, as of baked or boiled battor, light suet, or rice, the three latter eaten with sugar or salt, and a small quantity of butter, gravy, marmalade, jelly, or jam. A very good, light, nourishing pudding that most children will like may be

made of rice and milk, with a small quantity of salt, the whole covered with a thick layer of finely-chopped suet, then baked nicely brown. This may be eaten with or without sugar or jam. Suet is a most valuable addition to food. Suet or half suet and half lard, instead of butter or lard, should be used in making pastry. So also with fruit puddings, which should be well cooked. These may consist of apples, gooseberries, rhubarb, or currants. A good pudding may also be made of rice and suet chopped fine. Heavy puddings should be avoided; tarts, if allowed at all, should be in moderation, and always nicely sweetened. It is cruel to give to children fond of fruit and sugar a quantity of sour tart or pie, under the poor plea that sugar is injurious to the teeth; the white sound teeth of those employed in its cultivation are proverbial. Such light simple products as arrowroot, tapioca, sago, rice, vermicelli, macaroni, and corn-flour may be given to any extent. As to drinks, much fluid should never be allowed just before a meal, as that would hinder digestion, and during the progress of the meal only an occasional sip should be permitted. Fresh pure water and toast-water are the most suitable drinks for children. For a healthy child, beer and wine are both unnecessary and inappropriate. They heat the blood, they disturb the nervous system, they weaken the digestion, and they *may* engender in the child a love for stimulant which will prove disastrous in later years. The evening meal should be taken from five to six o'clock. It should consist of the same sort of food recommended for breakfast. If tea and coffee are allowed they should be made very weak, and should be mixed with plenty of milk. In good pure milk children may freely indulge.

Parents cannot be too careful about the purity of the water taken by their children. Many a case of typhoid, diphtheria, diarrhœa, and other terrible complaints has owed its origin to water which has not been properly filtered, which has been kept in lead cisterns, or which has been poisoned by communication with drains or stagnant pools. The rearing and food of children form a large subject, which cannot be dismissed in a few lines. One thing is certain: if children are to grow up strong and healthy, if the needless mortality among children is to be stopped, the parents must become more enlightened as to the working of the laws of health. To use the words of the late Rev. Charles Kingsley:—"Three persons out of four are utterly unaware of the general causes of their own ill health, and of the ill health of their children. Not only in the lower class, but in the middle class, when one sees an unhealthy family, then in three cases out of four, if one takes time, trouble, and care enough, one can, with the help of the doctor who has been attending them, run the evil home either to a stupid neglect, a stupid ignorance, or, what is just as bad, a stupid indulgence."

Chillies.—Chillies, or chilies, is the Mexican name for the pods of capsicum, from which cayenne pepper and mixed pickles are made. (*See* CAPSICUMS.)

Chills.—Chills are really nervous shocks, usually the result of exposure, and characterised by a feeling of cold which frequently amounts to shivering. They are often succeeded by congestion and inflammation of internal organs. Chills are frequently the precursors of fevers and severe illness; the nervous system, being the first to take alarm, makes this manifestation as a warning. They occur also after severe burns or scalds, and after poisonous wounds. There is a feeling of chilliness which occasionally comes on after a full meal, but this only indicates some indigestion, and is not of much importance. The treatment for chills is the immediate use of the warm, vapour, or Turkish bath, and a full aperient.

Chiltern Hundreds, Steward of.—Of the hundreds into which many of the English counties were, for their better government, divided, the jurisdiction was originally vested in peculiar courts, but came afterwards to be devolved on the county courts, except with regard to some, as the Chilterns, which have been by privilege annexed to the Crown. These having still their own courts, a steward of those courts is appointed by the Chancellor of the Exchequer, with a salary of £1 and all fees, &c., belonging to the office. This is made a matter of convenience whenever a member of the House of Commons wishes to retire. He cannot resign his seat; but by acceptance of such an office as this (an office of profit under the Crown), he becomes disqualified to retain his seat. Hence the expression "accepting the Chiltern Hundreds," and its meaning. The practice began about the year 1750. The Chiltern Hills are a range of chalk eminences, separating the counties of Bedford and Hertford, passing through the middle of Buckinghamshire, from Tring in Hertfordshire to Henley in Oxfordshire. They were formerly covered with thick beech-wood, and sheltered numerous robbers. To put these down, and protect the neighbourhood from their depredations, the office was originally instituted. The Crown, for the convenience of the House at large, is always ready to confer on any member the stewardship of her Majesty's Chiltern Hundreds, the stewardship of the manor of Poynings, of East Hendred and Northstead, or the Exchcatorship of Munster, sinecures which the latter continues to hold till some other member solicits a similar accommodation.

Chimney Draughts.—In olden time a hole knocked through the roof of a hut allowed the smoke from the fire to escape, and created a thorough draught, which ventilated the place. Later on, when closed chimneys were introduced into dwelling-houses, they were still built with the sensible notion that they should be made to carry off, not only smoke and heat, but bad air also, and hence the spacious chimneys yet to be seen in old country-houses. The chimney was formerly a small room, and frequently contained numerous joints of meat suspended from hooks, which were thus effectually smoked and cured. Now-a-days, fireplaces are made much smaller, and the aperture of the chimney is of smaller size than formerly, so that the escape of heat and foul air by the chimney has been gradually diminishing. It

is of the utmost importance to the health of the inmates of a house that a thorough draught should be secured by means of the chimney in each room; but the best plan for securing this is by the use of a valve which, being acted upon by the heat in the room, allows the bad air to escape, and yet prevents the cold air from rushing in too freely. Impure air from a crowd of people, the burnt air from lights, the odour of dishes, &c., rise to the ceiling, being specifically lighter than common air, and these, if not carried off, soon contaminate the whole room. The mouth of the chimney fails very often to carry them off because it is below them, or there is a close stove in the fireplace the register of which is too frequently kept shut or is stuffed up by fanciful fire-papers. To remedy this, and to create the best possible chimney draught in modern houses, a ventilating valve should be used. There are many kinds of these, some of which are so complicated and liable to get out of order that they are more trouble than they are worth, but the simplest are those which consist of a metallic flap let into the chimney-flue near the ceiling. This flap should be made to act freely, so that a breath of air will move it—if coming from the room to open it, if from the chimney to close it. A bell wire connected with this valve, and brought down to a height that can be easily reached, will enable any one to open or close it, so as to allow as much air to enter or escape as may be necessary for the comfort of the room. Chimneys are, however, as frequently made too wide at the mouth as too narrow, and in these cases the evil is as great as in the other. With ordinary grates, therefore, the register flap should be so far closed, when a fire is lighted, as to allow no more than the ordinary smoke to enter the chimney, otherwise the pure air in the room will escape and waste, and the annoyance created of a fire "that won't light"—the fact being that the rush of air up the chimney is too great, and the draught too strong, for the struggling flame.

Chimney Glass.—The presence of a large sheet of looking-glass in an ordinary room, although it has been objected to as offensive to refined taste by reason of its glittering surface, gives an air of space and brilliancy by reflecting the objects in its vicinity, and aids greatly the general effect of a well-furnished, handsomely-decorated room. Apart from the glass itself, the frame it requires supplies something ornamental, which in its nature may be made to greatly assist in giving the room an air more or less decorative and cheerful.

Chimney-piece.—The word chimney was originally applied, not to the shaft by which the smoke escapes, but to the fireplace, for chimney shafts were not in use in this country before the twelfth or thirteenth century. We find but little authority for the decoration of the chimney or fireplace in Egyptian, Greek, or Roman architecture, for the simple reason that the people of those countries, living in a warmer climate, did not attach that importance to this section of an apartment which it claims in a climate like our own. Palladio mentions but two chimney-pieces, which stood in the middle of the apartments, and were composed of columns supporting architraves, upon which pyramids or funnels were erected through which the smoke could ascend, and escape. Scamozzi mentions similar specimens. In England some of the most elaborately-decorative chimney-pieces are those which were designed by Inigo Jones. The size of the chimney-piece should not be out of proportion to the room, and its usual place in halls or passages is the middle of the side partition wall, and in rooms the middle of the back wall.

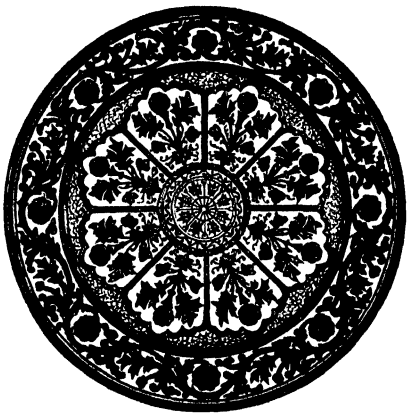
Chimneys, Cleaning.—No hard and fast rule can be laid down as to the length of time that any chimney will go before it requires sweeping. So many things have to be taken into consideration; much depends upon the size of the chimney, the extent of the fire used, and the nature of the fuel. When a kitchen fire is used daily, the chimney requires sweeping every three or four months. Should it smoke, it is a pretty sure sign that the sweep is necessary; for though the chimney itself may be clean enough, the chimney-pot may have become choked up in some way or other that prevents the smoke having free egress. All other chimneys should at least be swept once a year; and considering that now-a-days drawing-room fires have sometimes to be lighted during the summer months, twice a year is by far the safer plan. At the time of the sweep's visits all small articles should be removed from the rooms, pictures and curtains taken down, and this opportunity should be seized for taking up the carpets. In country places where a difficulty exists in obtaining the services of a chimney-sweep, persons often clean their own flues in the following manner:—After the fires are out at night the grate is cleared from cinders and ashes, in order that the soot (which is very valuable for gardens) may not be mixed with them. A garden mat or other convenient material is then fixed against the front of the mantelpiece, in the same way that it would be by the sweep. The gardener or any available man then passes a gun up the chimney as high as he can reach from the left-hand side, removing the mat only just enough to admit his right arm, and holding the mat close with the other. The gun is then fired up the chimney. As soon as the soot has settled and the gun re-loaded (of course with powder only), the operation should be repeated, two discharges of the gun being generally sufficient. The mat must remain safely secured against the chimney-piece all night, and in the morning a man should ascend to the roof and sweep down as far as he can reach. For this purpose a long stick should be procured, to the end of which an old broom, or better still a bush or furze, should be attached.

Chimneys, Smoky.—When a chimney is so smoky as to require a constant admission of fresh air into the room, the best method is to introduce a pipe, one of the apertures of which shall be in the open air and the other under the grate; or openings may be made near the top of the apartment, if lofty, without any inconvenience even to persons sitting close by the fire. Where a chimney only smokes when a fire is

first lighted, this may be guarded against by allowing the fire to kindle gradually, or more promptly by laying any inflammable substance, such as shavings, on the top of the grate, the rapid combustion of which will warm the air in the chimney, and give it a tendency upwards, before any smoke is produced from the fire itself. If old stove grates are apt to smoke, they may be improved by setting the stove further back. If that fails, contract the lower orifice. In cottages the shortness of the funnel or chimney may produce smoke, in which case the lower orifice must be contracted as small as possible by means of an upright register. If a kitchen chimney overpower that of the parlour, as is often the case in small houses, apply to each chimney a free admission of air. When a chimney is filled with smoke not of its own formation, but from the funnel next to it, an easy remedy is to cover each funnel with a conical top or earthen crock, not cylindrical, but a frustum of a cone, by means of which the two openings are separated a few inches, and the cold air or the gusts of wind no longer force the smoke down with them. If these remedies fail, it will be generally found that the chimney only smokes when the wind is in a particular quarter, connected with the position of some higher building, or a hill, or a grove of trees. In such cases the common turncap, as made by tinmen and ironmongers, will generally be found fully adequate to the end proposed.

China, or Porcelain.—The ceramic art appears to have been well-known in every country from the earliest times, but the productions vary in excellence of material and beauty of form. For a long period of time China has been celebrated for its porcelain. The early specimens which appeared in Europe were highly prized, and gave rise to the name of china. Not until two hundred years after its introduction was any attempt made to imitate it. France was the first to make the trial; Germany followed its example; and then England began the manufacture at Bow and Chelsea. Porcelain clay is of a finer kind than that used for pottery; this particular clay is found in Devonshire and Cornwall. English clay is soft, that of China is hard. The French clay is more liable to crack than the English.

China, Painting on.—This work requires delicacy of touch and judgment as well as skill. The colours used are specially prepared, and are the same as those required for enamel painting. The artist works with a board in front of him which projects from the table; his right arm rests on the board, and with his left hand he holds the article. A camel's-hair pencil is used. It is necessary to re-touch the colours several times in order to give depth and brilliancy; even then the colours will look dull and dingy, but this is owing to the presence of the oil with which they have been mixed: it will be found that the heat of the kiln will take away this dulness. The gold is applied with a pencil; this also looks dull. Even when the article has been baked, the gold will not look bright, as was the case with the other colours. It is therefore burnished. This is effected by means of agate and then by bloodstone, which are severally rubbed lightly over it, always in one direction. The French artists are said to excel the English in



HAND-PAINTED PLATE.

the painting of china, more especially in their designs, which show elegance and delicacy of taste. Large sums of money are paid for good specimens of modern hand-painted china.

China, Repairing.—When the china is thick and heavy, the pieces are more securely repaired by rivets. These can only be properly done by persons who have made this special work their business. The best course is to take broken china of this description to a china shop of respectability, and to commission the owner to get the article repaired. There are itinerant china-menders, but these too often do their work improperly by not taking the rivets through. Unless this is done, the china falls to pieces again directly. The ordinary charge for properly-fastened rivets is 3d. apiece. Thinner and lighter porcelain can be repaired by the use of cement. Of this there are innumerable kinds. The chief care should lie, not so much in the choice of these, but in following accurately the directions given. In all cases it is necessary that the hand should be steady and the eye accurate. The pieces to be joined should be made hot at the flame of a candle; the cement should be quite liquid, made so by immersion of the bottle in hot water; the rough edges of the china should be painted over with cement, and instantly put together and held in their places till they adhere. Much depends upon the exact placing and fitting together of the pieces, both as regards strength as well as appearance. Cement should not be too thickly laid on, or it will ooze out when the pieces are pressed together and disfigure the article. It is possible to repair china without the repairs being visible. Warm water will not loosen cement, but hot water will.

China Ribbons.—These are woven with very soft fine silk; they are usually in plain colours, and very narrow in width. The principal use made of them is for threading bead necklaces, for needle-books, pincushions, book-

markers, and for other purposes which require very narrow pliable ribbon. At one time it was the fashion to use them for ornamental needlework. Silk and satin work-bags were adorned with flowers formed of small loops of these minute ribbons.

Chinchilla.—This is a beautifully soft, light-grey, downy fur which is furnished by the little animal bearing that name. This small



CHINCHILLA.

rodent is found only in South America, in Peru, and the mountains of Chili; it is captured by men and boys. The fur was introduced into Europe about fifty years ago. It is not a serviceable fur, as it fades quickly, and will not bear long or rough usage.

Chinchona. (*See* CINCHONA.)

Chincough. (*See* WHOOPING-COUGH.)

Chine.—The chine is that portion of a pig which lies nearest to the centre of the animal, and is cut whilst the pig is whole from the tail to the neck in one long narrow strip. It may be roasted fresh, or salted and boiled. If roasted, it should be scored lengthwise, and well basted before serving. The chine is not cut when the animal is small, but only from pigs of full size.

Chiné.—The idea of variegating material was brought from China, and found special favour in France. At one period silk and cotton chiné stockings were largely made and worn in that country. In England, silks, ribbons, and wools thus variegated have also been much used. The way in which this variegation is managed is by colouring the threads in such a manner that afterwards, when worked into the fabric, the design appears. The patterns are never sharply defined, as may be imagined, by this method, but the effect is pleasing and really effective.

Chinese Embroidery. (*See* EMBROIDERY, CHINESE.)

Chinese Green Indigo.—1. A very rare and costly colour, called amongst the Chinese *luh-kao*. 2. A green, called Chinese, is derived from a species of rhamnus, or buckthorn, a peculiar substance, not a mixture of blue and yellow colouring matter, but a natural green, like chlorophyl, the substance to which the green colouring of the leaves is owing.

Chinese Hemp. (*See* CORCHORUS.)

Chinese Lanterns. (*See* LANTERNS, CHINESE.)

Chinese or Indian Ink (*Atramentum Indicum*), is composed of the finest lamp-black, ground to a paste, with very weak liquor of potassa. This paste is diffused through water slightly alkalised with potassa, then collected, washed in clean water, and dried. The dry powder is then levigated to a smooth stiff paste with a strong filtered decoction of carrageen or Irish moss (or of quince seed), a few drops of essence of musk, and half as much of that of ambergris, towards the end of the process. The mass is then moulded into cakes, and ornamented with Chinese devices and characters stamped in relief and gilded. Glue is not used by the Chinese in the preparation of their ink, but a decoction of certain seeds full of a glutinous transparent mucilage, imparting both transparency and durability to the colour. As a substitute, starch converted into gum by means of sulphuric acid, or "British gum," has been recommended. In complaints of the stomach, and in hæmorrhages, it has been used medicinally, dissolved either in wine or water; but it is chiefly employed by artists.

Chinese Patterns.—Although perhaps to be described as of the same genus as those of the Japanese—a fact readily understood, when we remember that Japan was originally colonised by China—Chinese art is generally inferior in design, perspective, form, and colouring—excepting the colouring of their porcelain. Their forms, as a rule, are altogether conventional; whereas the Japanese artist produces perfect reproductions of natural forms and colours with equal power and facility. The ideal type is never lacking, nor the highly felicitous talent for quaint caricature. The old "dove" or "willow pattern" is a fair representative specimen of Chinese patterns in landscape and figures; and on this type, as a foundation, the Japanese has developed his powers of depicting both the real and the ideal. The green dragon, painted on the finest porcelain, and adopted as their national insignia, is presumably esteemed amongst themselves as one of their handsomest patterns. Those of their ceramic ware are generally superior in design—as to the external form—than their designs in painting. The patterns sculptured in ivory, sandal-wood, mother-of-pearl, and chasings on bronze, and other metals, are full of merit, not only as to delicacy of execution, but as to the perfect balance which is maintained between the subject and the blank spaces. Those usually designed on card-cases, pen-boxes, and fans are representations of houses, gardens, and figures, executed in high relief, and with the greatest accuracy of touch and of detail. The patterns painted on their fans are poor in design and gaudy in colour, and the artists of the present time evince no powers either of originality or of development in this branch of the decorative arts on the basis laid by their predecessors.

Chinese Puzzles. (*See* PUZZLES, CHINESE.)

Chinese Tallow-tree.—This is the *Stillingia* in botany, a genus of the natural order *Euphorbiaceæ*. In the *Stillingia sebifera* the seeds are covered by a white substance, which when stripped proves to be a vegetable fat from which candles can be, and are, made.

This fat or wax, which is like spermaceti, is the secretion of an insect (*Coccus*), and looks like the beeswax formed by the common bee. The plant was at one time thought to yield the wax, and the bee to simply gather it from the seeds; but later experiments have shown that it is an animal secretion, and is found on this plant simply because the insect selects it for its deposits.

Chinese Tea. (*See* TEA.)

Chinese Wax. (*See* CHINESE TALLOW-TREE.)

Chintz.—Glazed chintz is much more serviceable than that which has not been so dressed; for this reason cretonne chintz, which has no gloss on its surface, soon looks shabby. A thick chintz with a high glaze will remain unsoiled for a considerable time, even should it be light-coloured and used under unfavourable circumstances. This material is a most useful one, for it looks suitable, if the patterns are appropriate, in every room in a house, and when soiled, if sent to the cleaners to be calendered, it will look equal to new. This style of cotton material came originally from the East: the Persian word *chinz* means "spotted." It is said that in chintz five colours should always be represented, and these should be on a white ground.

Chip (for Bonnets, Hats, &c.).—This is much softer and more pliable than straw, and bonnets or hats made of it are lighter in weight, cooler, and pleasanter wear than those made of straw. French chip bonnets are considered superior to English. They are either black or pure white, they have a dull appearance, and none of the brightness which characterises all varieties of English straw. They are expensive, but wear well. When first they were introduced, some fifty years ago, a chip bonnet cost three guineas. At that time they were made in one piece, after the Brazilian method of plaiting, and similar also to the Leghorn manner. These bonnets, when white, were generally chosen for bridal bonnets.

Chip, Brazilian Grass.—This pliable grass is much used for making hats. In Brazil there are many manufactories for the fabrication of hats worn by the natives. Their manner of plaiting differs from that adopted by the English, who make their plaits of straw in narrow braids, and then coil and stitch them together in the form they desire. The Brazilians plait their material at once into the shape they wish, so that, as remarked above, the article is all in one piece.

Chippendale Furniture. (*See* FURNITURE, CHIPPENDALE.)

Chirograph was anciently a deed which, requiring a counterpart, was engrossed twice on the same piece of parchment counterwise, leaving a space between wherein was written "chirograph," through the middle whereof the parchment was cut, sometimes straight, sometimes indentedly, and a moiety given to each of the parties; the same in character with what we now call "charter-party." The first use of these chirographs was in the reign of King Henry III. Chirograph was also anciently used for a fine (*which see*); and the manner of engrossing the fines and cutting the parchment in two pieces continued to be observed until the abolition of fines by the Statute 3 & 4 Wm. IV. c. 74.

Chisels.—Edged instruments used in carpentry, joinery, turnery, masonry, sculpture, &c., for cutting, paring, and carving purposes. Chisels are of various shapes and sizes, according to the purposes for which they are intended, but they have all one point of resemblance—the cutting edge is in every case wedge-like. Among the several chisels in general use may be mentioned the common, the paring, the mortise, the ripping, and the socket chisels.

Chives.—Chive, or cive (*Allium schænoprasum*), is a plant of the same genus as the leek and the onion, and is often used instead of spring onions for salads, &c. It is the smallest of the onion tribe, and is said to be a native of Great Britain, but it is somewhat rare. The young stalks and tops only are usually eaten,



CHIVES.

and if the plant be cropped it will bear again and again as often as wanted. The bulbs will yield for several years in succession. It is generally grown as an edging for kitchen-garden plots, but requires good soil to do well. The French word *civette* is derived from cive, the ancient name of this plant.

Chloral Hydrate, and Uses.—This remarkable substance, now so largely used as a medicine, was formerly looked upon as a chemical curiosity only. It is obtained by passing dry chlorine gas through absolute alcohol to saturation, and purifying by distillation with sulphuric acid. The product is chloral, which becomes chloral hydrate when exposed to air or mixed with water, the latter process being attended with considerable evolution of heat. Chloral hydrate appears as white crystals somewhat resembling Epsom salts, and has a peculiar pungent odour and taste. The officinal preparation is the syrup of chloral, the dose of which is from one to two tea-spoonfuls, each tea-spoonful containing ten grains of chloral. Chloral is given extensively to pro-

duce sleep, its action not being followed by the unpleasant effects which frequently result from taking opium or morphia. As a reliever of pain, it is, however, much inferior to these drugs, the pain generally returning when the sleep has ended. Chloral has also been successfully used in delirium tremens, St. Vitus's dance, poisoning by strychnia, in tetanus (lock-jaw), and in some cases of asthma and whooping-cough. It must, however, be taken with great caution, and under medical advice, as it has a tendency to weaken the heart's action.

Chloral, Poisoning by.—There is at present no recognised antidote for poisoning by chloral. Experiments have indeed shown that belladonna is very antagonistic to it, as it is to opium, and therefore it has been recommended to inject, in cases of chloral poisoning, a very weak solution of sulphate of atropia under the skin. If the patient is seen soon after taking the chloral, he should at once have an emetic administered to him, or the stomach-pump may be used. Cold affusion, viz., slapping the body or face with wet towels, or pouring cold water from a height, drying immediately afterwards, will assist in rousing from stupor. If these fail, and insensibility and exhaustion appear to increase, then the galvanic battery, applied to the chest and back at the same time, will probably be of very great service. The writer, in one case of poisoning by chloral, found this remedy most effectual. In chloral poisoning, it must never be forgotten that the tendency is to death from syncope, or failure of the heart's action; the strength must therefore be supported.

Chlorates.—These are neutral salts which are formed by the action of chloric acid or chlorine upon alkaline bases. They burn powerfully with combustible matter, and often by mere friction, and are very soluble in water. They are easily detected by adding a single drop of sulphuric acid to a small portion of any of them in crystal or powder, when they change colour, and a strong smell of peroxide of chlorine will be perceived. If a little sugar is now added, there will be instantaneous combustion. When heated with sulphuric acid, they evolve a yellowish-green gas. The best known of the chlorates is the chlorate of potash, made by passing chlorine gas through a mixture of carbonate of potash and slaked lime, and evaporating the solution from which the lime has been previously filtered. This is a salt of a cooling taste, and occurring in crystals of four or six sides. When heated, it gives off about 39 per cent. of oxygen, and is therefore largely used, in combination with saltpetre, in combustible paper, made for the relief of asthma, bronchitis, &c., and especially in that form of paper called "ozone," which has been very successful, especially in spasmodic asthma. Chlorate of potash, in doses of from five to twenty grains, is given largely in scarlet fever, inflamed throat, typhus and typhoid fever, canker, &c. It was formerly supposed to do good by parting with its oxygen; but this theory has been disproved, as it is found to pass through the kidneys chemically unchanged. Owing to its influence upon the mucous membrane, chlorate of potash has been very much used as a gargle, and in this form it has certainly been very effective. It is also used as a lozenge. Each lozenge should contain five grains of the chlorate of potash.

Chloric Ether. (*See* CHLOROFORM.)

Chloride of Lime. (*See* CHLORIDES; CHLORINE.)

Chlorides.—These are compounds of chlorine or hydrochloric acid with metals and some metalloids, of which the most important are:—1. *Chloride of sodium* (or common salt). This exists abundantly in nature, both in the form of rock-salt and sea-water, from either of which sources it can be obtained by quarrying or evaporation. Common salt is too well known to require description. 2. *Chloride of lime.* This is prepared by dissolving white marble or chalk in hydrochloric acid, adding a little chlorinated lime and slaked lime to the solution, filtering, evaporating to dryness, at a temperature of 400°, and preserving in well-closed bottles. Anhydrous chloride of lime is a white semi-transparent crystalline mass, of a bitter acrid taste. It has a great affinity for water, and is therefore much used in the preparation of chloroform, ether, &c. It is said to be useful in scrofula, and in certain forms of vomiting; in large doses it is an irritant poison. 3. *Chloride of zinc.* This is prepared by dissolving granulated zinc in hydrochloric acid, then filtering and adding a solution of chlorine and carbonate of zinc to precipitate any iron present, afterwards evaporating and pouring into moulds. It occurs as white crystalline opaque rods or tablets, is very caustic, and when exposed to air rapidly absorbs moisture and becomes liquid. Chloride of zinc is not much used internally, but in the form of a paste it has been employed as a caustic in intractable ulcers, and to destroy morbid growths, as cancer, &c. In addition to the chlorides just described, there are those of ammonium, barium, gold (solution), platinum, potassium, manganese, sulphur, and iron, which are all compounds of more or less importance.

Chlorinated Lime.—This is commonly called chloride of lime. (*See* CHLORINE.)

Chlorine.—This is an elementary gas of a greenish colour, as its name implies, which was formerly supposed to be a compound of oxygen and muriatic acid, and was called oxy-muriatic gas. Chlorine is a most abundant element in nature, and is the great constituent of the sea, one gallon of sea-water representing five gallons of this gas. It is most easily obtained by mixing together, in the proportion of four to one by weight, hydrochloric acid and peroxide of manganese, adding a little water to check the fumes, plenty of room being allowed for the swelling of the mixture. When gentle heat is applied to this, the gas will pass off readily, and may be collected in a vessel containing a little tepid water. It may be made pure and dry, by passing it through a bottle containing distilled water, and afterwards through a glass tube in which a little chlorate of lime has been placed. Chlorine has a pungent, suffocating odour, which is painfully

irritating to the throat and air-passages, causing cough and running at the eyes, even when largely diluted with the atmosphere. It is a powerful bleaching agent, destroying the colour of indigo, cochineal, &c. It is also largely used as a deodorising and disinfecting agent, in what might be called its portable form of chlorinated lime. This latter preparation, commonly called chloride of lime, owes all its virtue to the chlorine, which it evolves when exposed to the air. It is obtained by exposing slaked lime to the action of chlorine gas as long as the latter is absorbed, and occurs as a white powder of strong smell and acrid taste, only partly soluble in water. Chlorinated lime is, as already mentioned, a most valuable preparation for disinfecting purposes, but it is best adapted for large buildings, ships, out-door closets, and uninhabited rooms, where the irritating effects of the chlorine are not felt. If it is used for ordinary house purposes, it should be spread upon a plate (not metallic), and placed wherever there is a smell; if, however, more active disinfection is required, a little hydrochloric acid should be added, and the chimney, windows, doors, and all apertures should be carefully closed, so that the gas may have full play for some hours. Care should be taken to thoroughly re-ventilate the room before entering it, and all pictures or furniture with metal or gilding should be removed before the disinfection, chlorine, as already stated, acting powerfully on metals and colours. Chlorine is seldom given internally, but is exceedingly useful when largely diluted, as a gargle or inhalation, in diphtheria, foul ulceration of the throat, and in some diseases of the lungs. It is used in the preparation of chloroform.

Chloroform.—Chloroform was, after a great many very careful experiments, first used in Edinburgh, by Sir James Simpson, from which place its use has spread over the whole civilised world. It is prepared by distilling together chlorinated lime, rectified spirit, slaked lime, water, sulphuric acid, chloride of lime, and distilled water, and appears as a colourless liquid, of agreeable odour and pleasant taste, dissolving readily in alcohol, but sinking in water in rounded globules. Chloroform when inhaled produces, first, a feeling approaching inebriation; if the inhalation is continued, the patient passes into a dreamy condition, attended sometimes with excitement, manifested by loud talking or singing and exhilaration; this is followed by loss of sensation and voluntary motion, suffusion of face, heavy breathing, and complete unconsciousness. If the inhalation goes beyond this, the breathing becomes more stertorous and intermittent, the pulse fails, and death may ensue from either suffocation or paralysis of the heart. When there is any approach to this condition, the inhalation must be at once stopped, and artificial respiration, by rolling the body from side to side, taking care to draw out the tongue by grasping it with a towel or handkerchief, cold affusion, the galvanic battery, and all other means of restoring suspended animation must be resorted to. It may be well to state here that before inhaling chloroform no food should be taken for three or four hours, and even then should be of a light character. The sickness which generally follows the return to consciousness is best relieved by iced brandy and water or iced champagne. Chloroform is generally used in surgical operations, as amputations, dislocations, and painful cauterisings and probings. It has also been found useful in lock-jaw, hydrophobia, strangulated bowel, severe neuralgia, whooping-cough, and in the convulsions of children. It is, too, largely employed, in a modified form, in childbirth; but neither in this nor any other case should it be given except under medical advice and supervision. The preparations of chloroform are:—1. *Spirit of chloroform*, commonly called chloric ether. This consists of one ounce chloroform and nineteen ounces of rectified spirit. 2. *Compound tincture of chloroform*, composed of chloroform, rectified spirit, and tincture of cardamoms. Both these preparations are much used, in combination with other medicines, for the relief of spasm, pain, asthma, cholera, and hysteria. 3. *Liniment of chloroform*. This is composed of chloroform and camphor liniment, and has been found a serviceable application in neuralgia and troublesome itching of the skin. Chloroform, however, whether given internally as a medicine, or used externally as just described, has a very limited efficacy, its important use being that of a vapour.

Chlorosis.—This affection is allied to anæmia, and is due to a deficiency of the colouring matter of the blood. It occurs chiefly in young women, and is characterised by a pallid or yellowish-green complexion. The treatment consists in supporting the strength with tonics, as citrate of iron and quinine in from five to ten grain doses, three times a day in cold water; in good air, wholesome food, and in the avoidance, as far as possible, of sedentary occupations.

Chocolate.—Strickly speaking, the term chocolate is applicable to any preparation of cocoa, but it is commonly used only to distinguish those that are sweet and contain sugar or other flavouring substances. In Spain, vanilla, cloves, cinnamon, musk, and ambergris are used to flavour with; in France and England, vanilla is the favourite essence used.

Chocolate is made from cocoa-nibs, ground into a paste by machinery; it is mixed with refined sugar and spices or essences as above, and finally (for the chocolate-machines are marvels of ingenuity) it is pressed into moulds of various shapes, and comes out as lozenges, tablets, or rolls, which only require time to cool and harden to be ready for consumption. The best chocolate is that which melts in the mouth without grittiness, and which leaves no sediment when dissolved. In the solid form it is much bought by the French, who are very fond of it. In this country its use in a solid form is confined chiefly to children, but it is a favourite beverage, and preferred by many to coffee or tea. When used in the soluble form it should never be made before it is wanted, as warming it up destroys the flavour, and allows the oil in

its composition to become separated. There are a great many preparations of chocolate made for the use of invalids, for it is a compound which lends itself readily as a vehicle for medicines. Thus there is chalybeate chocolate, which contains a proportion of carbonate of iron; Iceland moss chocolate, which is recommended for general debility and in cases of weakness of stomach, and which contains a quantity of jelly of Iceland moss; and purgative chocolate, with its dose of calomel or jalap (this is usually prescribed in cake form as a remedy for worms). There are also preparations of chocolate to which arrowroot, tapioca, and other nourishing ingredients are added, to make delicate and tempting morsels for convalescents.

Chocolate Colour, To Dye.—A rich warm brown, of the colour of the paste manufactured from the cocoa, or roasted seeds of the *Theobroma cacao*. The various brown shades and dyes are generally a combination of black and red, used either simultaneously or in succession to each other, occasionally red and yellow, with black or blue. Magnificent red, brown, and chocolate dyes are now obtained from the tar or aniline colours.

Chocolate, Dietetic Properties of.—Chocolate possesses more nutritive power than either tea or coffee, and when taken, as it usually is, with milk and bread, will suffice, in the absence of any other kind of food, to furnish a good repast. It contains double the quantity of nitrogenous matter and five-and-twenty times as much fatty matter as wheaten flour, and in addition contains starch; and with its strong aromatic flavour, no wonder it is regarded as at once an agreeable and at the same time very nutritious compound. Its richness in oil and fat has a tendency, however, to oppress delicate stomachs, and many invalids cannot take it on that account. Chocolate cakes are exceedingly convenient for travellers, who by their use are able to convey several days' nourishment in an exceedingly small compass. A preparation of chocolate and milk is made and sold in closed tins, and in this form is very convenient, requiring only the addition of a little water, and it is ready for use at a moment's notice.

Chocolate Drops, &c.—The forms in which chocolate is prepared are very numerous, the most common being the bonbons, drops, and macaroons. The chocolat menier, a French production, is everywhere known, and is manufactured in a great variety of forms. Chocolate ices are favourite delicacies; so also are chocolate pastilles and diavolinis. For particulars and recipes as to making all these, see "Cassell's Dictionary of Cookery." (*See* CHOCOLATE.)

Choir.—1. The persons who conduct the musical services of a church are collectively called a choir; they consist of clergymen, laymen, and boys, and occupy the chancel or choir. 2. The same as a chancel, but generally used of cathedrals, where it is large enough to admit the ordinary congregation. This word is occasionally written as it is pronounced—quire.

Choking, Relief in.—This is a condition requiring prompt action on the part of the bystanders if any good is to result. An effort should at once be made to grasp the object with the fingers or a pair of forceps, and this failing, it should, if felt, be pushed downwards with a pencil, penholder, goose-quill, or anything of that description at hand, which will act as a probang. The back should be well slapped at the same time. If this does not relieve, then the throat should be tickled with a feather, to excite vomiting; and if the sufferer is a child, it may be taken up by the feet, held head downwards for a second or two whilst the back is slapped. All these means failing, and insensibility coming on, an opening should be made into the œsophagus on the side where the object can be felt. Artificial respiration, by rolling the body from the side on to the face (placing the arm under the head to keep the face from the ground), then back again, and repeating the process about twenty times in the minute, should, with cold affusion, strong smelling salts, and other means of restoring animation, be persevered in, even after life has appeared to cease—at any rate, until the medical man has pronounced the case hopeless. Fish-bones and small objects may be got rid of by tickling the throat with a feather, which has the double chance of removing the object mechanically or by vomiting. A good mouthful of bread-crumb will often be effective, and the yolk of an egg repeated two or three times, if necessary, will often prove most successful.

Cholera, Asiatic. (*See* ASIATIC CHOLERA.)

Cholera, English.—There are two kinds of cholera known in this country, resembling each other in some respects, but differing widely in others: these are English and Asiatic cholera. The former, though sometimes fatal, especially amongst children, is after all but a severe form of diarrhœa, does not originate in a specific poison, and is only remarkable for the violence of the symptoms, of which the most important are vomiting, generally of a bilious character, cramp, coldness of the surface, purging of pale watery stools, showing deficiency of bile and exhaustion. The treatment consists in expelling any remaining irritant matter, which is best effected by a full dose of castor oil, and then in giving astringent medicines, as aromatic confection (*see* CHALK MIXTURES), or ten drops each of sulphuric acid, tincture of catechu, and laudanum, in one ounce of cinnamon water, after each liquid stool. To relieve cramp and coldness of the surface, flannels rung out of hot water, and well sprinkled with turpentine, should be applied to the bowels and legs, the patient being afterwards well wrapped in hot blankets. The strength should, at the same time, be supported by arrowroot, to which port wine may be added, beef tea, milk, and brandy and water, with occasionally an egg beaten up in it. Asiatic cholera is, on the other hand, a disease of a very different type to that just described, the symptoms in this case being much more severe and rapid in their course, frequently terminating fatally. (*See* ASIATIC CHOLERA.)

Chopper.—The chopper is a form of axe modified to be useful for domestic purposes, having a shorter handle, &c. It is generally employed for separating the bones of butchers' joints of meat.

Chopping Block and Board.—A chopping-block is a block of wood upon which articles to be chopped are placed, the wood used being of sufficient toughness, and mounted upon either bricks or stout thick pieces of wood.

Chops.—Strictly speaking, a chop is a small piece of meat which is chopped from the joint, while a cutlet is a piece of meat cut from the joint. The chop is, however, generally understood to be a portion of the loin, while a cutlet is a small portion of meat neatly trimmed and flattened. The two words, chops and cutlets, are used rather indiscriminately. Mutton cutlets are taken both from the neck and the fillet. According to the popular use of the word, a chop is always cut from some part of the loin of mutton, and it is held in high estimation as containing a goodly quantity of light and nourishing food in a small compass.

Chorea. (*See* Vitus's Dance, St.)

Chose.—A legal phrase sometimes used to signify the right to bring an action, and at other times the thing itself which forms the subject-matter of that right, or with regard to which that right is exercised; but it more properly includes the idea both of the thing itself and of the right of action annexed to it. Thus when it is said that a debt is a "chose in action," this term conveys the idea not only of the thing itself, *i.e.*, the debt, but also of the right of action or of recovery possessed by the person to whom the debt is due. A chose, or right of action, was formerly not assignable, but by the Judicature Act, 1873, the law is altered, and the same is now assignable in every case.

Chowder is an American dish composed of pickled pork and fish cooked with potatoes, onions, &c., and seasoned with savoury herbs. (See "Cassell's Dictionary of Cookery.") There are many varieties of the dish, such as oyster chowder, clam chowder, &c., and most of them are very delicious.

Christening.—The rite of baptism in the Christian Church is often spoken of by this term. Perhaps it was employed to more clearly denote the baptism of Christians from the rite as practised by other religious sects, or it may be significant of the imposition of the Christian name. (*See* Baptism, Customs at.)

Christmas-boxes.—This custom of dispensing money at Christmas has become a very expensive one, for now a demand is made by nearly every one who in any way serves another. The day on which these requests are made is that succeeding Christmas Day, and it is called Boxing Day in consequence. The custom of bestowing Christmas-boxes arose in the early days of the Christian Church, at which time boxes were placed in churches for the reception of offerings; these boxes were opened on Christmas Day, and their contents were distributed by the priests on the following day.

Christmas Carols.—Carols are supposed to be songs or ballads sung specially at Christmas, but the name originally applied to songs sung on any joyous occasion. Christmas carols are old songs descriptive of the birth of Jesus Christ. In olden times the bishops and clergy used to sing carols on Christmas Day, in remembrance of the song sung by the angels. Carols are still sung on Christmas Eve in many parts of England.

Christmas Customs.—Those of members of a family and friends presenting gifts to one another are in the present day greatly in vogue. They probably were introduced by the German custom of giving presents at this season. The idea of sending cards on which are inscribed the good wishes of the season in every possible shape and form has of late years grown into an established custom. Family gatherings is another olden custom, and the special fare of roast beef, turkey, plum-pudding, and mince-pies are English customs firmly rooted.

Christmas Decorations. (*See* Decorations, Christmas.)

Christmas Rose.—This flower, the *Helleborus niger*, is as beautiful as any which summer can show. In form it is like a large white single rose; its foliage is dark and evergreen. Various superstitions were by the ancients connected with the Christmas rose. They believed that its flowers acted as a charm to drive away evil from their dwellings, and for this purpose they strewed the blossoms over their floors. The root of this plant was at one period powdered and used as snuff. All species of this plant, it is said, possess powerful medicinal properties.

Christmas Trees.—A fir-tree should be bought or taken out of the garden, and placed in a large green tub; the size of the tree depending upon the number of things in hand, and whether it is to stand on the floor or on a table. It is astonishing how very many things are required to ornament one of these trees. It is lighted up by means of tiny candles of coloured wax or small Chinese lanterns; the former mode is the more effective. It is impossible to have too many lights, as the tree ought to be brilliant. The fixing of the lights, which is done by means of fine wire, is the principal task. The ornaments and gifts are laid and hung on the branches. The pretty things should be well in sight, and the plainer and heavier ones partially hidden at the base, all being placed out of harm's way. The tree should look as gay as possible, therefore flags, tinsel ornaments, and all kinds of small *et cæteras* should be hung on it. The decoration of the tree should be entrusted to one or two persons, for if several are employed, their ideas are likely to clash. The tree and its dressers should be shut up in a room, into which no one should be allowed to enter. As the lighting of the candles occupies some time, it is well for two or three persons to be employed, otherwise those first lit will have burnt away by the time the last are lighted. Not until the whole are

lighted should the company be allowed a glimpse, and then the full glory of the tree will burst upon their sight.

Chromatic Scale.—A succession of semitones only, extending from any note to its octave. The chromatic scale contains both chromatic and diatonic semitones, and includes all the twelve different sounds found upon the pianoforte.

Chrome Yellow.—This is the neutral chromate of lead, while the basic chromate is chrome red. The chrome yellow of the painter is a rich pigment of various shades, from deep orange to the palest canary yellow. It is composed by the addition of a limpid solution of the neutral chromate of potash to a solution of equally limpid acetate or nitrate of lead. The precipitate must be well washed and dried, out of reach of any sulphuretted vapours. There are four shades of this pigment sold in the shops—straw-colour, yellow, deep yellow, and orange. The former are made by the addition of alum or sulphuric acid to the solution of the chromate, before mixing it with the solution of lead; the last, by that of a little sub-acetate of lead (tribasic acetate), or by washing the precipitate with a weak alkaline lye. An orange tint is thus produced. The colours are influenced by the temperature of the solutions at the time of admixture.

Chromo-lithograph. — Printing in colours from lithographic stones. (*See* LITHOGRAPHY.)

Chromo-photograph.—That branch of the art of photography which relates to the production of photographs in their natural colours. This has been accomplished (partially, and now perhaps completely) by Niessée de St. Victor, E. Becquerel, and others. Hitherto permanency in colour has not been attained, and exposure to light has obliterated them.

Chronic Hydrocephalus. (*See* WATER ON THE BRAIN.)

Chronograms. — This word is derived from the Greek *chronos*, time, and *gramma*, letters, and in its amalgamated form it means a kind of anagram in which those numeral letters used by the Romans in lieu of figures appear in the sentence, and are of twofold significance, helping to form the required words, and at the same time setting forth the date of some memorable event alluded to in the sentence. These particulars letters always appear as capitals, wherever they may be placed in the words.

Chronometers. — Literally, time-measurers, derived from the Greek *chronos*, time, and *metron*, a measure. Chronometers are timekeepers constructed with more than usual care, to guarantee accurate measurements of time during long periods. In outward appearance they resemble large watches, and their mechanism is somewhat similar, with, however, additional contrivances intended chiefly to counteract the deranging effects arising from variations of temperature, and those resulting from the constantly-changing action of the motive force. Chronometers are, of course, of inestimable value to seamen on long voyages, the determination of the longitude at any point depending on correct time-measurements.

Chrysanthemum.—This is a very hardy plant which will flower for several years without re-planting, living through hard winters, though sometimes succumbing. It has of late years obtained great notoriety, and has well repaid all growers of it. The size and brilliancy of the chrysanthemum render it an extremely useful flower, and a great ornament to the garden; it shows itself particularly to advantage at the backs of borders and in shrubberies. It is very easy of propagation, by



CHRYSANTHEMUM.

removing the young shoots that grow from the old roots early in the spring. These shoots, placed in firm soil and kept in the shade or the shelter of the greenhouse, readily take root, and as they grow may be planted in large pots, with a good rich soil, well drained. If intended to remain in the pots for blooming, a strong stick should be placed to fasten the main stem as it grows; and when planted in the borders, stakes should be stuck in the ground for supporting the plants.

Chrysoberyl, or Oriental Chrysolite.—A brilliant gem of various shades of yellow, or even white. One kind is known as the cat's-eye (*which see*). The transparent yellow stones are cut as brilliants, and are almost as bright and lively as diamonds, but are not now in fashion.

Chrysolite. — A precious stone, transparent, lustrous, and of a greenish-gold colour. When of a deep olive-green, it is called a peridot, and olivine when the green is somewhat in excess of the yellow. It is soft enough to be scratched by quartz, and is not much used for fine jewellery; it is therefore cheap. No particular style is adhered to in the cutting.

Chrysopal.—A green variety of the opal, sometimes found in Silesia. (*See* OPAL.)

Chrysoprase. — A precious stone, the colour of which is an apple-green of various shades, transparent, and capable of a high polish. It is a chalcedonic variety of quartz, and is chiefly found in Silesia. Though once

valued, it is not much used in this country; when it occurs it is commonly in pins, sealrings, and buckles. It is liable to splinter in working, and loses its fine colour in course of time. The ancient Greeks and Romans were very fond of it, and engraved examples are extant. It is said that good specimens are even now worth from £5 to £20 each, which is more than is got for any other variety of chalcedony.

Chub.—This, the *Leuciscus cephalus* (natural family *Cyprinidæ*), is a somewhat elongated and thickish fish, not unlike the carp. In colour it is bluish-black on the upper part, sides and belly silver-white, cheeks and gills a golden tinge, dorsal and candal fins dark, pectoral pale, and anal and ventral tinged with red. The fish is found in many of the rivers in this



CHUB.

country. It is angled for with a great variety of bait, being in no way particular; it will take grubs, slugs, cockchafers, grasshoppers, worms, minnows, and other small fish, paste, and flies, or bees. The chub spawns in May on a shallow, gravelly bottom. It soon recovers condition, and after June may be sought for under weirs, or under deep overhanging banks or pools under trees. The weight of the chub seldom exceeds five pounds, and it is not considered a very great delicacy to eat.

Church.—This word, as applied to a building, denotes an edifice dedicated to the purposes of Christian worship. In connection with the national religion, we meet with various kinds of churches, such as cathedral, collegiate, priory or abbey, minster or conventual, and parochial churches. In this case, words like priory, abbey, minster, and conventual (from convent) indicate the ancient rather than the modern position of the buildings, except in rare cases, such as that of Westminster Abbey, where a relic of the old constitution survives. The word church is also much used to denote a place of worship by Presbyterians, Independants, and other denominations. Its employment as a name for a Christian community, or for the whole of Christendom, calls for no explanation; but it may be worthy of note that our word church appears to come from a Greek term signifying "the Lord's (House)."

Church Decorations. (*See* DECORATIONS, CHURCH.)

Church Needlework.—This work requires great skill in its execution. None but that which is exquisite of its kind should be admitted into a church. Berlin work is sometimes placed there, but it is not a suitable style. Silk embroidery on rep, cloth, or velvet is the proper kind of work. The most difficult style is that of working designs on these materials. Fine canvas is stitched carefully on the cloth, and on this the pattern is worked; when it is completed, the threads of canvas are pulled out, or the canvas is cut away close to the pattern: this latter method is the best, because the work looks thicker and more raised. For other styles of this needlework, *see* ALMSBAGS, ALTAR-CLOTH.

Church Rates are assessments by which the expenses that attend the parish church are provided for. They are made by the parishioners at large in vestry assembled, summoned for the purpose by the churchwardens. The tendency of modern legislation has been to restrict the power of making these rates enforceable on members of other communions than the Church of England; and by the Statute 31 & 32 Vict. c. 109, church rates were abolished as a compulsory assessment, and the payment of them made voluntary.

Churching of Women.—A phrase often used to describe the public thanksgiving of women who have recently become mothers. The form used in the English Church is contained in the Common Prayer Book. As with some other ecclesiastical usages, this is supposed to find a reason in Judaism. The date of its introduction is uncertain, but it has been traced back to the fifth century.

Churchwardens (anciently termed church reeves, or *Ecclesiæ guardiani*) are the guardians or keepers of the church, and representatives of the body of the parish. They are sometimes appointed by the incumbent, sometimes by the parish, sometimes by both together, as custom directs. They are taken in favour of the church to be for some purposes a kind of corporation at the common law, and are enabled by that name to have a property in goods and chattels, and to bring actions for them for the use and profit of the parish. Yet they may not waste the church goods, but may be removed by the parish, and then called to account by actions at common law; but there is no method of calling them to account but by first removing them, for none can legally do it but those who are put in their place. As to lands or other real property, as the church, churchyard, &c., they have no sort of interest in them; but if any damage be done thereto, the parson only or vicar shall have the action. They have the care and management of the goods belonging to the church, such as the organ, bells, Bible, and parish books; their office is also to repair the church, and make rates and levies for that purpose. They are also joined with the overseers in the care and maintenance of the poor. They are usually chosen in Easter week. They are empowered to keep all persons in orderly behaviour while at church. All peers of the realm, clergymen, dissenting ministers, barristers, solicitors, clerks in court, physicians, surgeons, and apothecaries, officers in the army

or navy, registrars of births, &c., officers of Excise, customs, or post-office, are exempt from serving this office.

Churchyard.—The enclosure in which a church stands, and which was, and to some extent still is, the parish cemetery. Burials in churchyards were not allowed in the earlier ages, and the practice is said to have originated with Pope Gregory I. The growth of the cemetery system, and the abolition of church-rates, affect the position and character of churchyards in some ways. Already not a few have been wholly or partially closed as burial grounds, and this must go on. The freehold of a churchyard is vested in the rector, who holds it for the benefit of the parishioners, who are represented by the churchwardens. The rector cannot desecrate the ground, pull down the walls, obstruct a path, &c. The churchwardens have certain duties which need not here be specified; and the parishioners have the right of burial in their parish churchyard, but not a right to choose any sort of coffin, monument, &c.

Churns and Churning.—The churn is a machine for making butter out of milk, and many devices have been invented for doing this with the greatest saving of labour and the quickest method of making the butter without spoiling it. Strange as it may seem when first mentioned, there is, despite its soft appearance, *a grain in butter*. The fatty globules in milk which compose butter are themselves made up of several varieties of fatty elements, such as stearine, palmatine, and oleine, and each of these has a definite organisation, and the great art of churning is to preserve them unbroken. If the churning mashes or breaks these granules, the oily elements of which they are composed spread and give the whole a greasy appearance, and the butter soon spoils. It makes all the difference in the flavour and keeping of butter if the grain be preserved unbroken. The kind of churn most in use in this and other countries is still the old-fashioned dash or plunge churn which is worked by hand. Churns with centrifugal action have been introduced of late years, and are successfully used, especially in Sweden. The atmospheric churn has also come prominently forward, and promises to become very popular. (*See* ATMOSPHERIC CHURN.) It is by no means necessary that churns should be worked by manual labour. In some countries dogs have been taught to work the churn, and horse-power is in common use in large dairies in Great Britain, whilst steam-power has in some few instances been successfully applied, though its use is rare. The choice of a churn must depend greatly upon the milk to be operated upon, and the quantity to be converted into butter. In the case of milk from Jersey, or Alderney, or Devon cows, the butter is readily made in almost any kind of machine. The milk from the Ayrshire, the Dutch, and the ordinary Shorthorn cows requires so much more churning that the best apparatus becomes a question of considerable importance. Sour cream not only churns easier, but can be made at a much lower temperature, but it should not be too sour. Other circumstances being equal, the length of time required for churning increases with the distance from calving-time, or the temperature must be increased. The conversion of cream into butter is greatly facilitated by scalding the milk or cream while it is sweet. Winter churning is often a very slow process, and almost impossible without the scalding, and at all times of the year scalding is of great assistance. At the beginning, churning should be slow, till the cream is well mixed. The speed can be gradually increased up to the full power of the particular kind of churn used, but it should at no time be very rapid—a moderate movement makes the best butter. When the butter begins to come, the churn should be worked slower, and the contents allowed to cool gradually. The butter should be "gathered" in the churn, and the milk kneaded out afterwards in water or brine. There is great difference of opinion as to the washing and kneading of butter after it is taken from the churn, but it is entirely a matter of taste. The flavour of butter which has been washed is quite different to that which has not, and the operation can be performed, or otherwise, as preferred.

Chutnee, or Chetney.—This is an Indian pickle very much prized by Anglo-Indians, and has become more popular in England of late years. It is a very hot compound made of mangoes, chillies, and other native fruits, flavoured with garlic, &c. Various imitations are made in this country, but none of them approach the genuine article in pungency and strength. (See "Cassell's Dictionary of Cookery.")

Chyle.—This is the milky fluid which is absorbed from the chyme after the latter has been acted upon by the bile and pancreatic juice. It is found in the lacteals or glands of the small intestines. Chyle contains a large quantity of fatty matter which gives it its milky appearance, and is due to the amount of fat taken as food. This is proved by the fact that the chyle of birds is usually transparent, whilst that of man and carnivorous animals is white and turbid.

Chyme.—This is the primary result of the digestion of food in the stomach, after it has been acted upon by the gastric juice. It is a substance of the consistence of a poultice, deriving its colour from the nature of the food contained in it, though this may be varied, even in health, by a yellow or green tinge imparted by bile which has passed into the stomach. Chyme has a strong, disagreeable, acid odour and taste. When it has passed out of the stomach into the small intestine, chyme is immediately acted upon by the bile and pancreatic juice, and is converted partly into chyle, which is absorbed by the lacteals; the remainder passing through the bowels, is ultimately expelled.

Cicatrix.—This is the pink or white mark which remains after a wound or ulcer has healed. When slight, it gradually assimilates with the surrounding skin, and soon ceases to be visible, though it may for a long time

be detected by means of a powerful glass. When severe, it is often very persistent, never wholly disappearing, and is frequently the seat of acute pain, due to change of weather or other causes, and this is especially marked in the cicatrix which is the result of amputation, and often requires surgical interference. The scars resulting from burns are very frequently serious deformities, and have to be guarded against in the treatment of that injury. They are also, from their deficient vitality, subject to various diseases, such as tumours, ulcers, neuralgia, &c. (*See* SCARS.)

Cider.—Cider (*Pomaceum*) is the fermented juice of the apple, the ordinary drink of our forefathers, and spoken of by Pliny as the "wine of apples." It contains alcohol to the extent of 5 to 10 per cent., and although when new it may be drunk in large quantities without causing intoxication, older and better qualities are as heady as good ale. Cider in prime condition is an agreeable, wholesome, and refreshing stimulating beverage, but without the tonic property of bitter beer. In Devonshire, Worcestershire, and Gloucestershire it is largely consumed, and it is the practice to give the labourers in those districts half a gallon or a gallon of cider daily as part of their wages. The manufacture of cider varies in different places, but it is very simple. It consists in crushing the apples between two fluted cylinders of hard wood or cast-iron working against each other. The pulp is then placed in coarse canvas bags, and the juice is forced through by means of the cider-press. It is then run off into clean casks with large bung-holes, and freely exposed to the air in the shade. This is the most delicate part of the operation, and upon the manner in which it is conducted depends, in a great measure, the quality of the cider produced. Fermentation sets in very speedily, and the casks require constant filling up, in order that the yeast or froth may be worked off from the surface of the liquor. If this is allowed to go on too long, the liquid becomes sour and thin, and if not long enough, it is thick and unpalatable. About a week is required for the fermentation, and as soon as this is over, the liquor is again drawn off into clean casks, which are then stored in a cool cellar, and left to mature or ripen. By the following spring the cider is ready for bottling, and this should be done when the barometer is high, the bottles being strongly corked and waxed over. Champagne bottles are generally chosen for this purpose. Cider varies considerably as to the length of time it will keep, according to the lowness of the temperature at which the fermentation is allowed to take place. To ensure cider being good, the fruit should be gathered before it is mature, and allowed to ripen before being used.

Cigarettes.—Literally, small cigars, made by rolling tobacco in thin paper specially prepared for the purpose. Cigarettes may be bought already manufactured, or may be made by the smoker from tobacco and cigarette papers, which are sold by all tobacconists.

Cigars.—Manufactured tobacco rolled into a convenient form for smoking, and for the foreign varieties of which there is a great sale in this country, but little checked by the exorbitant duty chargeable upon their importation. The choicest cigars are those made in and imported from Havana. British cigars are largely made in this country in imitation of the foreign brands, but they can never approach the latter in quality, and for these reasons: it is simply impossible to get the best leaf—of which high-class foreign cigars are made—imported into this country, and even if this difficulty could be overcome, the damping process required to render the leaf pliable before rolling would, to a great extent, destroy the flavour. Again, if the British manufacturer used the better parts of the leaf only, wasting the rest, he, although paying but 3s. 2d. per pound duty on the raw material, could not compete with the foreign manufactured article, paying 5s. per pound duty; the waste of leaf would be more than equal to the difference in duty. As a matter of fact, English-made cigars have generally a good outside leaf, while the inside consists of very inferior tobacco. Good foreign cigars should be well made, and of fragrant scent. The "scent" is not, however, an infallible test, for the wrapper or outside leaf may be fragrant, while the filling or inside may be of very inferior tobacco, the odour of which is disguised by that of the finer outer leaf. The outer leaf, though of poor quality, may possess the pleasant sweetness of a first-rate cigar, it having been soaked in molasses or rum to procure the desired result. Good tobacco is very elastic, and a well-made cigar manufactured from genuine leaf should always have an elasticity and power of recovery about it when compressed. It should neither be hard nor limp. Cigars should never be allowed to get damp, or they will soon get out of condition and lose their elasticity; they should, if possible, be stored on a dry shelf near the ceiling of a room. Full-flavoured cigars are known as "Maduro;" medium-flavoured as "Colorado," and mild as "Claro." Cheroots are peculiarly shaped cigars, much thicker at one end than the other; they are imported principally from Manilla.

Cinchona Bark.—From this the valuable medicine known as quinine is obtained. The tree grows wild in Peru, from which fact it is often called Peruvian bark, and also Jesuits' bark, owing to the Jesuits having first brought it under the notice of the Europeans as a specific in cases of intermittent fever. It is said that it received the name of Cinchona from that being the name of the Viceroy of Peru at the time the bark was first sent to Europe, some two hundred years ago. Plantations of these trees have been made within the last twenty years in the hill districts of India, and these have flourished. It is found that the bark is richer in quinine when the tree is cultivated than when in its wild state.

Cinder Shovels are very handy little contrivances, the constant use of which in kitchens where a kitchener or close stove is fitted will render a cinder-sifter almost needless. They may be had in varying sizes and for a trifling cost.

Cinder Sieve, Sifter, and Rocker.—The inevitable dust and dirt attending cinder-sifting are much lessened by the use of the best apparatus for the purpose. Of these there are several; but the ordinary housemaid's box or rocker, which is fitted with a movable wire sieve over the top, is as useful as any, and possesses the advantage of sifting the cinders in small quantities. The old practice of riddling the cinders over a dust-bin is both untidy and wasteful. In large establishments, a patent cinder sifter or revolving machine is almost a necessity, and its trifling cost is soon repaid by the undoubted saving of coal its use effects.

Cineraria.—An annual or perennial plant, the flowers of which are very pretty. Many of them are remarkable for the ashy appearance of the lower part of the leaves, hence their name (Lat. *cinis-eris*, ashes). In cultivating the cineraria, great care should be taken to keep it cool, without allowing the slightest frost to touch it.

Cinnabar.—The name of the only valuable ore of mercury prepared from it by sublimation. It is a sulphide of mercury composed of quicksilver and sulphur, producing a natural vermilion or cochineal-red, of a brownish hue, and lead-grey with an adamantine lustre, approaching to metallic in dark varieties, and to dull in friable ones. It varies from opaque to sub-transparent, has a scarlet streak, and breaks with a sub-conchoidal uneven fracture. It occurs in beds in slate-rocks; that of the Philippine Islands is of the highest colour, while that of Almaden, in Spain, is the richest. It is also found at Idria, in Carniola, where it is usually in a massive form, and is worked on a thick vein belonging to the carboniferous series. There is an abundance of it in China, Japan, and in the two continents of America —also at Idaho; New Almaden, in Santa Clara Co., and other parts of California; and at Huanca Vilica, in South Peru. Spain is the chief source of the mercury used in England. In the arts, cinnabar is known by the name vermilion. To produce it as a pigment, two parts of mercury and one of sulphur are triturated together in a mortar, when the mercury gradually disappears, and a black powder remains called *Ethiops mineral*. This when heated red-hot sublimes, and a cake is obtained of a fine red colour, which, reduced to a fine powder, is known in commerce as vermilion.

Cinnamon.—The inner bark of *Cinnamomum rerum*, or *C. zeylanicum*, the *Laurus cinnamomum* of Linnæus; a handsome tree, native of the East Indies, but found also in the West Indies. The chief seat of cultivation is the island of Ceylon; in Java and Cochin China it has made much progress. The leaves grow in pairs from the stalk. The outside of the bark is of a greyish-brown, on the inside reddish; it is odoriferous, and camphor is sometimes extracted from the roots. The best cinnamon is obtained from the eight or ten stalks shooting up from the roots when the tree has been cut down. Stripped of the outer bark, the inner is loosened, and while drying they are cut up into "quills." There are ten different kinds of cinnamon bark, and that known by the Singhalese name of *penne*, or *rasse kuroondu*, is the best. As medicine, it is a powerful stimulant. The fruit yields a concrete oil called



BRANCH OF CINNAMON TREE.

"Cinnamon suet," and "clove oil" is distilled from the leaf. It is employed for culinary purposes, and is highly aromatic and hot. The Chinese is good, the Cayenne less so, and thicker; that from Brazil the worst.

Cinque Ports (*Quinque portus*).—Originally the five important havens that lie on the south-eastern part of the kingdom towards France, viz., Hastings, Romney, Hythe, Dover, Sandwich. To these, however, Winchelsea and Rye have been since added. They are called the Cinque Ports by way of eminence, on account of their superior importance as having been considered by our sovereigns to merit a particular regard for the preservation of the kingdom against invasion. They are governed by a keeper styled the Lord Warden of the Cinque Ports and Constable of Dover Castle, and their representatives are called Barons of the Cinque Ports. Their privileges were granted by King John upon condition that they should provide eighty ships at their own charge for forty days, as often as the king should need them in war. Formerly they had a separate legal administration of justice, but by the Statute 18 & 19 Vict. c. 48, amended by the 20 & 21 Vict. c. 1, all jurisdiction and authority of the Lord Warden of the Cinque Ports and Constable of Dover Castle in or in relation to the administration of justice in actions, suits, or other civil proceedings, is abolished. By Statute 27 & 28 Vict. c. 80, the provisions of the Criminal Justice Act, 1855, are extended to the Cinque Ports; and by the Cinque Ports Act, 1869, several useful provisions regarding the adjustment of rates, &c., are enacted.

Cinquefoil (Ornament).—In Gothic architecture the carved tracery work or foliation have between the projecting portions or *cusps* openings, all equal in size, and technically known as foils. These, according to their numbers, are called trefoil, quatrefoil, or cinquefoil.

Such decorative openings are of frequent use in Gothic architecture, and their idea appears to have been a conventionalised one derived from the leaf of a plant, combined probably with a desire to represent the mysteries of the rosary. The cinquefoil is frequently seen in ecclesiastical windows, in Gothic panelling, &c.

Cipher.—1. In arithmetic, an Arabic numeral of this form—0, which when standing alone expresses nothing, but when brought into conjunction with other figures increases or diminishes their numerical value, according to the position in which it is placed. Thus, in the case of whole numbers, a cipher placed at their right hand increases the value tenfold; but, when dealing with decimal fractions, a cipher placed on the left-hand side of a figure diminishes its value to one-tenth. 2. An enigmatical device or character; an interwoven or ornamental arrangements of letters, such as the initial letters of a name. In former times when persons in trade were prohibited from bearing family arms, they made use of ciphers, which became also their private mark. Ciphers were in this way also adopted by artists and architects to distinguish their works. 3. A disguised manner of writing. (*See* CRYPTOGRAM.)

Cipher-writing. (*See* CRYPTOGRAM.)

Circassian Cream.—A cosmetic once very popular, and valued for application to the hair. There are various recipes for making it. One is: castor oil, one pint; almond oil, four ounces; liquor potassæ, three drachms; essence of bergamot, oil of cloves, and oil of lemon, in equal proportions; and twelve or fourteen drops of attar of roses. To be well incorporated, and kept in a corked bottle. The same name is given to a hair-wash: half a pint of almond emulsion, one drachm of essence of almonds, half a pint of spirits of wine, four grains of bichloride of mercury; mix, and add any perfume desired. French circassian cream is a pomade of a firm consistence, due to the use of bear's grease, benzoin, and rose pomade; about one-half consists of almond oil, and the addition of a few drops of essence of roses to the other ingredients completes it. The following is a good and useful form:—Two flasks of oil, three ounces of white wax, two ounces of spermaceti, half an ounce of alkanet root. The alkanet is to steep in the oil till the latter is well coloured, and then to be strained out. Slowly melt together the wax and spermaceti in the oil, properly stirring it. When cool enough, introduce two drachms and a half of English oil of lavender, and half a drachm of essence of ambergris. Preserve in wide-mouthed bottles or pots closely covered.

Circassian Tooth-powder.—Dr. Halifax gives for this: two ounces prepared hartshorn, two ounces of sulphate of potash, eight ounces of cuttle-fish bone, four ounces of orris, one ounce of yellow sandal-wood, three ounces of rose pink, and thirty drops of oil of rhodium. Reduce the dry ingredients to a fine powder, mix them well, and then add the oil of rhodium.

Circuits, in law, signify the eight divisions of England and Wales which the common law judges visit twice a year to hold courts and administer justice. This takes place in the respective vacations after Hilary and Trinity Terms, *i.e.*, about Lent and Midsummer. Two judges go on each of the circuits, except in North and South Wales, where one judge is found sufficient. A winter gaol delivery also takes place in the more populous counties. A winter assize is also now held for Manchester and Liverpool, for both civil and criminal proceedings. The circuits, as they now stand, are the Northern, the South-Eastern, the Western, the Oxford, the Midland, the North-Eastern, the North Wales, and South Wales circuits. (*See* ASSIZE.)

Circular Notes.—These are intended for the convenience of travellers when on a journey. They are issued by most London bankers, and if not so issued by the intending traveller's bankers, they can always be obtained by these latter. They possess one great advantage over letters of credit (*see* LETTERS OF CREDIT); the traveller may obtain the money at a great number of different places abroad (generally some two hundred in all) instead of at one or two fixed towns only. The mode of procedure is somewhat as follows:—The traveller having settled what money will be required by him on his journey, pays in that sum to the banker, and receives in return notes of the value of £10 or upwards for a similar amount, together with a general letter or order addressed by the banker to all his agents or correspondents abroad. On any of these the traveller when in want of supplies may call, show his order, and cash his notes. All circular notes are drawn to order, and should not be endorsed by the owner until he goes to receive the money. They are of course cashed in foreign money, estimated at the current rate of exchange. Any circular notes which may remain uncashed at the completion of a journey may be returned to the banker, who will at once cash them for their full nominal amount.

Circulating Libraries.—Collections of books circulating from hand to hand. They had their origin in the Middle Ages, when the poorer students of the universities, unable to buy books, borrowed them at certain fixed rates of hire from the stationers and public librarians. The rate of charge was in most instances fixed by the universities themselves. The first appearance of the circulating library in its modern form is involved in some obscurity; it is, however, certain that such an institution was established by Allan Ramsay, in Edinburgh, about the year 1725. The method of the present system consists in the payment of an annual subscription to the proprietor of the library, in return for which a fixed number of books is lent for some specified or unspecified period. (*See* BOOK CLUBS.)

Circulation, Defective.—This condition is characterised by paleness or blueness of the skin, especially of the parts most exposed, as the face and hands, and is due either to disease of the heart, or to want of power in that organ to propel the blood through the vessels, these latter being also deficient in the

contractile force necessary to carry on the circulation. Those who suffer from defective circulation due to the latter cause are very liable to catch cold, and to suffer from chilblains, &c.; they should therefore avoid exposure, wear warm clothing, and adopt such measures as are calculated to promote the general good health. Brisk exercise and the daily use of the cold sponge-bath, when the condition and circumstances allow of it, are good, and even the sea-bath may be indulged in with benefit, provided that care is taken not to remain long in the water, and that the body is well rubbed and dried afterwards.

Circulation of Blood. (*See* HEART.)

Circumstantial Evidence.—In law, the doctrine of presumptive proof when direct testimony to a fact is not forthcoming, but is inferred from circumstances. This term is applied to it in contradistinction to evidence of a direct and positive nature, circumstantial evidence being considered indirect evidence. It is presumptive, because when the fact itself cannot be proved it may be presumed by the proof of such circumstances as necessarily or usually attend the facts.

Cisterns.—Everything connected with the water-supply is a subject of importance to the household. The kind of water, its qualities and condition, must exercise the greatest influence upon health. Although it should be free from salts of lime in excess, which renders the water hard and unwholesome, from dead or putrefying matter, which is even more dangerous, from deposits of sewage matter received in its passage through cultivated lands, &c., yet water is little or none the worse for the presence of animalculæ, so long as they are living, inasmuch as the very qualities which enable them to support existence are those which also render the water wholesome for drinking purposes. The water-cistern should be frequently replenished, exposed to the air (which is a great purifier of water), and placed where there are no foul smells from impure gases, which water readily absorbs. Slate cisterns are preferable to those made of lead, as the latter, under certain conditions which may be accidentally and secretly obtained, is apt to convey its poisonous properties to the water.

Cistus. — Some varieties of this plant produce gum laudanum, and grow freely amongst rockwork, &c. To propagate the cistus, the seed should be sown in April, and is better for having the protection of a hand-glass; it can also be propagated by layers after the flowering season is over, and also by cuttings in the early summer. A dry soil is best adapted for it. It is tolerably hardy, but to keep up the stock of plants it is advisable to grow some every year. During winter a cold pit or frame is only necessary to shelter the young plants intended for next season from the frost, &c.

Citation, in law, is a summons to appear, applicable more particularly to the process in use in the Ecclesiastical Courts and Court of Probate and Divorce for calling the parties, defendant or respondent, before them. It is the first step in the case, and in this respect is analogous to the writ of summons at common law. The term is also applicable to a particular authority or reference in support of an argument.

Citizen.—A native or inhabitant of a city, vested with its freedom and liberties. This term became general among the French people during the time of the Republic. A citizen of Rome was distinguished from a stranger, because he belonged to no certain commonwealth subject to the Romans. A citizen is either by birth or election, and sons may derive the right from their fathers. To make a good Roman citizen it was necessary to be an inhabitant of Rome, to be enrolled in one of the tribes, and to be capable of dignities. Those to whom were granted the rights and privileges of Roman citizens were only honorary citizens. It was not lawful to scourge a citizen of Rome.

Citric Acid is present in many fruits, along with other acids, but is especially abundant in limes and lemons, from the juice of which it is always prepared. The juice is allowed to ferment for a short time, in order to separate the mucilaginous matter; it is then filtered, and the clear liquid neutralised with carbonate of lime; the insoluble citrate which forms is collected, washed, decomposed by a proper quantity of dilute sulphuric acid, and the solution of citric acid is then evaporated down until the acid crystallises out in colourless prisms.

Citron.—The citron (*Citrus medica*) belongs to the same genus as the orange, lemon, and the lime, and is cultivated in the south of Europe and other warm or sub-tropical countries for its fruit. It is also a native of India. The fruit is acidulous, anti-septic, and anti-scorbutic,



CITRON.

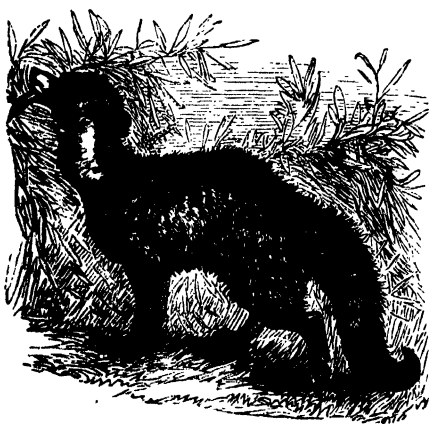
and, like lemon-juice, has been strongly recommended for chronic rheumatism, gout, and scurvy. It is not unsuitable for eating in its natural state, but the juice mixed with water and sweetened constitutes an excellent cooling drink. The rind or peel is prepared in the same way as candied orange and lemon, and is

used for cooking and confectionery. The citron is a pale delicate shade of yellow. This fruit is one of those used by the Jews at the celebration of the Feast of the Tabernacles.

City.—A town usually corporate, having a bishop and cathedral church. The freedom of cities appears to have been first established in Italy, owing mainly to the introduction of commerce. It afterwards made its way to France, where Louis the Gross, in order to create some power which might counterbalance those potent vassals who controlled or gave law to the crown, first adopted the plan of conferring new privileges on the towns situate within his own domain. These privileges were called Charters of Community, by which he enfranchised the inhabitants, abolished all marks of servitude, and formed them into corporations or bodies politic, to be governed by a council and magistrates of their own nomination. This practice spread quickly over Europe, and was adopted in Spain, England, and Scotland, and all the other feudal kingdoms.

In England the establishment of communities or corporations was later than the Conquest. The practice was borrowed from France, and the privileges granted by the Crown as above shown. It is not improbable that some of the towns in England were formed into corporations under the Saxon kings, and that the charters granted by the knights of the Norman race were not charters of enfranchisement from a state of slavery, but a confirmation of privileges which they had already enjoyed. The English cities were, however, very inconsiderable in the twelfth century, and London in particular in the reign of Henry II. contained but 40,000 inhabitants; the other cities were small in proportion.

Civet.—This is the name given to a kind of perfume obtained from the civet-cat (*Viverra civetta*, natural family *Viverridæ*). The civet



CIVET-CAT.

is a native of Africa, a long-bodied animal shaped somewhat like a ferret, height about ten inches, length of body from two to three feet, with a tail half as long. The eyes are surrounded by a black patch, the colour of the body is a brownish-grey, with tranverse dark bands broken up into spots. Like the largest specimens of our domestic cats, it preys upon birds and quadrupeds smaller than itself. They are often kept in captivity, and get comparatively tame, but not quite safe; when thus kept, the young ones are fed on porridge or boiled rice and milk, and the older ones on raw flesh. The perfume is of about the consistency of pomade, with a strong disagreeably musky odour, which becomes pleasant when diluted. The extract of civet is made by rubbing up together in a mortar an ounce of civet with an ounce of orris-root powder. This is then placed in a gallon of pure rectified spirit, and allowed to stand with occasional shaking for a month, and afterwards filtered off. About ten ounces of this tincture is all that need be added to flavour a gallon of any other kind of perfume.

Civil Law is that law which every particular nation, commonwealth, or city has established peculiarly for itself. It is either written or unwritten, and the written law is public or private; public immediately regarding the state of the commonwealth, as the enacting and execution of laws, decisions about war and peace, establishment of religion, &c.; private having more immediate respect to the concerns of every particular person. The unwritten law is custom introduced by the tacit consent of the people only, without any particular establishment. Its authority is great, and equal with a written law, if it be wholly uninterrupted and of long continuance. The civil law prevailed until modern times in the two Universities of Oxford and Cambridge, but now they are governed by the common and statute law.

Civil List.—An annual sum granted by Parliament at the commencement of each reign, for the expenses of the royal household and establishment as distinguished from the general expenses of the State. It is the provision made for the Crown out of the taxes in lieu of its proper patrimony, and in consideration of the assignment of that patrimony to the public use. This arrangement has existed from the time of the Revolution, though the amount fixed for the civil list has been subject to considerable variation in different reigns. At the commencement of the present reign, a civil list was settled on her Majesty for life to the amount of £385,000 per annum, payable quarterly out of the consolidated fund, of which the sum of £60,000 is assigned for her Majesty's privy purse, in return for which grant the hereditary revenues of the Crown (with the exception of those on beer, ale, and cider, which were to be discontinued) were during the present Queen's life to be carried to and form part of the consolidated fund. The civil list is properly the whole of the Sovereign's revenue in her separate capacity, the rest being rather the revenue of the people or its creditors, though collected and distributed in the name and by the officers of the Crown. The civil list, therefore, now stands on the same footing as the hereditary income formerly did, but with this great distinction, that it is not chargeable, as that income was, with the general and public expenses of Govern-

ment. By the Civil List Act, passed at the Queen's accession (1 & 2 Vict. c. 2), her Majesty is empowered to grant pensions to the amount of £1,200 per annum, chargeable on her civil list revenues, for the remuneration of those who have just claims on the royal beneficence, or by their services or discoveries have merited their country's gratitude.

Civil Service.—Under this general heading are included all those persons who are in the service and pay of the State, other than those connected with the naval and military services. Of these, however, it is more usual to consider those only as members of the Civil Service who receive annual salaries, omitting all civil servants on weekly wages and in the humbler positions, such as policemen, messengers, and postmen. At the head of the Civil Service stand the officers of the Royal Household under their several departments (*see* ROYAL HOUSEHOLD), the chiefs of the great departments of State, and the various officers of the Houses of Lords and Commons. The largest salary paid to any of these falls to the chief law officer of the Crown, the Lord Chancellor, who receives £10,000 per annum. There are a very large number of offices or departments into which the government of the State is divided, and these are presided over by commissioners and secretaries, assisted by clerks. The clerkships are now very generally thrown open to public competition, and the following are some of the more important departments in which the principle of open competition holds good:—Treasury, Privy Council Office, Colonial Office, India Office, War Office, Admiralty, Board of Trade, Local Government Board, Privy Seal Office, Customs, Inland Revenue, Paymaster-General's Department, Civil Service Commission, General Post Office (Clerks in Secretary's Department), Mint, Exchequer and Audit Department, General Register Office, Office of Works, Office of Woods, &c., National Debt Office, Public Record Office, Stationery Office, Charity Commission, Education Office, Patent Office, Home Office, Emigration Office, Science and Art Department.

The clerkships are divided into two classes, the limit of age for candidates desiring to enter the first or higher class being from 18 to 24, and for the second or lower class from 17 to 20. There are also open competitions for boy clerkships—the limit of age for which is from 15 to 17—and for temporary copyistships. The full regulations for all of these may be obtained on application to the Secretary of the Civil Service Commission, Cannon Row, Westminster.

The salaries for the higher class of clerkships average from £180 to £250 per annum at starting, and may increase to from £600 to £800; in the lower division the salaries commence at £80 and £90, and rise by triennial increments of £15 to £200 and £250. Extra pay, not exceeding £100 per annum, also attaches to certain situations open to clerks of the lower division, whose duties involve the superintendence of other clerks, or are otherwise of a more distinctly responsible character than such as the generality of their colleagues have to perform. It is perhaps needless to state that one of the great inducements to employment in the Civil Service lies in its lasting nature, and in the fact that pensions are obtainable by all permanent clerks after fixed periods of service.

In the Indian as well as the Home Civil Service a large staff of clerks, &c., is employed, and some account of this branch will be found under INDIAN CIVIL SERVICE.

Claim, Claimant.—The term claim signifies a demand of anything due, or any right or privilege in another's possession, and withheld by him, the maker of such demand being the claimant.

Clandestine Marriage. (*See* MARRIAGE.)

Clarence. (*See* CARRIAGES.)

Clarence.—An old-fashioned boot now out of date, made to cover a portion of the leg, and lacing at the side.

Claret.—This word was originally applied to all wines of a light-red colour, and with this signification is frequently mentioned early in history. It is now used to denote the red wines of Bordeaux, which is the chief town of the district, now the department of the Gironde, and once the ancient province of Gascony, where the wines are produced. This district is said to possess 36,000 acres of vineyards, thickly planted, and to produce yearly 85,000,000 gallons of wine.

The name claret, as used by us, is not known in France. There the inferior varieties are denominated *vin ordinaire*, and are drunk as a common beverage by the working classes. A tumblerful can be bought for a penny. *Vin ordinaire* constitutes part of the dinner at the French restaurants, and is provided as a matter of course, without any extra charge being made for it.

Both red and white wines are derived from the Bordeaux district. Amongst the most celebrated red wines are Médoc, Lafitte, Latour, Larose, Léoville, Margaux, Mouton, St. Estephe, St. Julien, St. Emilion, and Panillac. These wines have great delicacy of flavour, combined with a full body and aroma. They have a slightly rough and astringent taste without any unpleasant acidity. They are light, agreeable, and refreshing to drink, and being fully fermented, they are more or less free from sugar, and may therefore be described as dry wines. Their alcoholic strength averages from 18 to 20 per cent. of proof spirit. The white wines of the Bordeaux district, such as Sauterne, Vin de Grave, Barsac, Preignac, Langon, and the most celebrated and choice of all, Château d'Yquem, are like all white wines stronger in alcohol, and more finely flavoured than the red wines. They also have a more delicate perfume, and less astringency. The last of these particularly, Château d'Yquem, can scarcely be excelled in lusciousness and aroma. It is a very expensive wine.

Claret varies exceedingly in quality, and it is difficult for the inexperienced to select a superior wine. The best wines are characterised by their exquisite bouquet, by their bright deep colour, their delicious flavour, their soft mellow taste, and their excellent keeping powers. Above all, they should be entirely free from acidity, for

an acid claret is never good. Pure claret is mildly stimulative, easy of digestion, not fattening, and one of the most refreshing of beverages. It is light and pleasant to the taste, possesses good body, colour, and bouquet, and forms an exceedingly valuable kind of stimulant both for the healthy and the sick.

First-class clarets are very expensive, but what are called the inferior wines, which are really most excellent and wholesome, may be obtained at a comparatively trifling cost. Good sound claret can be purchased at 16s. per dozen, and if it is imported in the wood and bottled by the buyer, at a very much less expensive rate. Unfortunately, good claret cannot be got on draught cheap.

Claret (Colour).—A rich compound colour produced by the admixture of pure blue and pure red, the blue shade predominating over that of the latter. This owes its name to the French wine of Auvergne, which is of that hue. The colour is also that of the juice of the mulberry.

Claret, To Dye.—The clarets now in fashion can be obtained by the use of the aniline dyes. (*See* ANILINE COLOURS AND DYES.) Before these came into use, cudbear, and a bath of purple archil afterwards, was the general process.

Clarify Liquids, To.—The clarification of liquids is the process of making them bright, or clear, or "fine," by chemical means. Sometimes liquids are made clear by being strained through cloth or flannel: then they are filtered rather than clarified.

The substances used in clarification are ordinarily spoken of as clarifiers. These vary according to the nature of the liquid which is to be made clear. Natural waters which contain organic matter in solution are clarified by the addition of alum. Home-made white wines, beer, cider, &c., are clarified with gelatine which has been dissolved in water or weak vinegar. Red wines, beer, and porter are fined with bullocks' blood; lime and plaster of Paris are also employed. Sometimes salts of lead and potassa dissolved in water are used as clarifiers, but their use is very injurious. The most ordinary mode of clarifying liquids for domestic purposes, such as gravy, jelly, soups, &c., is to mix the cold liquid with albumen, in the form of white of egg beaten up with a little water. The mixture is then put on the fire and gently heated. The action of heat causes the albumen to coagulate and rise to the surface, and in doing this it carries the impurities with it, which can then be removed with a skimmer; or the liquid may be passed through a strainer, when it will come out clear and bright. The white of one egg mixed with a tea-cupful of cold water will clarify a quart of liquid. Care should be taken not to disturb the preparation after it has begun to heat, but to move it when necessary very gently, and to take off the scum very carefully.

Clary Wine is made from the flowers of the clary plant (*Salvia sclarea*), which is cultivated in many British gardens like sage, to which it is akin. It is anti-spasmodic and stimulating, and of strong aromatic flavour. The plant is used for seasoning soups, and also in confectionery.

Clavicle. (*See* COLLAR-BONE.)

Cleaning Clothes. (*See* CLOTHES, CLEANING.)

Cleaning Dogs. (*See* DOGS, TO CLEAN.)

Cleaning House. (*See* HOUSE CLEANING.)

Cleanliness, Advice on.—That cleanliness is essential to health is a fact that cannot be questioned, nor is it to be wondered at when we remember that the skin of an ordinary-sized man has been calculated to contain about twenty-eight miles of perspiratory tubes continually exuding more or less moisture, and relieving the body of a large amount of waste matter. The mischief which must follow the obstruction of this immense drain, by dirt and other causes, must be obvious. The skin is also a great breathing-surface, which is proved by the fact that if an animal is coated with an impermeable varnish, it is suffocated in a short time just as effectually as if it had been strangled with a cord. Lastly, the skin is a great absorbent of various matters coming in contact with it, and in this way lead, arsenic, and other poisons may enter the body. Cleanliness is therefore absolutely necessary in (1) promoting a healthy perspiration, and through this a uniform temperature of the body; (2) in largely assisting the lungs in the performance of the function of respiration; (3) in preventing the absorption of poisonous matter. To clean the skin thoroughly from the scurf and oily matter, soft water will be found more effectual than hard, its solvent power for saline matter being greater, and when soap is added, the oily matter is at once saponified, and the cleansing is complete. Soap and water should be used at least twice in the twenty-four hours to the exposed parts, the face and hands, and the whole body should be sponged daily with cold or lukewarm water and soap. Warm water or the Turkish bath (in suitable cases) should be used about once a week, and will be found conducive to health. Cleanliness in the matter of clothing is also very important, as through this channel germs of disease are carried about which not only infect the person carrying them, but likewise those with whom they come in contact. Skin-cleanliness is a powerful agent in augmenting nutrition of food, and it has been found by experience that pigs subjected to regular washing put on one-fourth more flesh than the unwashed, and prove better eating; and it may therefore be fairly affirmed that children who are kept clean will thrive upon less food than those who are not.

Clear-starching. (*See* STARCHING.)

Clematis.—There are several varieties of this plant, but that most generally known is the sweet-scented one, which grows in great luxuriance in the southern parts of England, covering the roofs of cottages, and sending forth its almond perfume for a long distance. It is a great climber, and is used for adorning verandahs and porches of cottages, &c. It is propagated by strong off-shoots taken close to the main branch, and put under a hand-glass in

summer, but shaded from the sun. Layers can be made in September. There is a species of wild clematis which grows in chalk-pits, and in



SWEET-SCENTED CLEMATIS.

the hedges and woods; and there is a beautiful variety bearing a large purple flower; and many other sorts can be obtained at good nurseries.

Clepsydra.—This was a vessel generally made of glass, but sometimes of bronze and brass, which was invented and used by the Greeks for the purpose of measuring time. The vessel was globular in form, and had several small apertures, through which the water it contained percolated. At first the clepsydra was only used in the Athenian courts of justice, for the purpose of marking the time allowed to each speaker. A special officer had the charge of the instrument, and it was part of his duty to stop the outflow of water should any interruption occur to prevent the speaker from continuing his discourse; this was done by placing a lid on the top of the globe. Later, clepsydræ came into use in families; these were marked in twelve divisions. The Romans also made use of clepsydræ, more especially in their camps.

Clergy.—The assembly or body of clerks or ecclesiastics in contradistinction to the laity. In the Romish Church there are two kinds of clergy—the one regular, comprehending all the religious of both sexes; the other secular, comprehending all the ecclesiastics who do not take the monastic vows. In the Reformed Churches there are none but secular clergy. The Roman clergy form a monarchical state under the Pope as its supreme head. In England, under the name of clergy were also formerly comprised all the officers of justice, as being supposed to be men of letters, but now the term is restricted to persons in holy orders and in ecclesiastical offices. The declaration of conformity to be taken by the clergy on entering any curacy, benefice, &c., is now regulated by the Statute 28 & 29 Vict. c. 122. The clergy are exempt from serving on juries; they are free from arrest while officiating; they are restrained from farming more than eighty acres, unless with the sanction of the bishop; and they cannot carry on any trade. It is a misdemeanour to obstruct or assault them while in the exercise of their duties.

Clergyman's Sore Throat.—This is a disease which often proves troublesome to those who have to exercise the voice much. The constant strain upon the mucous membrane of the throat which must naturally be made by ministers and other public men produces this complaint. By doctors it is known as follicular inflammation of the pharynx (or *dysphonia clericorum*). The first symptom is a disagreeable tickling sensation in the throat, the voice is husky, there is a slight cough, though in some instances the cough is more frequent than in others, added to which is the continual necessity to swallow. If the throat be examined, the mucous membrane will be covered with granulations, which frequently break. After the discharge has taken place, ulceration frequently occurs. As it is the protracted constant speaking that creates this disease, the conclusion is natural that rest is of more importance than anything else; indeed, it is absolutely necessary, also a change of climate. The winter and spring must be spent in a mild climate. Dr. Horace Green has written a valuable book on this subject, which any one troubled with this complaint would do wisely to consult. Medicines may be taken, but the general health of the patient must be carefully attended to; still, it will be found that an outward application of a solution of nitrate of silver will give great relief—indeed, it is generally acknowledged to be much more efficacious than internal remedies. From twenty to eighty grains of nitrate of silver in one ounce of water is the necessary strength, touching the irritated parts with it by means of a probang.

Clerical Robes.—The wearing of a distinctive dress when acting officially is almost universal with the clergy, whatever the communion they belong to. To such an extent is this carried that not only are special vestments allotted to every grade of an ecclesiastical hierarchy, but to special seasons and services. It would not fall within the scope of this work to set out the various names, colours, forms, and uses of the vestments worn by Christian ministers. In the English Church the black gown when preaching, and the white surplice in liturgical services, were for a long time almost universal, with the simple addition of cassock, bands, academical hoods, and the like. Of late, however, other vestments have been introduced or revived by many, the black gown has become less frequent, and the surplice has been extensively adopted for preaching.

Clerks and Clerkships.—In its primary signification a clerk is any person in holy orders, a clergyman or minister. From this original starting-point its meaning has become somewhat extended, and the secondary signification of a man of letters or a scholar has been arrived at. According to Johnson, "formerly, *clerk* was the usual term for a scholar; most situations of trust or talent being filled by the clergy." A layman who reads the responses in church is also called a clerk. But in its most

modern usage, the title of clerk comprises all those who are engaged for a livelihood in keeping records, or accounts; in writing, and the carrying on of correspondence; and in performing the ordinary routine work of an office or place of business. The pay of clerks as understood in this latter sense is not very high, the average of salaries ranging from £15 to £300. Clerks in positions of great responsibility and trust are of course better remunerated, receiving in some cases from £500 to £1,000 a year; it is, however, needless to say that these are but noteworthy exceptions to the usual rule of low salaries.

Premising that wherever business of any sort is carried on, there clerkships exist also, clerks may be subdivided somewhat as follows:—Civil Service, Law, Bank, and Commercial. *Civil Service clerkships* are described under the heading of Civil Service. *Law clerks* are as a rule very badly paid, a managing clerkship being almost the only position in which a fair salary may be obtained, and managing clerks are almost all now-a-days qualified solicitors themselves, having served their articles and passed the required examinations. *Bank clerkships* offer a tempting opening to youths leaving school, as the salaries paid in almost all banks range at starting from £60 to £80 a year. After this, however, the increase is very gradual, and a high salary is but rarely attained even after years of service. Furthermore, a clerk at starting, so the banker's clerk must remain, his chance of rising to be a principal being infinitesimally small—so small that it may well be left out of the calculations altogether when the settlement of a youth's career in life is in question. On the other hand, the bank clerk may rejoice in the fact that his situation is in all reasonable expectation a permanent one. In some few of the private banks, however, lucrative positions are attainable, but the portal to these is not by any means easy to pass. *Commercial clerkships* vary so much that it is impossible to fix within any close limits their relative advantages and disadvantages, but the general remarks already made will of course hold good for these.

As to the essential requirements for clerkships of every description, it is perhaps needless to say that good handwriting and a fair knowledge of figures and accounts are indispensable. To these should be added some readiness in correspondence; and acquaintance with shorthand, French, German, and other languages will always be found a strong recommendation to employers.

Client, among the Romans, signified a citizen who put himself under the protection of some great man, who in respect of that relation was called patron. The term client is now used to denote a party in a law-suit who has placed his interests therein in the hands of solicitor or counsel. (*See* Solicitor.)

Climacteric.—This is a term used by old writers on medicine to express the tendency in the human body to certain diseases at certain definite periods of life, which are generally fixed at every seven years.

Climate.—The temperature, moisture, pressure, and electric condition of the air constitute what is called climate. These have a marked and varied influence upon health. Hence it is that certain diseases are, so to speak, indigenous to certain countries or localities, though they may extend occasionally beyond their natural limits. Thus dysentery, cholera, and malarious fevers prevail in hot, moist climates; whilst diseases of the respiratory organs, as consumption, bronchitis, asthma, &c., are more prevalent in cold, temperate climates like our own. The choice of a climate for those who suffer from the latter complaints is often the subject of much anxious consideration, and various places are named as being especially beneficial; amongst them the most important are Nice, Mentone, Algiers, Pau, and the south coast of Devon. The climate of each of these varies somewhat in moisture and amount of wind, and therefore the state of the patient and the peculiarity of his case must be taken into consideration in the selection. The medical attendant will be the best adviser in this matter.

Cloaks.—These may be described as large capes which are made with or without sleeves, and with or without the addition of a cape. At one period they were quite as much an article of male attire as of female dress. In France, in the fourteenth century, it was the custom for knights to wear long cloaks which trailed in the dust; these were made of fur, and were worn in the heat of summer as well as during the winter. In England, during the reigns of Charles I. and Charles II., cloaks were much worn by the courtiers and men of rank. In the present day they are used almost entirely by women, and are made of waterproof cloth. This should be entirely of wool, for if cotton is mixed with wool, the material is very heavy. Cloaks of alpaca made waterproof are particularly adapted for summer use, being exceedingly light to wear, and not burdensome to carry.

Clocks.—The invention of clocks has, by some historians, been ascribed to Pacificus, Archdeacon of Verona, in the ninth century, although others have awarded the credit of the invention to Boethius, in the sixth century. Archimedes also has been described as a clockmaker. The best evidence goes to show that clocks moved by wheels and weights of one kind or another were used in the European monasteries before the close of the eleventh century, and that these came originally from the Saracens.

Pendulum clocks were introduced by Fromantil, a Dutchman, who in 1662 brought one to England, which was the first ever seen in this country. Before that time a balance was used resembling the fly of a roasting-jack. *Domestic clocks* are of various kinds and sizes—some striking clocks, some musical, some with alarums attached, and clocks which go a length of time without winding.

Amongst the clocks most commonly used are the following:—*Astronomical clocks*, or "regulators," which will keep time with no greater variation than that of a second or two in a week; *Turret clocks*, which are intended generally for

public buildings, and when of the highest class are usually constructed with a form of escapement made on what is known as the *remontoir* or re-winder principle, discharging by half-minutes, which renders the escapement independent of all variations in the force of the train, and allows a sufficient weight to be applied to the clock to drive the hands without causing the pendulum to swing too far; *American clocks*, which are amongst the best of cheap clocks made with a very small moving force, whereby less power is wasted in friction and the inertia of the train, which is greatly decreased by the lightness of the wheels, and the use of what are termed lantern pinions instead of leaved pinions. In Newhaven it is estimated that one factory alone turns out an average of over 50,000 brass clocks every year; *Hydrostatic clocks*, i.e., those in which water serves as the motive power; *Electric clocks*, depending for their time-keeping power on the transmission of electricity, their difficulty residing in the securing of a current of unvarying force; *Calender clocks*—very popular in America, where they are largely made and exported. These show not only the time, but also the day of the week, the month, and the day of the month, including the 29th of February in leap-year; and *Dutch or Wooden clocks*. These, despite their name, are almost all made in the Black Forest, being in fact German clocks. The centre of this manufactory is the village of Freyburg.

A large number of clocks are manufactured in Switzerland at Geneva, La Chaux, de Fonds, Locle, and other places. The reader who desires a more minute description of clock-work than is given above will find it, with diagrams and illustrations, in "Cassell's Household Guide."

Clocks, Care of.—The delicate organisation of a clock requires that care shall be taken to guard them from those evils by which they are most readily affected. If dust be permitted to enter the clock, it will mix with the oil of the pivots, and when thick enough convert it into a kind of wax, which at first affects its time-keeping quality, and at last stops it. If too long neglected or not properly cleaned, the sandy and gritty portions of the dust caught by the oil of clock pivots will be ground into the brass, whence no ordinary process of cleaning can remove it; hence the pivots become rough and unfit for their purpose.

Clogs.—These are a kind of shoe worn by the lower classes in Yorkshire and Lancashire. They have wooden soles tipped with iron, and leather tops, which are fastened by a brass clasp in front. They are worn by men, women, boys, and girls. The makers and menders of clogs are called cloggers.

Close Rooms. (*See* VENTILATION.)

Cloth, Long.—This is a white calico of a superior kind; its surface is smooth, it is not glazed, but by a particular method of dressing, all the short filaments and fluff are taken away; this process is called "gassing." The calico is passed quickly through the flame of a jet of gas, and in this way all the fluff is singed off, leaving a smooth surface. Long-cloth is more expensive than calico of the ordinary kind; it is not so quickly soiled, and always looks better. It is used for skirts, shirting, and body-linen generally.

Cloth, Woollen.—The filaments of wool which make what is termed broadcloth, *i.e.*, the cloth used for men's garments, are required to be shorter, finer, and softer than those used for other woollen materials. The wool of which these cloths are made is brought from Germany, the Cape, and Australia, and the cloth is mostly manufactured in the neighbourhood of Leeds and the West of England. A very inferior kind of cloth is made in some parts of Yorkshire; it is manufactured out of old cloth. This is torn to pieces by machinery and re-woven; the material is loose and not durable, but it is very cheap, and is called shoddy cloth. The art of weaving cloth came, it is said, from the Romans.

Clothes-bags.—These should be made of brown glazed holland or of stout calico, and should have a vent at either side, and a strong tape inserted round the top. Their use being for a receptacle for soiled linen, they should not hang in sight, but be in a closet—if this is not practicable, a basket is preferable. Soiled clothes should always be put into a bag or basket, and not be left about the room.

Clothes-baskets.—Those made high, and with lids, to stand in a bedroom are much more expensive than the old-fashioned bag which for a long time was used for that purpose, and is so still in many houses. When these baskets are discoloured, they can be bronzed if sent to a basket-maker's, or they can have loose covers of chintz drawn up round the top; either of these methods will improve their appearance. For sending soiled linen to the wash, square strong white hampers with lids are better than the open baskets, being less likely to be disturbed.

Clothes-brushes.—These are made hard and soft; for cloth and woollen materials, the former are required; for silk, those with soft bristles are requisite, as harshness wears the silk. Brushes for velvet are made of pieces of velvet glued on a narrow piece of flat wood, for bristles would spoil the pile of velvet. Hat-brushes are very soft; they are made of the hair of the horse and the goat. In brushing materials, especially cloth and velvet, care should be taken to brush them in the right direction, *i.e.*, the way of the cloth, so as not to ruffle the nap or the pile.

Clothes, Care of.—If outer garments are to look well, they should be tidily folded up when they are taken off, for creases, which show especially in cloth, always disfigure garments. Skirts of dresses should be turned and hung up, except they are of velveteen, which should always remain right side outwards. Scarves and ribbons should be rolled up after use; gloves should be stretched out and laid straight. The dust should be brushed off clothes at once, and all marks and spots, of whatever nature, should be taken away, either with a sponge and clean water, or by the help

of benzine. Gentlemen's clothes should be brushed and neatly folded, and silk hats when wet should immediately be brushed round, or the nap will remain ruffled. Under-linen should be looked over when it comes from the laundress, and all that needs repair, however slight, should be mended at once, or put aside until it can receive proper attention; it should never be worn until it has been mended.

Clothes, Cleaning.—It is impossible that too much attention can be paid to cleanliness in every respect, for without it health and happiness cannot be thoroughly secured. With wearing apparel, as with everything else, a little system is required to keep the clothes in good order. Under-clothing can, of course, be kept clean with little difficulty, as it may easily be washed once or twice a week as required. Outer garments, however, which are generally made of cloth or woollen material of some kind, need different treatment. Being exposed as they are, the dirt naturally adheres to them, and the regular cleaning of them should not be neglected. The dust must first be beaten from them, which can most easily be done by hanging them on a clothes-line and beating them gently with a thin stick. They should then be brushed well on a clean table, until every mark that can be taken off with a clothes-brush has disappeared. When clothes have been wet and splashed they must be well dried before being cleaned. Should the clothes be marked with grease of any kind, a knife may be gently used to scrape away the grease; after that a piece of brown paper should be placed on the greasy part, and over it a hot iron. The grease will come through to the paper; the process may be repeated until no grease is seen on the paper; the material underneath will then be found to be perfectly clean. In cases where very much dirt and grease or paint requires removing, a scouring-ball may be used, composed of equal parts of soft soap and fuller's earth, beaten up with a little oil of turpentine; a little essence of lemons may be added to destroy the disagreeable smell of soap and turpentine. The dirty place should first be made quite moist with hot water, then rubbed with the cake, and left until nearly dry, when it must be again rubbed with a little warm water, and afterwards rinsed in clean water. When dry it will brush quite clean. Even when clothes are old they may be worn longer and will look tidier if kept free from dirt. In brushing, when a soft brush will do the work, a hard one should not be used, as much rough brushing will make the clothes threadbare. The above directions apply mostly to men's and boys' clothing.

Clothes Clubs. (*See* Clothing Clubs.)

Clothes-horse.—In old-fashioned houses in which the rooms were low and the rafters and beams within easy reach, it was the custom to have lines either of cord or wire across the top, and on these clothes were hung to dry and air. But when kitchens were made higher and were ceiled, then there were no longer beams or rafters to be made of use, and so the necessary clothes-horse came into use. The advantage of the old plan was that the clothes were, to a certain extent, out of the way, whereas the horse seems to be always in the wrong place. These horses when not in use should be hung on a hook to be out of harm's way, for being light they are liable to fall when touched.

Clothes Lines and Props.—A strong prepared wire is sometimes used, but a smooth rope, such as is sold for 4d. the knot, is the best for clothes-lines. The props are tall poles with two prongs at one end, between which the line rests. When a regular drying-ground can be set apart, these props are often fastened in the ground and remain stationary, or a small case is fixed, into which the props are put when required. This plan keeps the props firm; but when they are movable, the props can be raised or lowered according as the lines are required to be high or low. There are two qualities of pegs sold for fastening on clothes to the line; it is always advisable to buy the better kind, because the roughness of the inferior ones is apt to tear the linen.

Clothes Moth.—This most destructive insect is a secret terror of housewives, and especially of persons who possess valuable furs. Cloth, fur, and flannel are the three things wherein it is sure to make its hiding-place and begin its work of destruction, if it can get the opportunity. Summer is the time it is busy, when those materials are not in use; therefore it is necessary to look at intervals and see that the woollen materials have not been molested. Nothing is more annoying than to bring out garments for winter use and to find them perforated and riddled with holes, or the fur dropping away from the skin. The most effectual plan, and indeed the only sure method, is to sprinkle pounded camphor or pepper over the articles, to wrap them and stitch them up in a piece of calico, and then to lock them up in a tin box. If they are left where the air reaches them, the effect of camphor and pepper soon passes away. When moths have once made an inroad into fur, it is almost hopeless to try and rescue any part of it. Very often this reluctance to destroy the whole leads to the further evil of spreading moths all over the house. The hotter the summer, the more moths abound. (*See* Cloves, Preparations of.)

Clothes-presses.—These are rarely to be met with in the present day. They are a kind of deep wardrobe, with a number of shelves one above the other, which shelves can be drawn out. This kind of receptacle is very commodious, as a great number of garments can be stored away, but it is not so convenient for clothes in daily use as chests of drawers, because it is not easy to discern what the shelves contain.

Clothes, Repairing.—Much may be done in preserving clothes if the old adage about a stitch in time be duly observed. When collars and wristbands of shirts become frayed at the edge, cut them off by the line of stitching, turn each edge in, and seam them together; this will prevent the renewal of the whole wristband or collar. A patch put in the back of a night-dress will make the garment wearable again. Bindings of braid, worsted, or cotton

will make tidy the frayed edges of woollen or cotton skirts. A few stitches put in a glove when wanted will prevent the whole of the finger-end from bursting open, to mend which is a difficult matter. A few lines of darning across a small hole in a stocking will stop a great deal of further mischief. A neat close darn will prevent a longer rent.

Clothing.—Warmth, combined with lightness of substance, seems to be the chief desirability, and for this reason flannel is such a very useful material for clothing. The frequent variations of climate in this country make it necessary to guard against sudden chills, and therefore such clothing should be worn as will protect from cold, and yet not be overpowering when the change of weather takes place. One of the principle requisites of clothing is that it should be porous, of an open texture, which will allow the perspiration to pass out freely: woollen materials and cloth have this porousness. Mackintosh, felt, and such-like impervious materials are therefore unhealthy, if worn a long time. Another requisite is that the temperature of the body should be kept as equable as possible: woollen materials are valuable for this purpose. Linen is a very treacherous article of clothing, and much less safe than cotton. Dark colours are the warmest, and light colours are the coolest, owing to the former absorbing heat more rapidly than the latter. Boots fastened with laces or buttons are better for the feet and ankles than those having elastic sides.

Clothing Clubs.—These institutions are always valued when once those whom they are intended to benefit have made use of the privilege. The idea is for those who have weekly wages to put by any small sum weekly during the summer, and to have the value of the money in clothing in the winter. In some parishes the district visitors undertake to collect the money—in such cases it is advisable for the collector to have a book and the subscriber to have a card, and for the amount to be carefully marked down in each, so that no unpleasant mistakes may occur; in others, the subscribers take their weekly savings to some appointed place where it can be regularly received. Once a month the whole sum is deposited in a savings bank. At Christmas this is drawn out, and the interest added to each account; very often a small bonus is also added as a gift and an inducement to thrift. Sometimes clothing is given to the amount subscribed; but as this very often creates dissatisfaction, the wiser course is to give a ticket on which is indicated the sum to be expended, with the order on some specified shop, and then the subscribers can make their own choice.

Clothing for Children. (*See* CHILDREN, CLOTHING OF.)

Cloths (Crumb, Floor, Glass, &c.).—Crumb-cloths are made square; they may be of drugget or of linen. Felt drugget looks the best in winter. In selecting one, the choice should fall on drugget which has the pattern printed through, for if it is only on the right side, the treading and brushing will soon wear away the colours. There are other woollen druggetings made in stripes and checks, which some persons think are more serviceable than felt. Linen crumb-cloths are the most durable, and they can easily be cleaned. Grey and white are the ordinary colours, but some cloths are made with bands of red. Crumb-cloths should be taken up frequently and shaken: this plan is better than that of using the brush. Tiles have in a great measure taken the place of floor-cloth. The latter is, however, very useful, and if of good quality very durable. It is made of strong canvas which has several coats of paint put over it. The canvas is made at Dundee, and it is finished at Bristol. Shades of oak colours look the best for the longest period of time. Grey and white also wears well. Glass-cloths should be of linen, and smooth, for on this depends the good looks of glass, which can never be made bright with a rough course cloth. Glass-cloths are generally marked with red or blue lines that they may be readily distinguished when in use from those required for other purposes. Kitchen-cloths should be of strong towelling, bought by the yard, and not be made too long.

Cloths, Table. (*See* TABLE-CLOTHS.)

Clotted or Clouted Cream.—This is cream in the form of a thick scum, more solid than ordinary cream. It is taken from milk that has been gradually heated until quite hot, care being taken not to let it boil, but to remove it from the fire just as it comes to the boiling point. At the end of twenty-four hours, the cream rises to the surface, and is then skimmed and ready for use. It is made into butter, and is also excellent if eaten with fruit and sugar. When the milk comes from the cow, it should stand twenty-four hours before heating. The Devonshire raw cream consists of fresh and sour cream mixed in equal quantities, and sweetened with sugar.

Cloud, Canadian.—A knitted or woven woollen muffler, sufficiently long either to wind round the throat several times, or to be passed over the top of the head, and to cover the mouth and nose if necessary, in very severe cold, when frost-bites are apprehended. From eighty to a hundred stitches should be "cast on" for the width in knitting them. They are made with wooden needles, of what is called "partridge wool" (black and white mixed), in white and in scarlet. They are now so beautifully woven, at a moderate price, that those hand-made are more rarely seen. They had their origin in a hood worn by the Wallachian ladies.

Clouds, Names of.—The primary forms of clouds are three:—1. The *Cirrus*, consisting of long white bands or streaks, which move in the direction of their length. This is the highest. 2. The *Cumulus*, a large dense mountain-like cloud, white in the daytime, but darker towards evening. 3. The *Stratus*, of horizontal layers, including fogs and mists, occurs by night, and is the lowest of the clouds. Of these three there are four varieties:—1. The *Cirro-cumulus*, consisting of small masses, well defined, and closely packed. 2. The *Cirro-stratus*, to which belongs what is called a mackerel sky. It is apt to precede bad weather, and is less closely packed than the cirro-cumulus. 3. The *Cumulo-*

stratus resembles a combination of the cumulus and stratus, or of the cumulus and cirro-stratus. This appears at sunrise of a black or bluish hue. 4. The *Nimbus*, or rain-cloud, is a combination of the rest, and is of a grey colour. No classification can be complete, but the above is the most popular, and as good as any.

Cloves.—These are the flower-buds of the clove-tree, or *Caryophyllus aromaticus*, gathered before they are ripe, then dried and smoked. They are dried sometimes by being exposed to the smoke of wood fires, and afterwards placed in the heat of the sun, or they may be dried by exposure to the sun alone. When first taken from the tree they are rather red, but after a time become quite brown. They have a very hot taste, and an odour peculiar to themselves. The adulteration of cloves is a common practice. After the oil has been extracted, they are rubbed between the hands with a little sweet oil to revive the colour, after which they are mixed with fresh spice.

Cloves, Preparations of.—Cloves are particularly useful on account of the oil which is extracted from them. It is used medicinally, and also for scenting soap. When pure and good it is of a light-yellow colour; the commoner kind is much darker, with a reddish tinge. Tincture of cloves, too, is a well-known useful medicine. The clove-tree belongs to the order of Myrtles. It is a native of the Moluccas, though it is now grown in parts of the West Indies, and will, no doubt, soon be cultivated in other tropical countries. Cloves are aromatic, stimulant, and stomachic. A few cloves kept with furs or woollen articles will be found useful for warding off moths.

Club-foot.—There are four different varieties of club-foot known to surgeons of the present day, besides two secondary varieties, combining the symptoms of two of the first. The former are called—(1) *Talipes equinus*, (2) *Talipes calcaneus*, (3) *Talipes varus*, (4) *Talipes valgus*. In the first form the heel is drawn up, and the patient walks either wholly or in part upon his toes. In the second it is the heel that is depressed, and the fore-part of the foot and toes are drawn upwards. In the third form the foot is twisted inwards, the patient walking on the outside of the feet, both of which are generally affected. In the fourth variety, usually called splay-foot, there is obliteration of the arch of the foot first, and as the disease advances the foot becomes everted. Club-foot may be either congenital, or acquired after birth. In all cases it needs surgical treatment, and the sooner it is seen to, the better. If taken in time it can, in most cases, be cured.

Club-rush.—A name sometimes given to the *Scirpus*, of which the varieties are numerous, the common bulrush being one of them. The flowers appear at or near the top of the stem, and this is in some sorts round, in others triangular. In height the species range from six inches to six or eight feet. The uses of some kinds in domestic economy are considerable, and they are specially valuable for the bottoming of chairs, for coarse matting, baskets, the stoppage of leaky barrels, &c.

Clubs.—Associations of gentlemen for a common purpose, generally either political, or literary, or social and economic. The clubs of modern times appear to have originated during the last century, when political parties held their meetings at certain recognised establishments, which were afterwards formed into political clubs designated by the name of the proprietor. Of such were White's, Brooks's, and Arthur's, established in 1730, 1764, and 1765 respectively, and still in existence. The club or social society is of later date, and owes its origin to the need of some such institution so widely felt by officers and others at the close of the great war in 1815, and more particularly after the termination of the Crimean war. As at present established, a high-class club generally comprises a certain definite number of members, varying from 400 to 2,000 or 3,000. As vacancies occur, new members are elected by ballot or otherwise—each member on election paying an entrance fee and an annual subscription. The club premises (at the entire disposal of the members, who are usually free from all liabilities beyond their subscription) generally include morning or news-rooms, libraries, coffee-rooms, dining-rooms, drawing-rooms, and extensive culinary departments.

Clubs, Benefit. (*See* Friendly Societies.)

Clyster. (*See* Enema.)

Coach-house.—The coach-house should be a dry well-ventilated building, and not so near the stable or dung-heap that the vapours engendered can act injuriously upon the paint and varnish. It should be well provided with water, and admit no draughts which might have an injurious influence upon the woodwork.

Coaches.—The larger kind of four-wheeled carriages, called coaches, and at one time known as post-chaises, introduced for those who travelled long distances, or for hire, in the place of sedan-chairs borne by men, and horse litters, appear to have been introduced to this country in the sixteenth century. Originally, however, they more closely resembled what in modern times are called carriages. It was not until the beginning of the seventeenth century that a coach-box was added to the body. Hackney carriages began to ply for hire in the streets of London in 1625, the first four being the property of a Captain Bailey. In the same year their number was legally restricted to 20. In 1637, 50 were allowed to be licensed by the Master of the Horse; in 1652 that number was increased to 200, in 1651 to 500, and in 1694 to 700. They were afterwards increased to 800, and in 1771 an Act was passed permitting 1,000 to be licensed, a number which was shortly afterwards, in 1814, still further increased to 1,100, and in the following year to 1,300. They were drawn by two horses. The cabriolet succeeded these vehicles, and this was succeeded by a huge leathern vehicle, with a basket behind for passengers, drawn by six or more horses, and called a machine—destined, in its turn, to give place to the light, smart, well-built stage-coach,

with its four swift horses and skilful coachman. The mail-coach was introduced by John Palmer, a provincial theatrical manager.

Coachman.—The duties of a coachman vary with the extent of the establishment to which he is attached. He may appear in a cocked hat and wig, with a conspicuous livery, or in a livery of which the coat is the chief element. A head coachman looks after the condition of the carriage and horses; he may have to deal with coachmaker, horse-dealer, and farrier, or veterinary surgeon; and he has a certain responsibility as regards his assistants. His virtues are sobriety, honesty, general good conduct, and proper manners, as well as skilled and careful driving. The duties of a coachman where only one is kept are similar: he must be skilled in driving, and completely acquainted with the stable under his management; he must purchase provender, see that the horses are well fed and groomed, observe their condition, and report on all that is amiss. A single coachman often has the whole business of the stable in his hands; he has to clean, grease, and examine the carriage. The duties of an under, second, or ladies' coachman correspond with those of a head coachman. He attends, with such aid as he has, to the care and dressing of his horses, and to cleaning the coach and harness. His coach is the second best, and is driven by him at night, the best coach being driven by the head coachman by day. Sometimes he has to travel with the family. He wears livery, and both he and the head coachman are supplied with stable dress, box-coat, hat, &c. If more than two coachmen are kept, their duties resemble those of the first and second, but their wages are lower, and their liveries, &c., not always so costly.

Coal.—Of all the minerals in the world there is none of greater importance than coal. It is not known when it was first used as fuel; some think it was by the ancient Britons. There is little doubt that it was used in England before any other European country. About the end of the thirteenth century it was first made use of in London, not for domestic purpose, but for manufacture, &c., and it was then strongly objected to as being injurious to health; indeed, in the reign of Edward II., a proclamation was issued against it. Very soon, however, as its value began to be known, it came to be generally used. Coal may be divided into two great divisions—anthracite and bituminous. The former of these does not flame when kindled; the latter does. There are numerous smaller divisions, but these are the two primary. Anthracite is composed chiefly of carbon; it creates very little ash, and emits an intense heat. For some time it has been used in the United States of America both for domestic and manufacturing purposes. In Europe it has only been employed for a short time, and then only in steam furnaces and ironworks. The varieties of bituminous coal are very numerous; one of the best is what is called cannel or parrot coal. The Scotch give it the name of parrot, as it makes a crackling noise when burning. Great anxiety has been entertained during late years with respect to the continuance of the supply of coal, and also about the price of it. The prosperity of the country, as well as our domestic comfort, depending so much upon coal, this anxiety is not to be wondered at.

Coal-cellar and Storing.—A coal-cellar for a large house, or where much coal is required for cooking purposes, should be spacious, so that different kinds of coal can be admitted. All economical housewives know that small coal should be used with the large, and this can be done if the coal is so arranged that each can be easily found. A large coal-cellar is an advantage, too, as it enables a good supply to be provided in case the price of coal should suddenly rise.

Coal, Economy in.—Of late years all sorts of plans have been formed for economising coal. Artificial fuels of various kinds have been manufactured, and these are now used more extensively each year. For instance, in chemical laboratories, coal-gas is employed as fuel, and this supplies a large amount of heat at a small cost. Compressed coal also is used, and this is simply coal-dust mixed with sawdust and various bituminous substances. Of the same nature are patent fuel and steam fuel. In country districts peat and turf are used instead of coal. Still, much remains to be done. In the consumption of coal for domestic purposes there has doubtless been great waste. The wide open ranges which have been used so long were to all appearance constructed for the purpose of burning as much coal as possible, and of sending a large amount of heat up the chimney. Close stoves are now built which send out plenty of heat with very little waste, and these are being gradually improved. It is to be hoped that in course of time they will be universally used. The close stoves are mostly intended for kitchens. In sitting-rooms of all kinds the open range is still to be found, though even here steps are being taken to lessen the consumption of coal. Iron plates are fitted into the bottom of the grate which lessen the draught, and so cause the coal to burn longer. Fireclay balls have also been introduced, which are intended to fill up the roomy grates, and so prevent the necessity of using such a large supply of coal. For this purpose firebricks are also used. These are to be strongly recommended. With a comparatively small quantity of fuel they become red-hot, and besides sending the heat out into the room, present the appearance so dear to the heart of an Englishman of a bright, cheerful fire. These bricks can be bought to fill the grate, or if preferred soft fireclay can be procured, which can be pressed into the back of the range, thus filling up the superfluous space.

Coal-fish.—The coal-fish (*Merlangus carbonarius*) is found in abundance in all the European seas, and plentifully about the coasts of Great Britain. It is known by different names, such as sythe, sillock, or cuddy, while the Yorkshire fishermen call the young ones parr, and the old fish lillets. It derives its name of coal-fish from the fact that if it be handled it stains or soils the fingers as coal would. It is most numerous around our shores in October and November, when it is often captured in very great numbers, and

eagerly bought by the poorer classes, albeit it is somewhat coarse eating. These fish spawn in early spring, and become immediately after very lanky and thin, in which condition they remain all the summer.

Coal Scoop and Box.—A coal-box is a convenient and handy receptacle for coal that is wanted for immediate use, and the scoop or shovel with which the coal is to be conveyed to the fire is usually made to fit into the box and sold with it. Coal-boxes are made either of copper or of japanned ware, and many of them are sufficiently elegant and artistic to prove ornamental as well as useful.

Coal-tar (also called Gas-tar).—In the distillation of coal for the purpose of gas-making, a thick oily substance of a dark colour comes off, which is coal-tar. The quantity produced varies considerably, according to the nature of the coal employed, but what is generally known as gas-coal yields about one-tenth of its weight of tar. Until within the last few years its uses were limited, so that it was even difficult to find an adequate sale for it; now it is made to yield a great variety of useful products. The tar consists of a mixture of hydrocarbons—substances consisting of carbon and hydrogen in various proportions. The more volatile of them distil over at a low temperature, and are commonly known as naphtha, from which benzol (*which see*) is made; and from the semi-solid residue, sometimes called coal-pitch, is obtained carbolic acid (*which see*), anthracene, and other valuable products. Formerly the tar was principally utilised as a source of naphtha for burning in street-lamps; it was also used for the bottoms of ships, piles, and palings, or other rough woodwork that was much exposed to atmospheric influences; and mixed with slack, ashes, sawdust, &c., it formed an ingredient in various patent fuels. Aniline, which is the base of the brilliant modern dyes, is derived from coal-tar. (*See* ANILINE COLOURS AND DYES.)

Coat of Arms.—This is an heraldic composition which is complete in itself. Its usage arose during the mediæval ages, when knights and warriors were clad in armour, and were therefore undistinguishable. Over this armour of steel it was their custom to wear a surcoat or a pipon (which latter is a sleeveless tunic), and on one or other the armorial insignia was embroidered, which served as a distinctive mark. Coats of arms should not be confounded with badges, which are only to be used for decorative purposes, and should never be put on shields.

Coats of Arms, To Embroider, &c.—These should be embroidered in silk, either on cloth or on canvas. The true heraldic colours should alone be chosen. In working arms on cloth, an effective plan is that of using narrow silk braid for the outlines, and filling up the interstices with a network of purse-silk. Another plan is to sew canvas on to cloth, to embroider on that, and then to draw away the canvas threads, or, if practicable, to cut away the canvas close to the work. When canvas alone is used, it is usually of silk, as the work to look well should be fine, and the stitches small; and this is more practicable on silk than on the ordinary Berlin canvas, for the latter would require to be grounded, and few persons would undertake the grounding of extremely fine canvas. Sometimes coats of arms are worked in beads; these possess the advantage of not fading. The arms of colleges, public schools, &c., sketched and coloured for the embroiderer's use, can be obtained at fancy-work shops, and cost about 2s. apiece.

Cob.—A word with a variety of meanings, literally signifying the top or head. The receptacle of the maize, or Indian corn, is so called; it is also the name of a ball for feeding fowls; a large stone; a kind of a basket used in husbandry; a sea-mew; clay mixed with straw; the spike or shoot on which corn grows in rows; an avaricious man; and of a strong, well-built pony, suitable for either riding purposes or for driving in a phaeton. What is termed "cobbing" at sea in a midshipman's berth is a peculiar punishment inflicted by his brother officers upon any member of the mess who may have conducted himself otherwise than as a gentleman. This punishment, although illegal, is far from uncommon.

Cob-nuts are, like the filbert, supposed to be the cultivated varieties of the common hazel, improved by superiority of soil and climate. The cob-nut is larger than the filbert, and is round in shape. The hazel grows wild in England, but the larger kinds were originally brought from Greece to Italy, and from that to Holland, whence they found their way to England. The name cob-nut, or hog-nut, is given in the West Indies and Guiana to the fruit of a tree of the natural order *Euphorbiaceæ*. The tree itself possesses a white juice, which turns black in drying, and is used in Guiana instead of ink. The fruit is a three-celled capsule, with a nut in each cell. These nuts are strongly cathartic, unless the embryo be extracted from them, when they become pleasant and full of flavour.

Cobalt (from *Cobalus*, a malicious sprite or gnome).—A metal discovered by Brandt in 1733. It occurs in the same ore as nickel. *Speiss* cobalt and cobalt *glance* are the ores from which it is usually extracted. It is white and brittle, is strongly magnetic, remains unchanged by the action of the air, has a high melting point, and forms salts with the acids, which exhibit remarkable changes of colour. It is seldom employed in the metallic state, owing to the great difficulty of reducing its ores, and separating it from the nickel; but its protoxide (black oxide) is much used in the arts, for blue colours for painters, for stains and glazes for enamellers, for glass-melters and potters. It is also used in medicine as a remedy for rheumatism. The chloride of cobalt is employed as a sympathetic ink, in dilute solutions, being of a pale-pink colour, not observable when used for writing on paper, but when heated before the fire it loses water, and becoming blue, the inscription becomes apparent. If the paper should afterwards lie in a damp place, or be exposed to the vapour of steam,

water being again absorbed, the writing becomes invisible again. *Smalt* is the term applied to a deep-blue glass, owing its colour to the presence of the oxide of cobalt, which, when reduced to a very fine powder, is sometimes employed by laundresses to correct the yellow hue of newly-washed linen. Paper-makers use it as a blue pigment to stain writing-paper. Smalt is also employed in the production of the blue colours in porcelain, encaustic tiles, fresco painting, and forms the principal ingredient in old Sèvres blue, turquoise blue, Thenard's blue, and variegated blue. *Rinman's green* is a compound containing the oxides of cobalt and zinc, which give a beautiful colour. As *speiss* cobalt it is found in combination with arsenic, as cobalt *glance* with arsenic and sulphur, as the arsenide and sulphate of cobalt in ores of nickel, and in the metallic state it is found in meteoric stones or aerolites. The metal, obtained by laboratory experiments, presents a grey colour with a reddish tinge. *Zaffre* is the impure oxide obtained by partially mixing cobalt ore with two or three times its weight of fine sand.

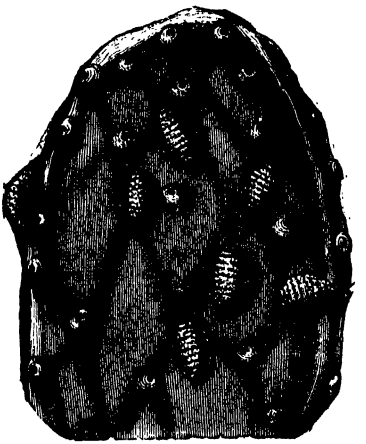
Coburg (Textile).—A twilled fabric of mixed materials, principally employed for linings of coats and other garments, and also used for mourning dresses by the poorer classes. It is a coarse imitation of French merino, and can be procured in colours, as well as in black.

Cobwebs.—Cobwebs, or spiders' webs, as they are called, are threads made by spiders for uses of their own. These insects differ so much in their habits that though all spiders produce threads, they do not employ them for the same purposes. Some secure their prey by means of the web; others make it their place of abode; and though we do not welcome their appearance, knowing that they have the reputation of being considered proofs of neglect, still their construction is very wonderful. The substance is glutinous when it is first expelled from the spinneret, and dries into thread as it meets the air. For years it has been known that spiders' webs are useful in staunching wounds. The threads, too, are used for the cross wires of astronomical telescopes. As an object of curiosity, the web has been woven into a fabric.

Cocculus Indicus.—This is the fruit or nut of a sturdy climbing-plant which grows in Malabar and the East Indian islands. The fruit or nut is not much bigger than a pea, the shell dark brown and wrinkled. In India it is used to poison fish; in this country, although rarely used by medical men externally, it is never administered internally, its active principle being exceedingly poisonous. It is, however, extensively used in Great Britain for the purpose of adulterating beer, to which it gives an extra bitter taste, and seems to increase its strength. Than such a practice nothing could be more nefarious. The shrub belongs to the natural family *Menispermaceæ*, Linnæan class and order, *Diœcia Monadelphia*.

Cochin Fowls. (*See* POULTRY.)

Cochineal (Syn. *Coccus*).—The *Coccus cacti* (Linn.), an insect found upon the *Cactus opuntia* or *Nopal*, first discovered in 1518, and chiefly produced in old Guatemala and in Amatellan, six leagues from the latter place. It has formed the staple and almost the only article of exportation from those parts for many years past. For dyeing it is of great value. When come to maturity the females are brushed off the plants, and dried by artificial heat. In commerce there



COCHINEAL INSECTS.

are two varieties known—the silver-grey, which is the better one, and the black. The former is so called from its silver-grey colour, and the black because it is of a purplish or reddish black; it is smaller and less common than the former. The weight is usually increased by a slight moistening with gum-water, then "rouncing" it in a bag with sulphate of baryta, and then with finely-powdered bone-black.

It is chiefly used in the preparation of lake and carmine, and in dyeing; the colour is freely soluble in water, and to textile fabrics previously prepared with tin, alum, and other mordants, it supplies every shade and variety of scarlet and crimson. Liqueurs, tinctures, and confectionery are coloured with it. In medicine it is employed as an anodyne and anti-spasmodic, valuable in whooping-cough and neuralgia. In powder, confection, or tincture, from ten to sixty grains may be taken.

Cock-a-leekie.—This is a Scotch name for a very old English dish that was known as early as the fourteenth century by the name of Malachi. We are not in possession of the real old-fashioned recipe, but we can easily infer what it was, judging from other recipes with similar names. Ma is the old name for a fowl. The bird was first half-roasted, then boiled in broth, afterwards cut up, and served with a quantity of vegetables, mostly onions; spices were added, and sometimes syrup. The name would imply that the leeks are very predominant, which to most tastes would be disagreeable. This error arises from a misreading of the name, which was originally Malachi or Maleachi, meaning sliced fowl. Soyer says:—"With all due respect to Scotch cookery, I will always give the preference in the way of soup

to their cock-a-leekie, even before their inimitable hotch-potch."

Cock of the Wood. (*See* CAPERCAILZIE.)

Cockade.—This is really a military badge or token, and should not be worn by the servants of any who are not officers, or invested with a quasi-military character. The lord-lieutenants of counties may use it, but ladies of all degrees may not, and its adoption by members of the medical profession not of the army is altogether erroneous, and to be discouraged. After the Revolution of 1688, a white cockade was the political badge of the Stuart party, that of Nassau being orange. The Hanover cockade was black, and became common here under George I., since which time it has superseded the others, has ceased to have a political meaning, and indicates the military position of the servants of those who claim it. Most Continental nations have characteristic cockades, the colours and forms of which vary considerably.

Cockatoo. — Cockatoos are a sub-family of the great and highly-interesting family of *Psittacidæ*, or parrots. They are found in great abundance in Australia. The crested white bird commonly brought to this country, is called in its own country car'away or curriang. It makes its nest in a hollow tree, usually the black-butter gum-tree, building it of the decaying matter of the tree itself. It lays two white



COCKATOO.

spotless eggs. It is in its wild state a shy timid bird, and its flesh is considered a great delicacy. In captivity, although they soon get exceedingly tame and affectionate, they are with difficulty taught to speak. They are much more nimble and graceful in all their movements than parrots. The tri-coloured crested cockatoo is the most gorgeous of the family, a bird of extraordinary beauty.

Cockchafers.—The common cockchafer (*Melolontha vulgaris*, natural family *Melolonthidæ*) is almost too well known to need a description. The eggs are deposited by the female in the ground, where they soon become hatched into the grubs; these soon grow as long as an inch and a half, soft, white-looking, red-headed caterpillars, with powerful jaws. In the form of grub they live for four years, feeding voraciously on the leaves of willows, beeches, limes, sycamores, apple-trees, pear-trees, &c., where the havoc they commit is sometimes indescribable; their ravages, indeed, have some years been equal to those of locusts. The fully-matured cockchafer has but a very short existence. There is only one way of keeping them down, namely, searching for the beetles of an evening in the grass, and killing them wherever found.

Cockle-shell.—The shell of the common cockle is of no value, and is only used as an ornament for the most inferior work; but there is one species, *Cardium beckei*, which is very beautiful, is prized by collectors, and is found in Eastern seas.

Cockles.—The word cockle is the same as the French word *coquille*, which means a little shell. These fish can be made into a very agreeable sauce, and when oysters and mussels are out of season, they provide a very excellent substitute. Francatelli recommends that they should be scalloped like oysters. When simply boiled, they are very palatable and nutritious. At one time, pilgrims wore cockle-shells in their hats as tokens of their calling. On the polished side was scratched an image of the virgin, the crucifixion, or some subject connected with the pilgrimage. After the priest had given his blessing, these shells were supposed to guard the wearers against spiritual foes. The cockle is a species of Lamellibranchiate mollusks. The shell is rather like a heart in shape, having two equal ventricose valves. The animal is able to draw the valves tightly together. Its foot is bent in the middle, and very large, and so quickly can the animal straighten it that it can move by a jump. The foot is mostly used, however, for making holes in the sand, in which the cockle burrows. Cockles are found in great abundance on the English coast in the sandy muddy parts; they are, however, most plentiful in the tropics, particularly in the Indian Ocean. There are two hundred different species.

Cockroaches.—These disagreeable insects are said to have been imported from abroad—their native country is unknown. They are most numerous in warm countries, though in England they are well known, and are frequently found in swarms in town houses. They devour either animal or vegetable food, and a dark-looking fluid which comes from their mouth gives a disagreeable smell to everything they pass over. They conceal themselves in their holes during the day, only coming out at night, a light of any kind causing them suddenly to disappear. They are a genus of Orthopterous insects, and the wings are sometimes very imperfectly developed, particularly in the female. The cockroach known in our country is only an inch long. Those found in tropical countries are much more formidable, both on account of their large size, and also their ability

to fly, which faculty they very frequently exercise. A good way to reduce their number is to place a basin or dish on the floor of the room they frequent, the hollow of which is covered with treacle. Two or three pieces of stick should be placed round to act as ladders; quantities may be caught in this way. A tame hedgehog is often kept for the purpose of destroying cockroaches, and generally proves very successful.

Cocoa.—Cocoa is made from the seeds of a tree called the *Theobroma cacao*, the natural order being *Byttneriaceæ*. The fruit of the tree resembles a cucumber in shape, and is yellow, excepting where the sun falls on it, when it is red. The outside skin is thick, the pulp sweet and palatable. The seeds of which the cocoa is made lie closely packed within this fruit. They are very like almonds, with a thin, light reddish-brown skin; the kernel is bitter, dark, oily, and aromatic. The pods are gathered when quite ripe, and allowed to remain some days before being opened. The seeds are then taken out and put to dry from the moisture of the pulp; they are shut up in a box for two days, after which they are put to dry in the sun. Sometimes before opening the pod it is buried for a short time in the earth until the pulp is rotten. There are many different kinds of cocoa, but all either consist of or are made from the seeds of this genus *Theobroma*. The cacao-tree is largely grown in tropical America and the West Indies, principally Trinidad; it is also cultivated in Asia and Africa. It is quite distinct from the cocoa-nut, which is the fruit of a palm. The principal kinds of cocoa are the following, placed according to their commercial value:—Caracas, Surinam, Trinidad, Grenada, Jamaica, Dominica, Guayaquil, Venezuela, Bahia, Brazil, St. Lucia. In cultivation the seeds are much finer than in the wild state. The tree generally yields two crops in the year, but is not at the height of its vigour until seven or eight years old. It is to be feared that we in England are not allowed to have the benefit of the finest cocoa. The best is retained by the Spaniards.

Cocoa, Adulterations of.—When cocoa is used in its pure state, it forms a highly-nutritious and pleasant beverage, but it is seldom partaken of without a little adulteration. When it is mixed with a small quantity of starch of some kind, it ought not to be termed adulterated, as cocoa alone cannot be made soluble—it must have the addition of some diffusible substance. A great deal of the cocoa, however, offered for sale is adulterated beyond reason. Arrowroot is generally the starch used for rendering cocoa emulsive; and when we consider how pure and free from any injurious effect arrowroot is, there seems to be no objection to the mixture of a little with the cocoa, especially if by the addition the cocoa is rendered more palatable. But when we learn—a fact that has been proved—that Venetian red, umber, reddle, and other coloured earthy substances have been added, we feel it is time that such adulterations were put down. In some instances chalk and plaster of Paris have been added to increase the weight. A great many samples have been proved to be almost entirely sugar and starch, with just sufficient cocoa to give the needed flavour.

Cocoa-nibs.—Cocoa can be bought from shops in its purest state in nibs. These nibs are the seeds of the cocoa-nut tree freed from the husk, bruised, and roasted. They should be grey or of a dull-red colour, but are often made to look bright red by being coated with Venetian red.

The cocoa is prepared by pouring boiling water on the nibs, then leaving them to simmer five or six hours. The liquor must not be allowed to boil. Cocoa is more nutritious than any warm drink we have—much more so, then either tea or coffee; it both nourishes and exhilarates, and has been found very beneficial to invalids or those troubled with weak digestion.

Cocoa-nut Fibre.—The husk or fibrous pericarp of the nut of the cocoa-nut palm. As fibre, it is employed to polish furniture, to scour the floors of rooms, and as washing-brushes in the Turkish bath, &c. Birds that build hanging or pendulous nests very commonly use this substance; but it is chiefly known in England under the name of coir (*which see*), into which it is largely manufactured.

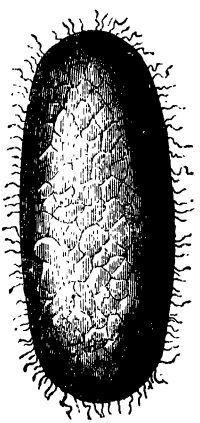
Cocoa-nut Matting, &c.—This manufacture is carried on in Great Britain to a considerable extent, and is one of the branches of industry in which the children in industrial and ragged schools and the criminals in the gaols are employed. The husks of the cocoa-nut are imported for the purpose. (*See* COCOA-NUT FIBRE; COIR.)

Cocoa-nuts.—Cocoa-nuts are the fruit of a species of palm now growing in nearly all tropical regions, though originally a native of the Indian coasts and South Sea Islands. In South America there are nearly twenty different species. They differ from the real cocoa-nut palm with regard to the soil in which they flourish. The American native trees of this species grow in dry elevated regions, while the real cocoa-nut palm is generally found near the sea-coast; indeed, the finest trees are those that grow near the sea. It is amazing to think in how many different ways this tree is made useful to the inhabitants of the region in which it grows. In some islands the fruit is largely used as food. It is eaten fresh from the tree, and is also preserved in various ways. The oil contained in the kernel is of great value. In Europe it is made use of to a great extent in the manufacture of a marine soap, which has the advantage of creating a lather with salt water, and also in making stearine candles. Cocoa-nut oil is not good for lamps, as it does not give a clear light. In warm regions the oil is liquid, but becomes firm and white in cold countries. Eight or nine nuts yield more than a quart of oil. The wood of part of the stem is exceedingly hard, and is much used. It is known as porcupine-wood, and is used in England for ornamental joinery, as it takes a high polish. The husk of the nut (*see* COCOA-NUT FIBRE) is used for scrubbing floors, polishing furniture, and for fire-wood. Cordage is also made from the fibrous part. The cocoa-nut matting so much used is made, too, from the husks, as are

baskets, screens, and many other articles. The natives construct roofs to their places of abode from the dried leaves. Such is the size of the leaves that oars are constructed from their thick stems. The root of the tree is made use of in the same way as the areca-nut, which is much used in the East for chewing, though the cocoa-nut root is much more narcotic in its effect than the areca-nut. Drinking-vessels are constructed out of the shell of the nut, the carving and ornamentation of which are sometimes quite elaborate and beautiful. A stony substance is sometimes found inside the nut, of a blue-white colour, known in India as *caluppa*. The Chinese are willing to give a great price for it, as they entertain the superstition that the possession of it will preserve them from disease.

Cocoatine.—This is a form of cocoa that has been introduced into the market within the last few years, along with two or three others of different names. The ordinary cocoa is considered by some to be rather heavy, and apt to produce biliousness, owing to the fact that it contains so much oily matter. The cocoatine consists of pure cocoa, with a great deal of the fatty matter extracted, on which account it is much more suitable for invalids or people troubled with weak digestion.

Cocoon.—The silken tissue which the larvæ of some insects spin, to envelop themselves before passing into a state of pupa or chrysalis, is so called. The only cocoon which is of any value in commerce is that of the *Bombyx mori*, or common silkworm, which forms a close compact oval ball, the glossy gauze-like covering of which is formed of one exceedingly long thread of silk, which can be easily unwound



COCOON OF *BOMBYX MORI*.

by those accustomed to the work, and various threads spun together to form silk. The silk-worm completes her cocoon in about five days, decreasing in length about one-half; it then goes into the chrysalis state, in which it remains a fortnight or three weeks, when it issues forth the perfect moth, in which state it is very short-lived; generally the female dies on laying its eggs, and the male itself not surviving her long. *Muscardine* is the name given to a disease which often attacks the young silk-worms previous to their going into the pupa state; it is caused by a kind of fungus.

Cod-fish.—This fish is found in great abundance in the seas of the northern hemisphere. Newfoundland is most famous for cod, and there they are caught in immense numbers. They also abound in the north of Scotland, and in Iceland and Sweden. The fish brought from Newfoundland is in a salted state, and is a favourite article of food. For a long time the Dutch have been engaged in the cod-fishery, and the French also. The capture of this fish is always accomplished by means of lines and hooks. On the Dogger Bank they are most plentiful. Sometimes the colour of the cod is altered on account of its being among weedy rocks. It is then known as rock cod and red cod.

Cod-liver Oil.—This is extracted from the fresh liver of the common cod-fish (*Gadus morrhua*) frequenting the seas of Northern Europe and America, and especially the coast of Newfoundland and Labrador. It is prepared by slicing the livers, which must be perfectly fresh and free from blood and all impurities, and exposing them to a temperature not exceeding 180° Fahr., until all the oil has drained from them. It is then filtered, and kept in jars secured from the air. Two kinds of cod-liver oil are known—viz., the pale Newfoundland, and the yellow or light-brown Norwegian. Of these, the former is the purer, its colour indicating the freshness of the liver from which the oil has been extracted, and the carefulness of the preparation. Fresh oil consists of oleine, margerine, a substance called gadium (analogous to one of the acids found in bile), and traces of iodine and bromine. It is of a pale colour, and has a slightly fishy odour and taste. It is largely used in the treatment of various diseases, especially consumption, scrofula, gout, and rheumatism, in all of which it has proved a valuable remedy, although the mode of its action is not quite determined, unless it be regarded simply in the light of food. Sick persons, and especially those in consumption, often make flesh rapidly under the influence of cod-liver oil, and the character of the blood frequently improves in proportion. The dose is from one tea-spoonful to two table-spoonfuls, taken upon water, milk, or orange wine. Persons of a delicate stomach should take it after a meal rather than before, and with them it often agrees best at bedtime. It is wise to begin taking the oil in very small quantities, until the stomach becomes accustomed to it, and then increasing the dose daily until a toleration of the drug is established, which as a rule soon happens. When the stomach absolutely refuses to retain the oil, it may with advantage be rubbed into the skin, and this is especially applicable to those cases of scrofula or consumption where there is enlargement of the belly. Cod-liver oil has also been found useful in certain chronic skin diseases.

Cod Sounds.—These are the swimming-bladders of the cod, by means of which the fish moves up and down in the water. They are taken fresh from the fish and salted ready for

the market. They are esteemed a great delicacy. In a dry state, the sounds are used as isinglass.

Code.—A code is a collection of laws and regulations. That of the Roman Empire made by order of the Emperor Justinian is pre-eminently distinguished as "The Code." The word is derived from the Latin *codex*, the stock or trunk of a tree, the bark whereof being stripped off, served the ancients to write their books on. There were several codes before the time of Justinian, and there have been various later codes, particularly of the ancient Gothic, and since of the French kings. The "Code Napoleon," or civil code of France, proceeding from the French Revolution and the administration of Napoleon, effected great changes in the laws of that country. The establishment of a code of laws in this country is the goal of many of our law-reformers: the mixed and intricate character of our legal system, however, presents no inconsiderable difficulties in the way of its attainment; but in the United States and in British India, the law has in modern times been codified. This word has also a military signification, as, for instance, "Articles of War"—providing for the good order and discipline of an army.

Codicil (from the Latin *codicillus*).—A little book, tablet, or writing. In its general use, it signifies an addition to a will or testament, when anything is omitted which the testator would add, explain, alter, or retract. In the Roman law, the term signified an informal will; but in our English law a codicil is of the same nature as a will, and the same formalities regarding its execution, attestation, &c., are as strictly necessary to the validity of the one as to the other. (*See* WILLS.)

Codling. — The word codling includes several different kinds of apples — most of them used in cooking. They grow extensively in England, and are a very favourite fruit, though they have to be used quickly, as they will not keep long. (*See* APPLES, TO CHOOSE.)

Coffee.—The coffee-plant (*Coffea Arabica*) is a small tree, a native of Abyssinia and Arabia, but now largely cultivated in various other parts of the world. In its wild state it is a slender tree of from fifteen to twenty feet in height, but when cultivated it seldom grows higher than from six to ten feet. It requires a deep good soil, with plenty of moisture, and is usually grown on the hill-sides, very much after the manner of the tea-plant and the vine. It is a very prolific plant, yielding usually three harvests annually. Its leaves are evergreen, and its flowers, which are small and snow-white, throw out a delicious perfume. The fruit is called a bean, which is a corruption of the Arabic word *bunn*, and when ripe is of a dark colour.

The origin of the use of coffee is involved in obscurity. It was not known to the Romans or Greeks, neither is any mention of it made by the early chroniclers. It is said to have been used in Abyssinia from time immemorial, and Bruce found it growing wild in great abundance there. The Arabs have a legend that it was used as a beverage to prevent drowsiness in the performance of nocturnal devotions, and that the use was first suggested by the goatherds observing the effect produced on their goats when they chanced to browse on the coffee-tree. It was used in Persia in the ninth century, and in Turkey about the sixteenth, although its employment was opposed by the priests on the ground that roasted coffee was a kind of coal, and coal being one of the things forbidden by Mohammed, was therefore unfit for human food. It was introduced into Europe during the seventeenth century, and into England in 1652. A Turkish merchant named Edwards brought home with him a Greek servant, who opened the first coffee-house in London, somewhere in the neighbourhood of Cornhill. In the early part of the eighteenth century the coffee-plant was introduced into the West Indies, where it has since been largely grown.

There are several kinds of coffee, but the Mocha or Arabian coffee is considered the best. The bean is small and round, and of a dark-yellow colour, with a tinge of green. The West Indian coffee, which is the most commonly used in England, is made from a greenish-grey bean. The East Indian, Java, and Ceylon coffees are not considered equal to those of Arabia and the West Indies. Some idea of the rapid increase in the consumption of coffee may be gathered from the fact that in the year 1700 not more than 100 tons were used in Great Britain, whilst in 1858 the yearly consumption was 16,000 tons for the United Kingdom alone. The English and the Belgians are much greater coffee-drinkers than the French, but the Dutch and the Germans far exceed all others. The relative quantities may be given as 9 lbs. per head per annum for Great Britain to 14 lbs. per head per annum for Holland and Germany. In 1872 the total quantity imported into the United Kingdom was 166,269,052 lbs., or upwards of 74,000 tons, of which a great part was imported from British possessions, the computed real value being £5,257,403, or nearly 7½d. per lb. The quantity retained for home consumption during that year was 31,173,555 lbs., on which a duty of 14s. per cwt., in the raw state, and 2d. per lb. in a kiln-dried, roasted, or ground condition, was leviable.

Coffee, Adulterations of.—Coffee is so largely used that many adulterations have been substituted for it. Chicory, as it does not detract from the strength, but adds to the colour, is not now generally regarded as a harmful admixture (*see* CHICORY); but dandelion roots, carrots, acorns, and beans of various kinds cannot be said to offer a satisfactory substitute, although it is to be feared they are all still largely employed in making up ground coffee—as it is sold in the shops. Unground coffee is very rarely adulterated, hence it is always the best to buy coffee in the berry, and then to grind it at home. (*See* ADULTERATIONS OF FOOD.)

Coffee-biggin. (*See* CAFETIÈRE.)

Coffee, Dietetic Properties of.—Coffee contains caffeine, which is identical with the

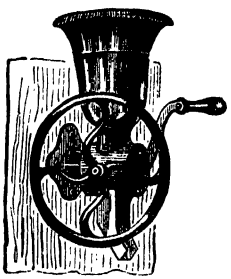
theine of tea. This principle, and the volatile oil which is developed by the roasting, give to coffee its stimulant effects on the nervous system. It is not so exciting as tea, but it produces sleeplessness in many persons when taken at night. It is heating to the blood, and increases in a decided manner the force and frequency of the pulse. Its action upon the skin is the opposite to that of tea. Tea lessens the force of the circulation, and cools the body; but coffee decreases the action of the skin, and reduces also the heat of the body, whilst accelerating the action of the heart. One of the most valuable properties of coffee is its power of relieving hunger and fatigue. To the soldier and traveller it is on this account most valuable, as it enables them to sustain arduous exertion when deprived of other means of support.

The experiments of Lehmann led him to conclude that coffee diminishes the waste of the tissues, and causes food to go further; but how far this is true is uncertain. On some constitutions coffee acts as a mild laxative, but in others it conduces to constipation. Strong coffee is a useful antidote in cases of opium poisoning, and it is also beneficial in subduing the effects of hard drinking. Some forms of nervous headache are relieved by it; and it is one of the best things in the world for relieving violent paroxysms of spasmodic action. The practice of drinking strong black coffee without milk is not a good one; still less the *café gloria*, which is black coffee with cognac, so much consumed in Paris and elsewhere. *Café au lait*, which is coffee with an equal quantity of boiling milk added, is also a form of this beverage popular in France. Milk added to coffee greatly strengthens its nourishing properties, and promotes respiration and the action of the skin.

Coffee, Essence of, is a difficult article to obtain pure, so much of what is sold as such being nothing but treacle and burnt sugar with the flavouring of coffee. The real essence should consist of four parts coffee to two of chicory and one of caramel, which is prepared with boiling water and mixed to the consistency of treacle. If kept in air-tight bottles in a cool place, it will be found a very convenient article for making a cup of coffee quickly, but of course it is never so good or so full of flavour and aroma as coffee freshly made. Various patent preparations of coffee and condensed milk are made and sold in the form of syrups, pastes, and candies.

Coffee-making. — The art of making good coffee consists in observing one or two simple things. First of all, it should be freshly ground (*see* COFFEE-MILL); the next thing is to draw out the full strength and aroma, and at the same time preserve the fluid perfectly clear and free from grounds. On the Continent it is boiled for a short time, but in England it is usually soaked in water kept as near boiling-point as possible. The French are generally allowed to be the best coffee-makers in the world, and they allow one ounce of coffee to each coffee-cupful of water. Two pots are used in the making. Into one boiling water is poured on the ground coffee, and allowed to remain four or five minutes, when it is poured off as clear as possible. The grounds are then boiled with the remaining water for two or three minutes, and both lots mixed together. A shred of saffron or a little vanilla is often added, and to make the grounds settle, half a cupful of cold water is sprinkled over the decoction: this descends to the bottom, carrying the grounds with it. Coffee may be clarified also by adding a shred of isinglass or a little white of an egg. The great fault of English coffee-making is the failure to draw out the full strength, and this arises in most households from the use of the water which has not reached the boiling-point, or the too great haste with which the infusion is made. The best safeguard against the latter mishap is the use of the French cafetières, which are now very common and cheap, and by the aid of which coffee can be made in great perfection with the greatest ease, and without any risk of failure through carelessness or inattention.

Coffee-mill. — Small coffee-mills for domestic use may be purchased at a trifling cost. When it is desired to have the coffee finely flavoured and good, these mills are of great service, as coffee ought not to be ground until a few minutes before it is to be used, for if it is purchased ready ground it is almost sure to



COFFEE-MILL.

lose its aroma. It is a good plan to put the berries in the oven for a minute or two to make them hot before grinding, and they should be ground coarse rather than fine, or it will be difficult to get the liquid perfectly clear.

Coffee-pots.—These are of infinite variety in shape and size, the modern ones being of a tall graceful form, and made generally of electro-plate or silver. The use of silver is becoming more and more rare since the great improvements which have been made in the art of electro-plating. Percolating coffee-pots are preferred by many, as they separate the grounds effectually from the liquid, and these and the French cafetières are now very frequently seen in British homes. Where, however, coffee is made on the plans named in COFFEE-MAKING (*which see*), the use of the cafetière is not necessary to the purity of the beverage, and the old or new-fashioned pots may be used as of old. Our ancestors used china coffee-pots; and some curious specimens of them, with silver spouts and handles and gilt edges, are still to

be seen; but even the ordinary ones used now are, when not electro, made of Britannia bell-metal or nickel.

Coffee-roaster.—In England the operation of roasting coffee is usually performed in large establishments devoted to the purpose, but on the Continent it is frequently done on a small scale in the house. In most French cafés, coffee-roasters are kept in daily use. This machine consists simply of a brazier, over which is fixed a hollow cylinder in which the beans are placed, with a funnel above, to which is attached a revolving fan to carry off the fume and smoke. When these machines can be used it is an advantage, as the flavour of the coffee is much the best when freshly roasted. When a roasting-machine is not at hand, coffee may be roasted in an iron saucepan with a closely-fitting lid. (See "Cassell's Dictionary of Cookery.")

Coffee-roasting.—In some places an infusion of raw coffee is used as a beverage; but coffee is almost universally roasted, and unlike tea, its aromatic qualities are drawn out by the process. Coffee-roasting is a delicate operation requiring great skill, as the quality of the bean depends greatly upon the length of time it is subjected to the action of heat. The great object is to develop to the utmost the aromatic volatile oil it contains, and yet at the same time to limit the operation, so that whilst the bean is rendered friable and easy to be ground, its substance is not destroyed by being burnt. During the process of roasting, the coffee-bean loses in weight, but gains in size. It changes colour according to the length of time it is on the fire. The beans should not be allowed to become darker than a light brown. They are usually placed in an iron cylinder, which is slowly turned round over a gentle fire, so that all may in turn be exposed to the same heat.

Coffee-urns are very useful where a large quantity of made coffee is required to be served out quickly, as at soirées or public banquets. They should be fitted with a sieve or bag, to drain the coffee free from grounds, and ought properly to be so constructed as to admit of the inner pan being lifted out of the urn for the purpose of replenishing or cleansing. These urns are usually made of bronzed metal, and are manufactured in a great variety of tasteful patterns and designs.

Coffer, in fortification, is a hollow lodgment across a dry moat, on which are raised pieces of timber, and hurdles filled with earth, serving as a parapet with embrasures. The use is for the besieged to defend the ditch and to repulse the besieger. Coffer, in architecture, is a square depressure or sinking in each interval between the modillions of the Corinthian cornice, commonly filled up with a rose or pomegranate. Coffer, in the general application of the term, is a small covered box or chest used for money and jewels, generally carved, and ornamented sometimes with gold and jewels or enamelled plates. They were used by ladies in the Middle Ages, and by the Church for the security of altar plate, &c., when they were of larger size.

Coffin.—This is a box or chest in which dead bodies are interred. In ancient times the burying of deceased persons in coffins was considered as a mark of the highest distinction. But in England the poorer classes of people are thus buried; and if the relations of the deceased cannot afford a coffin, it is furnished at the expense of the parish. The sepulchral honours paid to the memory of departed friends in bygone days are extremely curious, perhaps the most notable being the burial of Alexander the Great, who was deposited in a gold coffin. In the present day, coffins are made either of elm or oak, the former being the more general, on account of its rough and strong nature and comparative cheapness. With regard to the proper form and proportions of coffins, there is a place for the swell or broadest part, and if this is located too far from the head, it is not in the proper place to accommodate the body intended to be placed therein, the swell being made for the increased width of the shoulders. The level or slant of the head is purely a matter of taste. The staining and finishing of coffins are very much the same as for furniture. When a coffin is ordered from the undertaker, it is usual for that tradesman to select one from his stock of finished cases; and in this case it should be carefully examined, to see that it is all right, as if it has been standing long in stock, it will most likely have received scratches or bruises, if not more important damage. In former years the initials and age of the deceased were put upon the lid of the coffin in bright brass-headed nails. Now, a metallic plate is furnished, on which is marked by an engraver the name, age, and date of death. In some parts of America a most singular custom prevails. The plate is only laid upon the coffin, or but slightly fastened. This is removed by the undertaker just previous to depositing the body in the ground, and returned to the friends of the deceased, and is displayed upon the parlour shelf, or sometimes put into a frame and hung upon the wall.

Cognac. (*See* BRANDY.)

Co-heir, Co-heiress.—One of two or more persons who inherit real estate (*i.e.*, freehold lands or tenements) by descent.

Coif.—This word, now but seldom used, signifies a cap for the head of a close-fitting nature. Knights wore coifs under their helms. The Roman women covered their heads with a coif of network. A similar word, descriptive of the same thing, exists in many languages. In French the word is spelt *coiffe*, which is used also to designate a caul as well as a cap; in Italian the word is *cuffia;* in Arabic, *kufiyah*. It is supposed that the last-named is the origin of the others.

Coin Test.—The tests for suspected coins either concern weight or metal. For gold and silver, as metal, the ordinary tests are applicable so far as the material is concerned. The weight of gold and silver coins is sometimes tested by a special balance for the purpose. Both size and weight are tested by means of an apparatus with slits in the top of the precise size of the various gold and silver coins. If right as to

size, a coin will drop through the slit and fall upon a balance scale below, where it will remain if short of weight; but if of the proper weight, it will fall to the bottom. It should be noticed that the great difficulty of forgers is to make both the size and weight of their productions exactly the same as those of genuine pieces. In testing coins, care should be taken not to deface such as may prove genuine, though somewhat under weight, it being a legal offence to deface the current coin.

Coins and Medals, Cabinet for.—Coins and medals are best preserved in cabinets made for the purpose. The most convenient form for ordinary collections is a square upright outer case, better with folding-doors than without. The interior is fitted with a series of sliding shelves or shallow trays, in which circular cavities of various sizes are sunk in the wood for the reception of the coins, &c. Sometimes every slide is covered with velvet or some other soft material, and circular pieces of the same are inserted in the depressions. Very often, however, the slides are left plain, and round pieces of coloured paper are placed in the holes for the specimens. Every slide is furnished with one or two knobs or rings, by which it is drawn out. A cabinet is indispensable to those who really have a collection, and wish it to be properly arranged, shown, and preserved. The outer case is frequently made very ornamental. (*See* CABINET.)

Coins and Medals, Counterfeit.—Forged coins and medals are of various classes. Some are contemporary copies of genuine originals; others are modern copies of ancient specimens; some are actual inventions and simple frauds; and others are a compound of two genuine pieces, modifications of a single real coin or medal, or a copy on one side and fictitious on the other. There are ancient as well as modern counterfeits, some being of the same metal as the real or supposed originals should be, some only plated with silver or gold, and some wholly in a base metal. Many counterfeits are beautiful, and rare, and high-priced; but the reverse is the rule. It is often easy to detect forgeries, by various tests, such as size, weight, thickness, metal, and workmanship; but very often they can be known only by an experienced judge. Most collectors possess examples of ancient and modern counterfeits. Forgers of the current coin of the realm are amenable to law, as will be seen in the article FORGERY.

Coins and Medals, To Arrange.—In limited collections all attempts at arrangement should be made in view of facility of reference, as well as classification. The plan adopted should first of all be geographical, which brings the coins of countries and their cities, &c., into juxtaposition. As far as can be, the order should be made chronological as regards kings and rulers, but cities, &c., may be put alphabetically. Then regard is to be had to the metals and sizes of coins, so that gold, silver, and brass or copper should not be intermixed; neither should large and small pieces, except for special purposes. In regard to collections of medals of eminent men, or commemorative of great events, some principle should be followed, so that all which are most nearly allied should come together. But where so much depends on taste and judgment, rules which should include all cases are impossible.

Coins and Medals, To Copy.—The copying of these is effected in the same way as that of intaglios, bas-reliefs, and other fine work. An impression is taken in some suitable material, from which a mould is formed and a cast produced. (*See* MOULDS.) The most remarkable mode of copying coins and medals is by electrotype, which reproduces the minutest details. The casts made in sulphur moulds are good enough for ordinary purposes, and may be rendered much like the originals in the case of old brass. The substances in which impressions or copies can be taken are very numerous, and include isinglass, glue dissolved in brandy, gelatine, gutta-percha, sundry sorts of wax, soft metal, plaster of Paris, &c.

Coins, Current. (*See* MONEY.)

Coir.—The outer fibre of the cocoa-nut (*see* COCOA-NUT FIBRE) is known by the native name of coir. It is stripped off longitudinally from the unripe nuts, and frequently weighs one or two pounds. These husks are steeped in water in pits, for six months, or even a year, until the dry, dusty substance mixed with the fibres is separated. It is then beaten on a stone with a heavy piece of wood. The fibres are then twisted into yarns, which are manufactured into cordage of all sizes. They are also used in making matting. The goodness of coir depends on the fineness of the filaments, and their being of a bright yellow colour. Coir has been used in India from an unknown period for ropes, and it is now considered one of the best materials for cables, from its buoyancy, elasticity, and strength. The coir rope is so light that it floats in the water, and sea-water is said to be beneficial to it, rendering it more strong and elastic. It is not suitable to fresh water, and snaps easily in frosty weather. Coir forms a large article of export from Ceylon, and it is also prepared in the Laccadive and Maldive Islands and on the south coast of America.

Coke.—The preparation of coke is very like that of charcoal. It consists of coal charred or carbonised, and is procured by heating coal in ovens until all the smoke and vapour are evolved. It is porous, hard, and brittle, and varies in colour from iron to blackish-grey, has a slight metallic appearance, and can be handled without the fingers being soiled. It is a fuel of very great value, imparting a great amount of heat without giving off any smoke. It is nearly always used in locomotive engines and furnaces, as well as in the smelting of metallic ores. There are three varieties of coke —kiln-made coke, made by burning coal in a kiln or stove (this produces an intense heat); gas coke, producing very little heat; and shale coke, used to clarify liquids.

Colchicum.—This is the *Colchicum autumnale*, or meadow saffron (N.O. *Melanthaceæ*). Both the corm and seeds are used medicinally, the former in the extract and wine of colchicum,

the latter in the tincture. Colchicum increases the action of the bile and the quantity of the urine, and is largely prescribed in painful inflammatory gout. It has also a marked influence upon the heart, diminishing its action, and if given in large doses frequently causing intermission of pulse, vomiting, purging, and intense prostration. It must therefore be taken with caution. The dose of the extract and acetic extract (the latter contains acetic acid) is from half a grain to two grains; of the tincture and wine, ten to twenty drops in cold water two or three times daily. Colchicum is sometimes given in acute rheumatism, when it seems to do good by controlling the action of the heart.

Cold Bath. (*See* BATHS AND BATHING.)

Cold Cream.—This is the name given to a very white ointment, in appearance much resembling lard. It should be used in preference to lard for skin applications. It is useful as a lip-salve; and when the hands and face are chafed and rough with the frost, &c., it has a soothing and healing tendency. It is composed of olive oil and white wax. Some make it of lard; but olive oil is far better, as lard very often contains salt, and this, besides being irritating to the skin, causes the ointment to become rancid.

Cold, Effects of.—The effects of cold are too manifold to be described here. It is sufficient to say that a vast proportion of the ailments which prevail in this country have their origin in what is commonly called "catching cold." (*See* BRONCHITIS; CATARRH.)

Cold Food as Diet.—Cold food is not as a rule recommended when hot can be procured, as its tendency is in the first instance to lower the temperature of the stomach, and thus impede digestion. The body must, in fact, give up its own heat to raise the temperature of the food to the proper standard of 98°, and this involves unnecessary waste, which in the case of the sick can often be ill borne. Granting that the nutrient properties of the food are still retained, and that the digestion and general health are thoroughly good, the use of cold food may be continued for some time with impunity; but for the sick, unless in certain irritable conditions of the stomach, hot food is essential. (*See* DIET.)

Cold-water Cure. (*See* HYDROPATHY.)

Cole, or Colewort.—This is the name given to some of the varieties of *Brassica oleracea*, of which the common cabbage is one. The plants belonging to this class differ from the common cabbage in the shape of their heads, which are open clusters of leaves. When a supply of greens is required for winter use, common cabbages are sometimes planted closely together, and are cut before the leaves have closed into heads; the name of colewort is then given to them. Few plants have been altered so much through cultivation as the cabbage, of which the cole is a variety.

Colic. (*See* BOWEL COMPLAINTS.)

Collar-bone, or Clavicle.—This is the bone which is situated between the upper part of the sternum, or breastbone, and the acromian process of the scapula, or shoulder-blade. It is shaped like the italic *f*, and is very liable to fracture. (*See* BROKEN BONES.)

Collared Meat.—This is a favourite and very convenient method of preparing meat so that it will keep a long time. It is boned, pickled, and rolled, pressed into a mould, and kept in a cool place. A weight is usually put on the top of the mould, and this is allowed to remain until the meat is wanted for use. Almost any meat or fish can be prepared in this way. Collared meats, besides being convenient, are often made to look very ornamental.

Collars.—In olden days, collars were considered to be marks of honour or signs of slavery; of course, the metal of which they were made, and the style of workmanship they exhibited, differed very materially in both cases. In modern days such collars are indicative of certain rank, office, and position, the Knights of the Garter and the mayors of various towns wearing these insignia. Simpler forms are now worn universally by men and women; and the state of the collar, its cleanliness and its general appearance, is considered to be one of the tests as to the character of the wearer. Collars should be made of pure linen; when cotton is mixed with flax, the smoothness, glaze, and stiffness, which are so desirable in collars, cannot be obtained. The shapes vary each year. Collars large in size may sometimes approach the grotesque, but a certain amount of white fabric round the neck is becoming to every one. For ladies, linen collars are proper for morning attire; muslin is worn for demi-toilette, and lace for evening dress.

Collecting China, &c., Hints on.—When buying specimens of china, it is wise to be wary, for since these have been so eagerly sought after, many deceptions have been practised on the ignorant. Collectors should study books descriptive of the particular marks and appearance which distinguish each kind before they venture to purchase. Oriental china is handsomer than old English, but the comparative rareness of the latter makes it the more sought after. The two kinds should be set apart from one another. Exchanges are often made by those who happen to possess several pieces of one kind, unless the said pieces form a set. Specimens of coins should be arranged according to the reigns in which they were struck. A double interest is attached to collections of insects and botanical specimens when the collector has obtained the living specimens, and has had the whole trouble of setting, drying, and arranging. Such specimens require to be very carefully handled. Insects are fixed on small pieces of cork, fastened to wood or cardboard, respect being paid to size. Botanical specimens look well if artistically arranged in large books. Ferns, grasses, and flowers may be made into exceedingly effective groups, if tastefully and naturally placed. Seaweeds also can be so arranged.

Colleges.—A college in its primary meaning (from the Latin *collegium*) is any society of

persons joined together by a community of laws or usages. The Roman term *collegia* included not only societies enjoying certain rights in common, but also bodies of men united by the bonds of common employment. In our own country a college is understood to be an incorporated society of persons, bound together for educational, literary, or scientific purposes, and generally possessing some special privileges. As representative of these other than academic, *see* PHYSICIANS, COLLEGE OF; SURGEONS, COLLEGE OF. In England a college in its academical sense is an endowed institution established for the promotion of learning and research, under a royal or private foundation, and is usually connected with a university. In this way the college is a sub-corporation, a single member of the corporate body — the university. (*See* UNIVERSITY.) In some cases the college possesses in itself all the rights and faculties of a university; the terms college and university are then used indiscriminately, as in the case of Trinity College, Dublin. The distinction between the college as the sub-corporation, and the university as the corporation, does not exist in Scotland and America. In Germany the college is altogether merged in the university, while in France a college is a public school only, somewhat resembling English grammar-schools and the gymnasia of Germany.

Colleges as they now exist at Oxford and Cambridge were of early foundation, having been originally, in nearly all cases, hostels or boarding-houses, in which the students attending the university lived under some sort of superintendence. These hostels were then from time to time endowed by royal or private persons, as a means of providing for the maintenance of poor scholars. To these endowments were also added, by gift or bequest, certain stipends, &c.; and thus the colleges were at length founded. At Oxford, societies endowed for the maintenance of fellows and students are known as *colleges*, while societies not so endowed are termed *halls;* at Cambridge this distinction does not exist. Oxford has now twenty-one colleges and five halls; Cambridge seventeen colleges or halls.

Collie or Colley Dog.—This faithful creature is probably the most sagacious of all dogs. He has been termed by a modern writer on dogs "king of the canine race." The animal came originally from Scotland, where he has been known as the shepherd's companion and servant from time immemorial. The head, which is longish, is peculiarly beautiful, with a small somewhat foxy muzzle, brow not too much raised, eyes keen and intelligent, and ears when at attention about half-cocked. The animal should be shapely, lithe, and graceful in all its movements. The coat should be long from the crown of the head to the end of the tail, which is bushy, and carried somewhat gaily. The former seems to be specially provided by nature to enable the animal to resist rain, or wind, or snow, and to sleep as comfortably on the heather on a stormy night as a lap-dog in its mistress's arms. The colour most approved of is a black, with pale golden tan points, white chest and feet, white blaze on the face, and a collar of the same colour; but colour is of less moment than coat and shape. The dog is used by the shepherd, the cattle-man, and drover; but he has now become one of the most fashionable



COLLIE DOG.

breeds with ladies, royalty having set the example of bringing him to the front. There is also an English collie, of similar shape, but with a short coat; and a peculiar dappled black and grey dog, with one wall eye, which is a great favourite with Welsh and Yorkshire farmers.

Collodion is best known in the photographic art. Gun-cotton made with weak nitric acid is soluble in sulphuric ether, the resulting solution being collodion; this, when spread upon glass, leaves a very delicate film, upon which the photographic picture is taken. It is sometimes used in surgery, the solution when poured on a wound leaving, on the ether evaporating out, a delicate artificial skin, impervious to the air.

Collops.—These are small pieces of meat of uniform size, dredged with flour, and fried in dripping or butter. They are then put into a saucepan with a little good gravy and seasoning, and allowed to simmer. There are various ways of cooking collops, for which see "Cassell's Dictionary of Cookery." The word has been used scollop, instead of collop, which is not correct.

Collusion (from the Latin word *colludo*, to play together).—A deceitful compact between two or more persons to do some act in prejudice of a third party, or for some improper purpose; as, for instance, to bring an action in order to defraud a third party of his rights. In divorce cases, and generally, collusion between the parties is fatal to the success of the proceedings.

Collyrium.—This, as its name implies, is a wash for the eyes when weak or inflamed. Various collyriums are in use, the most popular being sulphate of zinc and rose-water, in the proportion of three or four grains of the former to an ounce of the latter. Sugar of lead, alum,

and sulphate of copper, dissolved in cold water in similar proportions, are also excellent collyriums, and are much used. Nitrate of silver, in the proportion of a grain or more to an ounce of water, is very serviceable in certain conditions, but should only be used under medical advice.

Colocynth. (*See* BITTER APPLE.)

Cologne Water. (*See* EAU DE COLOGNE.)

Colon. (*See* INTESTINES.)

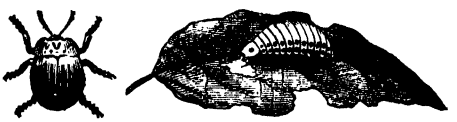
Colony, Colonisation. — The word colony is derived from the Latin word *colo*, to cultivate. It signifies a settlement in a foreign country, possessed and cultivated either wholly or partially by immigrants and their descendants, having a political connection with, and subordination to, the mother-country whence they emigrated. In other words, it is a place peopled from some more ancient country or city. England was not the first of European nations to colonise in parts beyond Europe; but by her own colonisation and by her conquests she has acquired a greater number of colonies and dependencies than any other country, both in extent and value.

Colonies are acquired either (1) by conquest; (2) by cession under treaty; (3) by occupancy, as Newfoundland, New South Wales, and Van Dieman's Land; or (4) by hereditary descent. The greater part of our colonies was acquired by conquest or cession. In these cases the colony retains its former laws until they are altered by the Home Government, the jurisdiction to do so being vested in the Sovereign in Council, subject to Parliamentary sanction and authority. Except where altered in this way, the old laws of the colony remain in force. In the third case (occupancy), the English laws, so far as adapted to its condition, are *ipso facto* in force in such colony (which here is only another name for a plantation), for there can be no existing laws to contest the superiority of the mother-country, to whom the allegiance of the emigrants is still due. Such colonies—as well as those acquired by title or descent—retain their own laws till changed by some Act of the Imperial Legislature, to which every kind of colony is subject as portions of the British dominions.

The principal Statutes affecting colonies and colonisation are the 7 & 8 Wm. III. c. 22; the 16 & 17 Vict. c. 107; the 26 & 27 Vict. c. 84; the 28 & 29 Vict. c. 63; and the 37 & 38 Vict. c. 27.

Colorado Beetle. — It is about fifty years since this beetle (scientific name, *Doryphora decemlineata*) was first known, when it was found feeding on *Solanum rostratum*, a common species of wild edible potato growing in the Rocky Mountains. Subsequently the insect became perfectly familiar, though it was not until 1860 or 1861 that it was in any way notorious. At about that time settlers began to occupy Colorado and some of the neighbouring territories, and then it was that, the common potato being extensively planted, the *Doryphora* abandoned the wild *Solanum* and commenced its ravages on the stalks and leaves of the cultivated one. It afterwards began to travel eastwards, and within fifteen or sixteen years it had journeyed by gradual stages in a straight line—carrying devastation to the crops wherever it went—until it was found in every potato-growing state or province from Canada to the southern limits of the United States. Then it made its way to Germany, and next, in 1877, isolated specimens appeared in this country.

As to remedies against the Colorado beetle, it is recommended (1) that it be searched for in whatever places it is likely to be found, such as in railway carriages, decks of vessels, mail-bags, &c., and then crushed; (2) that frequent visits be made to the potato fields, and search made for the eggs deposited on the under side of the potato-vine; and (3) that watch be kept for the presence of the *larvæ* on the buds and on the leaves of the plant, in order to destroy them by means of Paris green. With regard to the last-named recommendation, Dr. Robert Brown, to whose article in *The Live Stock Journal* we are indebted for much of our information, says:—"The United States Agricultural Department advises that the Paris



COLORADO BEETLE AND LARVA.

green be mixed with ashes or flour, of one part to twelve or fifteen. It should be dusted over the plants in the morning when the dew is on the foliage, and should be repeated after rains. A convenient mode of dusting the vines evenly is to prepare a dredge on a large scale from an old tin pitcher, fruit can, or preserved meat tin, by punching the bottom full of holes." The colour of the *Doryphora* is a pale, dirty buff, the under surface being tinted with a reddish hue; that of its *larva* is at first reddish, but ultimately acquires a yellowish or orange tint.

Colour-blindness.—This is a peculiar defect of sight in which there is more or less incapacity for distinguishing different colours. It is all-important that persons suffering from this condition should not be employed as railway signalmen, where the mistake in the colour of a light might be the cause of a fearful catastrophe. Special care should therefore be taken in the examination of such persons, in order to test their correctness of vision. It has been stated that about a half per cent. suffer from colour-blindness more or less marked.

Coloured Fabrics. (*See* FABRICS.)

Colouring (in Cookery).—Colour is a most important element in cookery. However good a dish may be, if its appearance does not proclaim its quality it will not be appreciated. Good cooks understand the value of appearances, and are careful to make their dishes *look* inviting as well as *taste* delicious.

Various methods are employed to impart the proper colour to culinary preparations. A brown colour is generally wanted for sauces and stews. Common cooks are in the habit of

burning a little sugar as required, and adding it to the liquid. This is almost certain to spoil the flavour of the gravy. It is much better to have on hand, ready bottled, a small quantity of properly-prepared sugar-browning. This can be made in a leisure half-hour with very little trouble. There is no fear that it will impart an unpleasant taste, and it will keep good for a long time. When sauce is to be thickened as well as browned, roux or brown thickening should be used. This preparation is much the best to be made beforehand, and it will keep for several months. When these two preparations are in the house there is no occasion for any dish of a sickly pale, uninviting hue to be sent to table. Burnt onions, a glass of port or claret, or a spoonful of mushroom ketchup may also be employed to impart a brown colour to sauces. When their introduction is appropriate, they may improve the flavour as well as the appearance of the dish; but this must always be considered.

When a red or pink colour is required, two or three drops of liquid cochineal may be used. This should be introduced gradually, and more added if necessary. Too much colouring is almost worse than too little. Cochineal may be bought of the chemist in a dry or liquid form. The liquid may be prepared at home, at one-tenth the price that it would cost in the shops. A *green* tint, which is frequently required for various sauces, is best obtained from young spinach, beet, or parsley-leaves. Spinach is the best of the three. The juice should be expressed from the leaves, and should be steamed before being used. The introduction of cream, pounded almonds, or arrowroot will make any preparation *white;* and saffron, the pounded yolks of eggs, or the leaves of the crocus which have been soaked in liquid for awhile, will make any dish look *yellow*.

Colours.—By artists and those who write on art, the colours distinguished as primary are three in number—namely, red, blue, and yellow, because by means of certain combinations of these all other colours can be obtained; but according to Sir Isaac Newton's description of the prismatic spectrum, it consists of seven colours, and as these admit of no change by means of refraction, they may be regarded as primitive. The three primary colours, distinguished as such in art, will form the others thus:—Red and yellow make orange; yellow and blue make green; and red and blue make purple. As red, blue, and yellow cannot be produced by any combination of the other colours, they may fairly be regarded, in an artistic sense, as strictly primitive.

Colours, Contrasts and Harmonies of.—Harmony, in reference to colours, signifies the agreeable impression produced on the eye by means of their arrangement and combination, varying to that end in their proportions and degrees of purity. As a rule for the guidance of artists, decorators, and to those who may need advice in reference to dress, the following list will supply the names of contrasts in colour which harmonise together:—Red with bluish-green; orange with blue; yellow with indigo; green with reddish-violet; blue with orange-red; indigo with orange-yellow; violet with yellow-green; black with white; dull red with grey-blue, turquoise, pale sage-green; dark olive or sage with salmon-pink, pale apricot-yellow, turquoise, Nile blue; dull peacock-blue with lemon-yellow and citrine; chocolate shades with pale blues; violet with pale greenish-yellows. According to a popular work on decoration, the latter combinations (from "dull red") are much recommended.

Decorators amongst the ancients produced harmony of effect by the use of the three primitive colours in conjunction with black and white, as exhibited on Egyptian tombs and buildings in Pompeii. These three colours adjusted in due proportion, when in union with black and white, representing light and shade, gave the desired effect of harmony. But in the decoration of buildings which are to be seen at a distance, a change in the use of various pigments will be essential, and some departure from the rules which would obtain in painting objects designed only for near inspection. Air, distance, climate, and the light and shade of the building to be decorated, must determine the colours, and the proportions of the same to be employed; for under certain circumstances of distance and of atmosphere, all the primary colours are changed to "broken colours." Thus blue turns to grey; red to orange; and a pure to a broken yellow.

In reference to contrasts and harmonies in the painting of pictures, the artist should be careful that one prevailing sentiment of coolness or warmth, or of light and shade, may be apparent throughout the whole scene—a hue forming what is called the "key-note." This may be fully effected, although the colouring employed respectively for different parts of the work may comprise all the pigments on the palette. Accidental lights and shades, or brilliant contrasts of colouring, need not at all interfere with the general tone, nor militate against the uniform harmony of the picture as a whole.

For the selection of colours in articles of dress, so as to produce harmonious contrasts, in reference to light or dark complexions, the following may be regarded as general rules:—Fair complexions: blue, light-green, violet, black. Dark complexions: every shade of gold-colour, orange, red, pink, and crimson.

Colours, Names given to, in various Trades.—The following is a table of the several varieties of substances used for colouring, as described by names in trade:—

Black.—Black-lead, blue-black, Frankfort black, ivory-black, Indian ink, lamp-black, marking-ink, Spanish black, writing-ink.

Blue.—Antwerp blue, blue ochre, blue verditure, cobalt-blue, indigo, mountain-blue, Prussian blue, royal blue, Saxon (or intense) blue, smalt, ultramarine, French ultramarine, woad.

Brown.—Asphaltum, Antwerp brown, bistre, chestnut-brown, extract of logwood, ivory-brown, mummy-brown, neutral tint, sepia, sienna, burnt sienna, Spanish brown, umber, burnt umber, Vandyke brown, Cologne earth.

Green.—Brunswick green, chrome-green,

emerald-green, mineral-green, mountain-green, sap-green, Scheele's green, verdigris, Prussian green, terre-verte.

Orange.—Annatto, orange-vermilion, chrome-orange, orange-lead, orpiment, orange-lake.

Purple.—Carmine-purple, Cassius purple, litmus, logwood, madder-purple.

Red.—Alkanet, carmine, chrome-red, cochineal, cudbear (or archil), dragon's blood, Indian red, intense scarlet, lac dye, lakes, madder, peachwood, red-lead, red ochre, rouge, safflower, Venetian red, vermilion, Chinese vermilion, rose-pink, terra di sienna.

White.—Ceruse-white, constant white, flake-white, French white, London and Nottingham white, pearl-white, Roman white, Spanish white, tin-white, white chalk, white-lead, zinc-white.

Yellow.—Brown ochre, chrome-yellow, Dutch pink, French berries, fustic, gamboge, Indian yellow, lemon-yellow, madder-yellow, massicot, Naples yellow, orpiment (or king's yellow), Oxford ochre, patent yellow, queen's yellow (or turpeth mineral), quercitron, realgar, Roman ochre, saffron, stone ochre, sumach, turmeric, weld, yellow ochre.

For colours used as dyes, *see* ANILINE COLOURS AND DYES.

Colours, To Fix. (*See* MORDANTS.)

Colours, To Mix. (*See* PAINTS, TO MIX.)

Colours, Varying and Temporary.—Many of the colours and pigments used by painters being varying and changeable in their use, we subjoin a list, gathered from the latest authorities, of those not to be depended upon. The whites of bismuth, pearl, and antimony are injured by light and foul vapours. Naples yellow is affected by foul gases and light. The chromates of lead are blackened by foul gases. Turpeth yellow, mineral, orpiment, or king's yellow, and patent yellow are all equally destructible. Chromate of cadmium, oxide of uranium, chromate of mercury, and oxide of cerium are injured, if not destroyed, by mephitic vapours. Madder-yellow and madder-red are dissipated by light. Massicot, chrome-yellow, chrome-orange, and Jaune mineral blacken in foul air, being all preparations of lead. Gamboge bleaches in the light. Brown, pink, and the vegetable yellows are not to be relied upon; and the same may be remarked of red-lead, iodide of mercury, and red precipitate. Verditure and all the copper blues turn green. Prussian blue and indigo are liable to change and fade in the light. Amongst greens, the phosphates, carbonates, bisulphates, and acetates of copper, with mineral verditure and verdigris greens, are spoilt by foul gases. Nickel green blackens in oil, and Scheele's green also. Madder-brown fades, ivory and bone browns are not so permanent as the blacks from those substances, and Prussian brown is destroyed by alkalies. The browns prepared from peat have all a decided tendency to fade in the light.

Coltsfoot.—This is a British plant (*Tussilago farfara*) much used by poor people in the form of decoction or tea in cough, asthma, &c., but in reality possessing little or no virtue. The leaves are also frequently smoked, with the object of relieving these and other affections of the respiratory organs. Coltsfoot is not now used by medical men, and does not appear in the Pharmacopœia.

Columba or Calumba Root. (*See* CALUMBA.)

Columbine.—A common plant which is perennial, and bears in June and July a red, blue, or variegated flower. It is propagated by separation of the roots in autumn, and prefers a strong soil and a shady place. The botanical name is *Aquilegia;* but the name of columbine, from the Latin *columba*, is due to a supposed resemblance between the five-spurred petals with curved heads and five doves.

In the British pantomime, columbine is the wife of harlequin.

Colza Oil.—This is one of the best of oils for lamps. It is made from the seeds of the *Brassica campestris*, and it should not be used until it has been well refined. An inferior kind of so called "colza oil" is simply a superior kind of refined rape oil; indeed, these two are frequently confounded. They are both made from the same genus of plants, and botanists themselves have some difficulty in defining the distinction between the varieties. The *Brassica napus* produces ordinary rape oil, which is extensively used for machinery, and the cake used for feeding sheep. Colza oil comes from the *campestris*, and judging by the derivation of the name, would appear to bear the same relation to the rape plant that a cabbage does to a turnip. Special lamps are sold for burning colza oil.

Coma, Comatose.—Coma is the term used by medical men to describe a state of complete insensibility, in which the eye is insensible to light, the breathing noisy, with puffing of the cheeks, and the body lies motionless. Coma is the result of (1) various diseases, (2) accident or injury, (3) poison, and (4) excessive cold. 1. The diseases most commonly producing this condition are apoplexy, epilepsy, and uræmia (an affection in which the constituents of the urine get mixed up with the blood, and which generally proves fatal). 2. A blow on the head, with or without fracture, is a common cause of coma, and the presence of this condition indicates that the injury is a severe one, and that there is probably effused blood pressing upon the brain. (*See* BROKEN BONES.) 3. Various poisons, as opium, carbonic acid as it occurs in wells and mines and in burning of charcoal, as well as excessive use of alcohol, will produce coma. In the latter case it is often difficult to tell whether drink alone causes the condition observed, or whether the person may not have apoplexy as well. Great care and judgment are therefore necessary to avoid too hasty conclusions. The state of the health, the completeness or incompleteness of the insensibility, and the history, with a little patient watching for a few hours, will decide the question. A drunken person may generally be roused by galvanism, or an emetic, or the application of cold water. Persons

rendered insensible by carbonic acid should be exposed at once to a current of fresh cold air, cold water should be dashed over the body, and artificial respiration resorted to. 4. Lastly, coma may be the result of excessive cold. Examples of this are familiar to every reader of travels in the arctic regions, when the first indication of danger from long exposure is a feeling of drowsiness, which if not resisted goes on to coma and death. A person is said to be *comatose* who is passing, or has passed, into the condition of coma.

Combs.—These are made of ivory, tortoise-shell, bone, and horn; the two former substances are the most costly. Those combs which have teeth the whole length of the comb are called lash-combs. Tail-combs are those whose teeth extend part of the way, the rest of the comb being a mere handle, which is gradually rounded to a point. These combs are used for forming curls. Combs commonly known as small-tooth combs are usually made of ivory or bone; they have very finely-cut teeth on both sides. Metallic combs were at one time in use; they were said to have the effect of giving a darker shade to red hair. After the teeth of combs are cut, they are made smooth with files, and are finally rubbed with pumice-stone.

Combs, To Clean, &c.—These should be carefully washed, for if the polish is once destroyed, the comb looks shabby. Some tepid water, with a little yellow soap, is the best cleanser; hot water will make the comb flaccid, which is liable to split the teeth, besides making it look dull. Combs should not lie long in water, and they should be rubbed dry at once. When the teeth are fine and close together it sometimes happens that this method is not sufficient to clear the comb of fluff, &c.; a fine piece of cotton looped over the finger and thumb, and worked up and down between the teeth, by the motion of the hand, will effectually clean such combs.

Combustion.—Whenever any rapid chemical action takes place, attended with great heat and light, combustion is said to occur. To start the process it is generally necessary to apply a flame, or to heat the body; afterwards the heat given out is usually sufficient to carry it on till the whole mass is burnt. No matter is consumed by the process, but the elements of which the body burnt is composed are dissociated and left free to enter into new combinations. Combustion is promoted by any arrangement which increases the supply of oxygen to the burning body, so that substances which will not burn in the air will do so readily in oxygen gas. This is well illustrated by getting a steel spring from a clockmaker, and attaching to the end of it a bit of burning sulphur: exposed to the air the sulphur would burn away without setting the steel on fire; but by plunging it into a vessel filled with oxygen gas the steel will at once commence to burn, emitting a brilliant shower of sparks, and continue to do so throughout its whole length. In order, therefore, to secure an active coal fire, it is necessary to provide for a sufficient supply of air, of which oxygen is one of the constituents, and also to have a sufficient body of fuel to keep up the heat necessary for maintaining the process of combustion. Hence if the coals are packed too closely together, and the interstices are choked up with small coal and ash, the fire languishes for want of oxygen; and if, on the other hand, the lumps of coal are too few and too far apart, so much of the heat is dissipated into the air that the fire is apt to go out in consequence. In the former case the fire would be improved by making some air-holes through its mass and spreading it out more; and in the latter by drawing the lumps nearer together so that they may keep each other warm. The greater heat obtained in furnaces is mainly due to the arrangements by which a powerful draft of air is made to pass in a constant stream through a large bulk of burning fuel.

Combustion, Spontaneous.—There are some substances which are liable to develop so much heat as to produce spontaneous combustion, so that they not only become burnt themselves, but are liable to cause any combustible body in contact with them to be burnt also. They are often the cause of serious fires, doing great damage to property. Vegetable substances, such as new hay, damp corn, and the like, are apt to undergo a slow process of fermentation when in bulk, and to become so hot as to be ready to cause a fire to burst out on any favourable opportunity. Cotton-waste, wool, and similar articles which are more or less greasy are also very liable to spontaneous combustion; and hence the greatest care should be taken in factories where the former, saturated with oil, is apt to accumulate, and in ships and warehouses where large quantities of wool in the grease are stowed. Coal and some other mineral substances are also at times sources of the same danger, especially on shipboard, where large bulks of them lie for weeks and sometimes for months together without being moved, and probably in a more or less damp condition: in this case the spontaneous combustion arises from the decomposition of the pyrites or brasses which are found in most coals, which is always accompanied by considerable evolution of heat. It has been shown by statistics collected by the Board of Trade that the danger from this cause increases at a very rapid ratio with the increase in bulk of the cargo, the doubling of the size of the cargo augmenting fourfold the risk of spontaneous combustion.

Comforters.—These wraps for the better protection of the throat and chest are also termed mufflers, and now when worn by ladies are called clouds. In the form of a broad scarf they are much worn by boating men, athletes, and the like. For use such as this, to prevent sudden chills, they are of great service, but the habit of wearing them ordinarily is a dangerous one, and one which is unnecessary. Those persons, boys or men, who have never begun to use them will not require them; the throat, as a rule, is the better for exposure, provided that it has not been accustomed to any other treatment; but if at the beginning of the winter a comforter is used, it must be continued to be worn, and thus the habit is dangerous; for should the wrap be forgotten or not

put on, the throat is sure to feel the loss. Hand-made comforters are much more satisfactory than those made by machinery, because they wash well. Knitting is better than crochet for the purpose, because it is more elastic, softer, and washes better.

Comforts, Medical.—These may be said to include not only those matters of dainty eating and drinking, warmth or coolness, so essential to the sick, but also all those accessories of the sick-room which help so much to relieve the tedium and distress of a long and painful illness; as, for example, bright pictures, fresh sweet-smelling flowers, music when it can be borne, cheerful conversation, &c.

Commerce.—A card game which is played in two styles—the old and the new. According to the new mode, the players may range in number from three to twelve; a pack of fifty-two cards is used, reckoned as in whist, except that the ace is counted eleven. Each player has so many counters bearing a fixed value, and lays down one for the stake. The game may go on till one person has lost all his counters; but often the number of tours is agreed upon. When the deal is determined, the dealer, or banker, shuffles the pack, which is cut by the left-hand player. Then three cards, one by one or all at once, are given to each person, beginning on the right hand; but no cards are to be turned up. According to the old mode, each player deposits a certain sum in the pool, and receives three counters of a specified value. After the deal is determined, three cards are given to each player, beginning on the left hand, and as many are turned up on the board, by one at a time. For full details and the rules of the game we must refer to Bohn's "Handbook of Games."

Commission.—An appointment, generally by warrant or letters patent, authorising certain persons to perform duties specified in the instrument. Instruments bearing the title of commissions are issued by the Crown to officers in the army and navy, judges, magistrates, justices of the peace, &c. Commissions are also often issued by the Crown or by Parliament to a body of persons appointed to examine into the constitution and working of certain branches of the public service or of certain institutions in the country. As examples of these may be mentioned the Civil Service and the Ecclesiastical Commissions.

Commission Agents, also known as Brokers and Factors, are persons employed by others to buy or sell goods for them on commission. (*See next paragraph.*)

Commission (Commerce).—The allowance which is made by a person to his agent or broker in return for the transaction of his business by the latter. It generally takes the form of a certain fixed per-centage on the amount of the business done, whether it be in the way of sale or purchase of goods; or it may be a certain fixed sum regulated by previous agreement or by the custom of trade. *Del credere* commission is a term used to denote a special commission at a higher per-centage paid by the merchant or manufacturer to his agent, in return for which the agent guarantees all his dealings, and becomes personally responsible for the solvency of those with whom he does business. All commissions are recoverable by law, even in the absence of written agreement or instructions.

Commissionaires.—These are a class of men who are employed to convey messages, and to execute a variety of commissions. In London they form a corps, the members of which are chiefly discharged soldiers, who are recommended for industry, intelligence, honesty, sobriety, and good character generally. They wear a uniform and such decorations as they have acquired in the service of the country. In practice they are found to be very trustworthy and useful, and hence they are sought after by commercial firms and institutions, as well as by private individuals, who need such extra or occasional services as they can render. The corps is regularly organised, and has its proper head-quarters in the metropolis.

Commissioner.—One who has a commission, by patent or other legal warrant, to execute any public office, such as Commissioners of Stamps and Excise, Commissioners of Turnpike Roads, Income-tax Commissioners, Commissioners to Administer Oaths in the Law Courts, &c.

Commit, Commitment.—The sending of a person to prison by warrant or order, either for a crime, contempt, or contumacy; also the committing to prison by any Court of competent jurisdiction, for a term not exceeding six weeks, or until payment of the sum due, of any person who makes default in payment of a judgment debt. (*See* Arrest; Capias.)

Committees, Hints for.—An ordinary committee consists of persons who are chosen to manage the affairs of an institution from year to year. A special committee is appointed for some particular business; and a sub-committee generally consists of a few persons who conduct one branch of a society's operations. Every committee should have a chairman, as well as a secretary to take notes of proceedings, draw up programmes and reports, &c., and to summon the members at the times fixed for meeting. In committee it is not usual to limit the members to once speaking, but it is desirable that no person should speak often on one subject; that remarks made should be brief, clear, and to the point; and that every one should facilitate as far as possible the orderly and speedy despatch of business. At each meeting after the first, the minutes of the preceding meeting should be read by the secretary, put to the vote, and, if adopted as a faithful record, signed by the chairman.

Common Assurances.—The legal documents evidencing the conveyance or transfer of property, whereby one's estate is assured to him, and all controversies, doubts, and difficulties either prevented or removed, or endeavoured so to be. (*See* Conveyance.)

Common Carriers.—All who carry or convey goods for hire, whether on land or water, are carriers. The term, therefore, is

inclusive of railway companies and shipping proprietors, as well as of animals and all ordinary vehicles for the transfer of goods. With certain exceptions, carriers must receive and convey what they are directed to take, and they are similarly answerable for loss or damage. The laws relating to them are numerous, and adapted to the different classes into which they are divided. They are carefully protected against undue risks arising from the dangerous character of some things, and the valuable nature of others; it is therefore incumbent upon persons employing them to make the proper declarations wherever necessary. The conveyance of letters and packets by the General Post Office, although in some respects akin to the work of a common carrier, differs in so many particulars that the ordinary laws do not control that department.

Common Jury. (*See* JURY.)

Common Law.—The Common Law of England comprises the ordinary rules for the administration of justice within the kingdom. It asserts the Sovereign's royal prerogative, and also the rights and liberties of the subject. It is that law elucidated by past decisions under which the determinations of the Courts are guided, and is distinguished from the Statute Laws or Acts of Parliament as having been the law of the land before any Acts of Parliament now extant were made.

Common Pleas, Court of.—One of the three superior Courts of Common Law at Westminster, presided over by a Lord Chief Justice, and anciently three, afterwards four, but now five, assistant or "puisne" judges, as they are termed. This court was originally fixed at Westminster, by virtue of that provision in Magna Charta requiring *communia placita* to be held in some one definite place. Its jurisdiction was altogether restricted to civil, to the exclusion of criminal, causes. It had formerly an exclusive jurisdiction in real actions, *i.e.*, actions relating to lands and tenements. By the Judicature Act, 1873, it is now constituted a division of the High Court of Justice.

Common Prayer.—The Liturgy or prescribed form of prayer for use in all churches and chapels of the Church of England. Clergymen are bound to observe the same, under certain penalties set forth in the Statutes 1 Eliz. c. 2, and 13 & 14 Chas. II. c. 4. In modern times further specific remedies have been provided for enforcement of a clergyman's obligations in this respect, by the Public Worship Regulation Act, 1874.

Common, Right of.—An interest or profit which one has in the land of another. The term is derived from the community of interest thereby arising between the claimant and other commoners having the same right, all of them being entitled to maintain actions for injuries done to their respective interests, both against strangers and against each other. It is in legal estimation an incorporeal right or hereditament, acquired either by grant or by prescription. There are four sorts of common, viz.:—(1) Common of pasture, or liberty of feeding one's beasts on another's land; (2) common of piscary, or liberty of fishing in another's water; (3) common of turbary, or liberty to dig turf on another's land, or in the lord's waste; and (4) common of estovers, or liberty of taking necessary wood from off another's estate. The Statutes relating to the enclosure of commons are the 41 Geo. III. c. 109, and the 6 & 7 Wm. IV. c. 115. (See Blackstone's "Commentaries," vol. ii., p. 32.)

Common Serjeant.—A judicial officer of the Corporation of the City of London, who assists the Recorder in criminal affairs at the Old Bailey Sessions.

Commonplace-book is a register of what things occur worthy to be noted in the course of one's thinking or study, so dispersed as that among a number of subjects any one may be readily found. The advantages of keeping a commonplace-book are many; it not only induces one to read with accuracy and attention, but leads him insensibly to think for himself, provided he composes it not so much as a register of other people's sentiments, sayings, or doings, but as a register of *his own thoughts* upon the various subjects. Many valuable thoughts often occur even to men of no extraordinary genius. Unless gifted with a wonderful memory, these pass away and are lost without the assistance referred to.

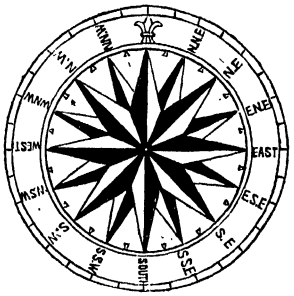
Commute, Commutation.—Commute, from the Latin word *commuto*, signifies to exchange, to put one thing in the place of another, or to buy off or ransom one obligation by another. Its more particular legal signification is in connection with the tithes of the Church, the same having been during the preceding and present reign commuted into a rent-charge, *i.e.*, a periodical money payment, by the Statutes known as the Tithe Commutation Acts, which are the 6 & 7 Wm. IV. c. 71, amended by 7 Wm. IV. & 1 Vict. c. 69; the 1 & 2 Vict. c. 64; 2 & 3 Vict. c. 62; 3 & 4 Vict. c. 15; 5 & 6 Vict. c. 54; 9 & 10 Vict. c. 73; 10 & 11 Vict. c. 104; 23 & 24 Vict. c. 93; 31 & 32 Vict. c. 89; and 36 & 37 Vict. c. 42. (*See* TITHES.)

Company (Commercial).—An association of any two or more individuals for some common object of business, or for the carrying on of some industrial undertaking. Companies may be either private or public, *i.e.*, consisting of a small and definite number of partners (*see* PARTNERSHIP), or of a large or indefinite number of persons, necessarily *more than five*. (*See* JOINT-STOCK COMPANIES.)

Company (Visitors).—The host and hostess should pay attention to each of their visitors; they should be ready to receive them on their arrival, and see generally that while under their roof they receive proper attention. If the entertainment is a dance, they notice whether the ladies are provided with partners; they should introduce strangers; they should see that all the company have been asked to partake of supper. If the visitors are staying in the house, the lady of the house should strive to make their visit pleasant. Some people have the idea that to allow visitors to take their own way and follow their own devices is the best

plan for all parties. It certainly is not for the visitors, who have not the same interests to pursue as when in their own home, and who therefore feel neglected and forlorn when they do not receive any attention. At the same time it is a mistake to try and entertain visitors overmuch; they then feel uncomfortable with superfluous attentions.

Compass, Mariner's.—The mariner's compass is an instrument for steering ships, and consists of three principal parts—the card, the needle on its lower surface, and the case. It is said to have been termed compass because the card involves or compasses the whole plane of the horizon, or because the needle indicates the whole circle of possible variations of direction. The essential part of the compass is the magnetised needle, balanced freely upon a fine point. Such a needle has the property of arranging itself in the meridian, one end always pointing to the north, and the other to the south—at least, not exactly, but with a deflection or declination, which varies from time to time in magnitude. The needle is usually suspended on a central cap of ruby or agate, the point of suspension being of a similar hard material. The surface of the card is



MARINER'S COMPASS.

divided by radiating lines into thirty-two parts, each containing 11° 15′; these constitute the thirty-two points. The North Pole is denoted on the card by a *fleur de lis*, and the line which joins the North and South Poles passes through the axis of the needle. The points are named according to their proximity to the four cardinal points. For instance, the point midway between N. and N.E. is called north-north-east, and is marked N.N.E.; the point midway between N. and N.N.E. is termed north by east. On the inside of the compass-box is a vertical line known as lubber's point; and since this and the pivot of the card are on the same plane with the ship's keel, the point on the circumference of the card opposite to lubber's point shows the angle the ship's course makes with the magnetic meridian. The compass is kept horizontal by the use of a gimbal, or ring, moving freely on an axis, within which it swings on an axis at right angles.

Compensation.—The satisfying or making amends. In legal signification it denotes the moneys awarded to the owners or occupiers, by railway and other statutes, for lands and buildings taken (compulsorily or by agreement), or injuriously affected, for public purposes. The leading Statute on the subject is the Lands Clauses Consolidation Act, 1845. The word also signifies a reward offered or given for the apprehension of criminals.

Complainant.—One who urges a suit or commences an action or prosecution against another.

Complexion, Hints on.—Complexions vary considerably, and therefore it is not wise for every one to wear any particular colour which may be in fashion. In the day not long passed, when salmon-pink and bilious greens were in vogue, the majority of people did not look their best. Blue and violet suit most complexions; orange and its companion tints of amber, yellow, primrose, &c., look well with a dark complexion, provided that it has some colour, and is not sallow. Scarlet and crimson are also becoming to brunettes. Blondes can wear green, peach, brown, and pale blue; black also suits a fair complexion. Brown is the most becoming colour to people who have reddish hair or freckled complexion. Drabs, greys, and neutral tints do not suit people who have pale or sallow complexions.

Composite Architecture. (*See* ARCHITECTURE, ORDERS OF.)

Composite Candles. (*See* CANDLES, CHOICE AND CARE OF.)

Composition.—This term, as to its legal signification, is usually applied to the arrangement entered into between an insolvent and his creditors for the acceptance by the latter of a part payment, or so much in the £ on their debts in discharge, such payment being termed a composition. The Bankruptcy Act, 1869 (32 & 33 Vict. c. 71), s. 126–7, provides for the acceptance of a composition by the creditors without recourse to bankruptcy proceedings. The consent of a majority in number of the creditors, and three-fourths in value of their debts, is, however, necessary to this. Debts under £10 are reckoned as to value, but not as to number (*i.e.*, such creditors do not count in estimating the majority).

This word also signifies an amicable arrangement of an action or suit. Also an agreement for discharge from liability to tithes entered into between the patron of a living, the incumbent, and the ordinary, *i.e.*, the bishop.

Composition, Literary.—The origination or combination of thoughts and ideas, the clothing them with fitting words, the arrangement of them in due order, according to certain recognised rules, and lastly the committal of the result to writing. Literary composition is in fact but correctly-expressed written speech, and is good or bad according to the richness of thought, elegance, and correctness of expression, and accuracy of arrangement of the writer. In all instances the main principles on which a language has been built up, and the recognised rules that govern speech, must be rigidly adhered to. (*See* AUTHOR.)

Compositions (Art Design).—Composition as an element of pictorial art is one of the higher branches of artistic study in which comparatively few excel. It means, broadly stated, the subordination of parts to a whole, but it is, in its details, far more complicated than that statement would appear to make it, extending as it does to every component part of a work of art in all its phases. Thus we speak of the lines being well composed, or the light and shade, or the colours, or the tones; and of the composition with regard to general effect, and with due reference to certain optical conditions, &c. A picture in which the colours appear confused, in which there is no subordination of parts, no dominant idea, in which the eye, naturally guided and attracted by lines, colours, or contrasts, is not kept within its boundary lines, is wanting in composition. If the parts are without connection, or lack variety, they want composing; if there is no unity of feeling and expression in accordance with the sentiment of the selected subject, the want is again attributed to defective composition. Composition gives the artist's work a subtle power over the eye and mind of the spectator which embodies the true vocation of all high art—that of concealing art. Merely to copy nature, however cleverly objects may be imitated in their lines, colours, lights, shades, and details, is not to attain the loftiest aim of art. If it were, the photographer's semi-mechanical art would shame the fine art of the painter. There is no reality, no truth in such mere imitations; the closest copy of nature must of necessity be woefully defective. No flat surface can be made to resemble space in its completeness. The purest white the colour-maker can manufacture is black compared with the intense brilliancy of sunshine. The purest black when seen in broad daylight is as white when compared with nature's darkest shade. These things are inimitable, but the effects they produce upon our thoughts and feelings during observation are, with the aid of composition in its fullest meaning, quite within the scope of artistic power; hence its vast importance.

Compositions (Various).—A black composition which is used for various purposes is a black pigment, or animal charcoal, which is left in the vessel where prussiate of potassa has been made from blood and horns. A composition sometimes used for sculptor's models consists of sixteen parts wax, two parts Burgundy pitch, or shoemaker's wax, and one part hog's lard. Or, ten parts wax, one of turpentine, as much shoemaker's wax, and as much hog's lard. This is melted by a slow fire, and afterwards well stirred and strained. A composition for giving the appearance of bronze to articles manufactured of copper, brass, zinc, or other metals, is formed with about six parts sulphate of potassium or similar sulphate, six parts of salt of lead, twelve of ammonia or similar salts, three parts acetic acid, and three of hydrochloric or similar acids. The composition which frame-makers use in the manufacture of frames imitative of carved work is composed of glue one pound, the same quantity of turpentine, half a pint of boiled oil, and a like quantity of water, to which is added as much finely-pulverised whiting as it will take, together with small quantities of yellow soap and flour. This is used by being forced into oiled moulds which are commonly made of brimstone. (*See* MOULDING.)

Compost.—A mixture of several sorts of soil, earth, and other matters, so as to make a fine mould for fertilisation of the land.

Compotes.—A compote is a welcome addition to almost every table. It is simply the delicate French mode of presenting the wholesome but not always elegant preparation, English stewed fruit. In the compote the syrup, made of a suitable proportion of loaf sugar and water, is boiled and skimmed till clear, after which the fruit, previously picked and washed if necessary, is dropped into it, and gently simmered until it is sufficiently cooked, without being allowed to lose either its form or colour. The quantity of sugar used must be regulated by the nature of the fruit and the ripeness which it has attained. In fine summer weather less sugar would be required than in a dry wet season, but a sufficient quantity must be used, or the syrup will not be clear and bright. The cook should be careful to use refined sugar, and to employ it in *lumps* rather than when crushed to powder. After simmering, the fruit should be lifted out with a skimmer, and should be arranged in a compotière, and the syrup should be boiled a minute or two separately, and should be allowed to cool before it is strained over it. If a sufficient quantity of sugar is allowed, compotes will keep good in a cool place for two or three days. If there is any sign of mould or fermentation, it may be checked on its first appearance by boiling the preparation a second time for a minute or two. They are more economical and more wholesome than pastry, and superior compotes may be served for dessert.

Compotière.—This is a dish adapted in form and specially intended for compotes. It generally constitutes part of a French dinner-service, but it is not always found in an English one. When it is absent, any pretty glass dish may be used instead of it.

Compound Fracture. (*See* BROKEN BONES.)

Compound Interest. (*See* INTEREST.)

Compounding a Felony is a serious offence in law, and it occurs when a party robbed not only knows the felon, but takes his goods back, or other compensation, upon an understanding to forbear prosecution. This offence is termed "theftbote," and is punishable by fine and imprisonment. To take any reward for helping a person to stolen goods, to prevent or avoid the offender being brought to justice, is a felony; and to advertise a reward for the return of things stolen, or printing or publishing such an advertisement, is punishable by way of penalty to the amount of £50, under 7 & 8 Geo. IV. c. 29. Penal actions by common informers may be compounded by leave of the Court.

Compounding with Creditors. (*See* COMPOSITION.)

Compounds.—This is a term used in medicine to signify the addition to the principal one of other ingredients which rather increase its efficacy or prevent its disagreeing. Thus a compound colocynth pill, in addition to colocynth, contains aloes and scammony, which increase its purgative action, and oil of cloves, which prevents griping.

Compress.—This is a term used by surgeons to signify the application of pressure to a part, by means of a pad (generally of folded lint) and plaster or bandage, or by the use of an instrument, as the tourniquet. It is of great service not only in stopping excessive bleeding, but also in limiting or, when desired, in checking altogether the passage of blood to, it may be, an aneurism, or to some part affected by a venomous bite.

Compressed Air-bath. (*See* BATHS.)

Compressed Foods.—Among the many methods employed for the preservation of food, there is one which is ordinarily spoken of as Henley's process, which has been adopted by the River Plate and also by the Texan Pressure Meat Preserving Companies. According to this method, the meat is cut into thin slices and subjected to pressure, which causes the removal from it of a good deal of the juice and the fat. The juice is preserved separately from the meat. The value of this method has not yet been decided, but it seems doubtful whether meat which has had the juice extracted from it can be valuable as food.

Concave Lenses. (*See* LENSES.)

Concave Mirrors. (*See* MIRRORS.)

Concealment (*Suppressio veri*).—A suppression of the truth, to the injury or prejudice of another. It must amount, in order to be deemed a fraud in law, to the suppression or non-disclosure of facts which one, under the circumstances, is bound to disclose to another who has an undoubted right to be put in knowledge of such facts. In negotiations for the sale and purchase of property, a wilful and industrious concealment of a material fact by one of the parties in order to keep the other in ignorance, so as to profit thereby, is a fraud which will entirely vitiate any agreement afterwards come to.

Concentrated Essences, &c. (*See* ESSENCES.)

Concertina.—A musical instrument consisting of a scale of free metal reeds enclosed in a box, the central portion of which is a small closely-folding bellows of either round or hexagonal shape. The instrument is held, and played, by both hands, the external keys or small knobs, one to each reed or note, being pressed by the fingers. Each knob thus pressed opens an interior valve, and admits to the reed a pressure of air from the bellows, and this setting the reed in vibration, produces the note. In the "German" concertina there are usually eight knobs or keys to each hand, each key acting upon two reeds of different pitch; *e.g.*, key No. 1 with the drawing out of the bellows may play A, while the pressure back again may produce B♭. The English concertina (invented by Wheatstone) is a greatly superior instrument. Each key has a double vibrator of the same pitch, so that the same note is produced both ways. The scale is more extended and complete, and is generally constructed on the "just intonation" system; *e.g.*, there is one note for A♯ and another for B♭. The English concertina is really a delightful instrument, and in skilful hands its tones sometimes nearly resemble in sweetness and expression those of the violin. Both the English and the German varieties are usually of the "treble" compass; but the makers have now introduced not only tenor but bass concertinas, and more than one complete concertina band has been organised.

Conch.—A sea-shell, more particularly a univalve of the genus technically termed *Strombus*, of which the species are numerous. The larger kinds are often used by cameo-cutters, for whose work they are particularly suitable.

Conchology.—This is the science which teaches the student to distinguish and to classify shells, and to this knowledge may be added that of the different classes, families, genera, and species of the mollusca which inhabit them. Those persons who desire to claim the name of conchologists should study the science in its zoological and geological aspects, for it will widen the interest and increase the desire to know more.

Conclave.—A solemn assembly, or the place in which such assembly is held. In the latter sense it pre-eminently signifies the place in which the cardinals of the Roman Church meet, and are shut up in order to elect a Pope. The conclave is a range of small cells ten feet square, made of wainscot; these are numbered and drawn for by lot. They stand in a line along the galleries and hall of the Vatican, with a small space between each. Every cell has the arms of the particular cardinal over it. The conclave is not fixed to any one determinate place, for the constitutions of the Church allow the cardinals to make choice of such a place for the conclave as they consider most convenient; yet it is generally held in the Vatican. The conclave is strictly guarded by troops; neither the cardinals nor any persons shut up in the conclave are spoken to but at the hours permitted, and then in Italian or Latin. Even the provisions for the conclave are examined, so that no letters may be conveyed by that means from the ministers of foreign Powers, or other persons who may have an interest in the election of the Sovereign Pontiff.

Concretes.—Concrete, a composition of lime, sand, pebbles, and other materials, forming a kind of artificial rock, is used for the foundations of buildings as a precaution against damp and partial settlements of the soil. An analogous mixture appears to have been used for the same purpose by the ancient builders. Its ingredients vary in their proportions, but that most commonly in use has one part of lime to about seven of ballast, although about eight of the ballast to one part of lime are held by some of the most experienced builders to be a preferable composition. Two parts of stone

and one of sand, with sufficient lime, have been strongly recommended by a practical authority of eminence. It must, however, be remembered that the quality of the concrete will be mainly affected by that of the mortar contained in the lime and sand. The best way of making a concrete is to grind the lime, mix it thoroughly with the ballast in a dry state, and add water sufficient only to complete the mixture; turn it over with the shovels once or twice. It should be used immediately after it is made. Opinions differ with regard to the quantity of water; but it may be added, by way of guide, that as all authorities usually agree in considering that the concrete should set quickly, as little water should be added as is consistent with the complete mixture of the ingredients. During the slaking of the lime the concrete expands, and of this an ingenious use is made in the underpinning of walls. The walls of the Spanish fortress in Ciudad Rodrigo were founded on concrete; and in Italy a very beautiful use is made of it in the formation of mosaic floors. These are made with a surface of concrete, into which before it has set different coloured pebbles are beaten down, in accordance with a previously-arranged design or otherwise. When the whole is hard, the surface is ground perfectly smooth by the aid of stone and sand, and acquires a polish.

Concussion of Brain, &c. (*See* BROKEN BONES.)

Condensed Milk.—Of course no milk is equal to that fresh from the cow, but when a dairy is not handy, that is not always to be had. Many attempts have been made to preserve milk, and latterly these experiments have proved highly successful; and a large trade is now done in this country, and in America and Switzerland, in condensed or preserved milk. It is to be had at any grocer's in air-tight tins, and will keep in this state for a great length of time, but a tin once opened should be used within a few days. The "Swiss milk," as it called, is made at Cham, in Switzerland; there is also the Aylesbury condensed milk, and other varieties made in this country by different firms.

The important question as to whether condensed milk is suitable as food for infants has received a great deal of attention at the hands of the faculty; and although the general opinion, judging from the discussion that took place in 1872, would appear to have been against it as food for babies, we believe it has become since that time much more favourably looked upon even by the doctors. The great objection taken to it was that the large amount of sugar added to it had a tendency to produce fat, and that children brought up upon it grew too stout and unhealthy, and were apt to refuse food of a simpler flavour which was better for them. Improvements have been made in the manufacture since 1872, but condensed milk is still very sweet, and mothers using it for their infants should always reduce the sweetness by the addition of water, or, better still, by adding to it an equal quantity of fresh cows' milk. Taken in this way it may be found of the greatest possible service where nature has denied a more natural source of supply.

The convenience of condensed milk for voyagers and travellers generally is of course undeniable, and the rapid development of the trade in this and other countries is abundant proof, if any were needed, of the popularity of this preparation.

Condiments.—Under this term are included seasoning ingredients which are used at table for imparting a flavour to our ordinary food. Their absence would be felt, because they not only make food pleasanter and more palatable, but are nutritious and assist digestion. Taken in moderation, they are highly conducive to health, but when used to excess they are injurious. The principal condiments are salt, vinegar, oil, butter, herbs, spices, sugar, ginger, and pepper.

Condition.—A clause of obligation stipulated as an article of a treaty or contract; a restraint annexed to a gift, purchase, or devise, so that by the non-performance of it the party loses the same; or an uncertain event, *i.e.*, one which may or may not happen. In the law, conditions are divided into express, implied, precedent, subsequent, and other divisions, each one having a distinct array of learning incident to it, the elucidation of which would obviously exceed the limits and intention of this work.

Conditions of Sale. — The document defining the terms upon which property is sold at public auction. Too little attention is paid to this important document by intending or actual purchasers, who often experience much dissatisfaction when the true import of the conditions under which they have purchased is understood. Unless in the simplest cases, advice should be always taken upon this. They are legally construed so as to collect the meaning of the parties, without encumbering them with the technical meaning of words, for, as Lord Hardwick observes, "there is no magic in words." If the conditions require alteration, they should be so altered in writing before the sale.

Conductor, Lightning. — Buildings and ships are often furnished with lightning conductors. Those which are applied to the former are constructed of thick metal rods projecting several feet above the object to be defended, and terminating in one or more sharp points; the rods are connected at the other end with a good conductor extending downwards into the earth. The lightning conductors used on shipboard are usually made of a strip of copper, which is carried down the main-mast and connected with the copper sheathing. A lightning-rod used to protect a building should have its lower end connected with the service of water-pipes if possible, or, failing that, be carried into a well, or buried in a pit filled in with charcoal at some feet below the surface of the ground. It is all the better if the lower end of the rod be branched. The proper function of the lightning conductor is not to carry to the earth the electric discharge from the clouds above, but to prevent any such discharge taking place in the immediate neighbourhood of it. The mode of its action is as follows:—The electricity of the

cloud overhead induces the opposite electricity in the conductor, which is quietly discharged from the terminal points into the air, thus neutralising the immediate neighbourhood. If insufficient, however, to overcome the electricity of the cloud and to prevent a spark from passing, the spark will then fly from the cloud to the conductor, and save the adjoining building from harm. It is of the greatest consequence that the connection with the earth be perfect, and that, too, by means of a material of greater conductivity than the object or building to which it may be attached, as the lightning will then leave no trace of its passage, whereas a spark sent through a bad conductor will rend it in pieces. A lightning conductor will protect a space around it equal in all directions to twice the height of the point of the conductor above the earth.

Conductors of Electricity.—When a glass rod, or stick of shellac or sealing-wax, is rubbed at one end, that part only will be electrified which has been rubbed. On the contrary, a metal rod having been electrified in this way at one end will be found to be so all over. Metals, therefore, are good conductors of electricity. Between these two extremes we find many substances which conduct electricity more or less, and therefore are neither of special value as conductors nor as insulators. The best conductors, placed in order of conductivity, are the metals, gas coke, graphite, solutions of salts, acids, and water. The best non-conductors, beginning with the inferior and ending with the most perfect insulator, are, India-rubber, gutta-percha, dry air and gases, wool, ebonite, silk, glass, wax, sulphur, resins, and paraffin.

Conductors of Heat.—It is a familiar experience that a metal handle to a metal tea-pot soon becomes so hot as to be almost unbearable; and hence to reduce the inconvenience as much as possible it is customary to break the continuity of the metal by inserting a bit of wood or ivory at each end of the handle. This illustrates the fact that metals are good conductors of heat, and that ivory and wood are inferior. Conduction, therefore, is the transmission of heat through any substance from one particle to another. All solid bodies conduct heat in this way, though some do so very much more readily than others. Liquids, with the exception of mercury, are all very bad conductors; and gases are still worse. The metals have the highest conductivity, or conducting power; and organic substances, whether animal or vegetable, have a low one. These differences lead to many practical applications of value. If a liquid is to be kept warm for a long time, it is placed in a vessel packed all round with non-conducting substances, such as straw or sawdust. With the same object, hay-bands are twisted round water-pipes at the approach of frost. A similar plan is adopted to keep a body cool. Ice is transported in summer by packing it in sawdust and wrapping it up in flannel. The clothes we wear hinder the body from losing heat, in consequence of their loose texture and the air they enclose. The warmth of bed-clothes is due to the same cause, and so is that of furs, cider-down, &c. Hence, also, two shirts are warmer than one of similar material, even though it be double the thickness. Double windows are commonly used in cold climates to keep a room warm, the air that is enclosed between them acting as a non-conductor. Double walls made of planks, filled in between with shavings or any other loose material, keep the rooms very even in temperature: warm in winter and cool in summer. Wood, being a bad conductor, is the best material of which to make the handles of ladles, kettles, and other articles which are exposed to the heat of a fire or to contact with hot bodies. The sensation of heat or cold which is felt on touching different articles is materially influenced by their conductivity. If their temperature is lower, they will feel all the colder in proportion as they are better conductors, and the contrary if their temperature is higher. Hence, under ordinary circumstances, a carpeted floor is warmer than a bare one, and a wooden floor is warmer than a stone one.

Conductors of Sound.—No sound can be transmitted through a vacuum; but gases, liquids, and solids will all convey sounds to the ear. The air, of course, is the commonest medium for the transmission of sounds; a diver under water can hear those around him; and that solids are capable of conducting sounds is easily illustrated by applying one end of a long stick to the ear and gently scratching or tapping the other: the noise thus made will be heard easily, though it may not be loud enough to reach a bystander. If the ear is placed against a telegraph pole, the vibrations of the telegraph wires caused by the wind will become distinctly audible, and at times be even uncomfortably loud. Some savage tribes use the earth as a conductor of sound, the tramp of their enemies being distinctly heard at great distances by resting the ear on the ground.

Condy's Fluid.—This is a solution of the permanganate of potash, in the proportion of four grains of the salt with an ounce of distilled water. It is a powerful oxidising agent, and is largely used as a disinfectant and deodoriser in fevers, &c. It is also employed as an application in foul ulcers, and as a gargle in diphtheria and other affections of the throat. Permanganate of potash is obtained by an elaborate process from chlorate of potash, peroxide of manganese, caustic, potash, water, and sulphuric acid. (*See* DISINFECTION.)

Confectionery.—Under this head many preparations are included. The word confection is taken from the Latin word *conficere*, to make up; and all the different roots, herbs, juices, flowers, &c., which were formerly used in medicine (*see next paragraph*) were called confections. Confectionery is a distinct art, and it is almost useless for ordinary cooks to attempt the construction of the ornamental dishes which really belong to it. Failure and waste are very often the only result of such attempts. Under the term confectionery, however, a great many articles are included which may be made by most ordinary cooks, such as

fruits, preserved either whole or in pieces, marmalades, jams, jellies, candies, and dry confections, as orange-peel and citron.

Confections, Medical. — These are generally composed of honey or sugar, or both, and are used chiefly as vehicles for the administration of certain medicines, or, in the case of confection of roses, as a basis in making pills. The most important are confection of almonds, aromatic confection, confections of roses, opium, pepper, senna, scammony, sulphur, and turpentine. Confections are most useful when the medicine to be taken is bulky, and, from their sweetness, children will often take them readily. Those most in use will be found described under their respective headings, as SENNA, SULPHUR, &c.

Confederation.—A combination for mutual support. In its national signification it is composed of princes, nations, or states.

Confession. — In criminal affairs, the acknowledgment of his guilt by a culprit. In civil, the acknowledgment of a plaintiff's right of action.

Confession and Avoidance.—A legal term signifying that the party pleading admits or confesses, to some extent at least, the truth of the allegation he professes to answer, and then sets forth matter to avoid the legal consequence which his adversary has drawn from it.

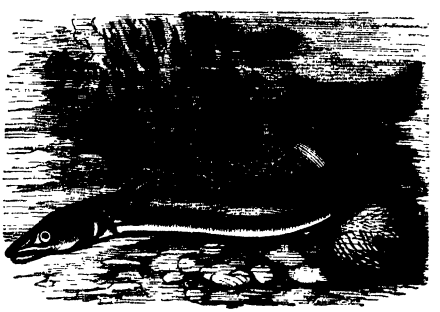
Confidential.—When the words "Private and confidential" appear upon a written or printed communication, the receiver is expected not to divulge or publish the contents, and the writer in some cases protects himself against legal consequences by setting it out as a "privileged communication." Whoever issues such a document should be prudent and cautious, and especially should not communicate what may involve him in difficulty or trouble. The receiver of such a document will be wise to observe whether he is morally and legally bound to regard the character it assumes, or is bound in honour and by law to impart its contents if they are criminal. These remarks may also be applied to spoken communications. The law on the subject is too complex to be given here. In the case of confidential friends, it is most important to be on one's guard, and no person should be admitted to such a degree of intimacy as that term implies without careful observation and evidence of their trustworthiness. In many houses there are servants who are more or less confidential, and it is the duty of employers to be very discreet as to the selection of such, and the amount of trust they repose in them. As society is constituted, few or none are exempt from the necessity of confiding more or less in the honour and secrecy of others, but prudence dictates that this should not be without such reserve and caution as the case requires. The circumstances in which valuable aid and advice may or must be privately sought for are so numerous, that sound judgment in selecting those who are to be trusted is the plainest dictate of common sense. Confidential clerks are employed in some establishments, and it is apparent that they should be worthy of their position, and should be so treated that they will not be likely to abuse their master's trust. Their obligations are clear, and the consequences of breach of legitimate trust are too well known to require explanation or comment.

Confirmation, Rite of.—In the Church of England, confirmation is a ceremony by which those who have arrived at years of discretion make a personal profession of the Christian faith, and of their solemn purpose to continue therein. It is an essential qualification for the Holy Communion. For the preparation required, and the form of service, we must refer to the Book of Common Prayer. The serious character of the rite suggests the temper and manner in which it should be observed. It is customary on the occasion for both sexes to be suitably attired; girls in particular usually wear a special dress, mostly white.

Confiscation (*Confiscor*, the emperor's treasure).—The condemnation and transfer by adjudication of private property to the public, by way of forfeit or penalty for an offence.

Confluent.—This is the term employed by medical men to describe the character of the eruption in small-pox when the pustules, instead of being separate and distinct, run into each other in irregular masses, looking like a scald or burn.

Conger Eel.—A species of round elongated fish commonly called the conger, the *Muræna conger* of Linnæus, natural family *Muræniдæ*. It is easily distinguished from the fresh-water eel, by having its upper jaw longer than the under one, by being darker on the upper portions and lighter under, and by having the dorsal fin commencing much nearer the head. The



CONGER EEL.

upper portions of the body are brown, the under a dirty-whitish colour. This eel sometimes attains an enormous size and weight, its length being in proportion to its thickness about the same as in the common eel. It has been found five or six feet in length on our own coasts, and occasionally nearly double that size, and weighing from fifty to over a hundred pounds. It is fished for on dark nights, the hooks being baited with fish; it is exceedingly voracious, living on small shell-fish, on dabs, and devouring without compunction the smaller eels of its own species.

Congestion.—The term congestion is used to express the undue accumulation of blood in any part of the body, by which the capillary vessels and veins of that part are at first distended, and afterwards wholly or partially obstructed. The circulation being thus retarded, the temperature rises, the engorged vessels give way, and allow the blood to flow into the tissues around. This has been called passive congestion, to distinguish it from that form of local congestion which precedes inflammation, and which has been called active, and in which these changes are accompanied by pain, swelling, and other symptoms of incipient inflammation. Passive congestion is chiefly caused by obstruction to the return of blood by the veins, by debility after severe illness, by cold to the surface, by rich and stimulating diet without sufficient exercise, by disease of the heart, and by old age. The parts most frequently affected are the lungs, brain, liver, and kidneys, and the veins of the leg and rectum. Congestion of the latter constitutes varicose veins and piles. The treatment consists in the removal of obstruction when practicable, in the application of leeches or in general bleeding from the arm, and in the liberal use of ice both externally and internally. Absolute rest is essential, and the general health must be attended to.

Congou. (*See* Tea.)

Congregation. — An assembly met for public worship and to hear doctrine. Also an assembly of several ecclesiastics united so as to constitute one body, as an assembly of cardinals in the Pope's Court met for despatch of some particular business. These assemblies being sixteen in number, are distributed into several chambers, after the manner of our offices and courts.

Congress.—An assembly of commissioners, deputies, envoys, &c., from several courts or provinces, meeting to concert matters for their common benefit or advantage. It is the term by which the Assembly of Senators and Representatives of the several States of North America forming the Legislature of the United States is generally signified. The House of Representatives is chosen every second year by the people of the several States. Each State, however small, has one representative, and there cannot be more than one for every 30,000 inhabitants on the average. The person elected must be twenty-five years of age, and have been a citizen of the United States for seven years. After election he must not be an inhabitant of the State that chooses him. No other qualification is required. The Senate consists of two senators from each State, who are chosen by the Legislature of the State for six years, one-third of them being changed every second year. A senator must be thirty years old, and have been a citizen nine years. When elected he must not be an inhabitant of the State choosing him. The time and place of holding elections for senators and representatives are appointed by the Legislature. Each House determines the rules of its own proceedings, and has the power to punish its members for disorderly conduct. Neither House during the session of Congress can without consent of the other adjourn for more than three days, nor to any other place than that in which the two Houses shall be sitting. The senators and representatives are entitled to a compensation for their services from the Treasury. They are also privi'.ged from civil arrest during the session.

Congreves. (*See* Matches.)

Conjugal Rights. — The rights which husband and wife have to each other's society, comfort, and affection. A suit lies for the restitution of them in the Divorce Court, under the Statute 20 & 21 Vict. c. 85, s. 17. As to Scotland, see 24 & 25 Vict. c. 86, and 37 & 38 Vict. c. 31.

Conjunctiva.—This is the mucous membrane which lines the interior of each eyelid, is reflected on the front part of the globe of the eye, and having lined the lachrymal sac and duct, is continuous with the mucous membrane of the nose. Inflammation of this membrane is called *conjunctivitis*—a condition which gives the appearance known as bloodshot eye. (*See* Bloodshot Eye.)

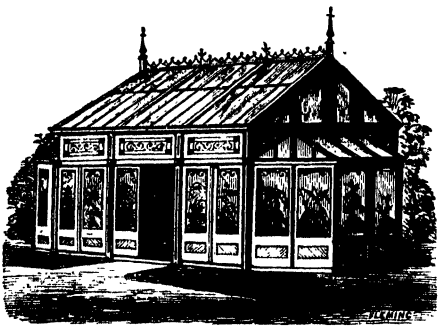
Conjuring, or Legerdemain.—This is an ancient, widespread, and popular amusement; but its forms are so various, and its details so numerous, that we cannot here pretend to teach it. Whatever may be the phenomena, the results are due chiefly either to sleight of hand, mechanical contrivances, confederacy, or some combination of these. The tricks of conjurers may be resorted to for purposes of actual fraud, but more commonly they are a harmless amusement, and as such are not to be condemned. In its higher forms, conjuring implies a considerable knowledge of optical, chemical, and other sciences; but for ordinary parlour recreation, cleverness, quickness, presence of mind, and a few simple appliances are all that is needed.

Connexions.—This is a card game, the players at which are three or four. When three play, each receives ten cards; when four play, each receives eight cards. The cards have the same import as in whist, except that diamonds are always trumps. The connexions, as they are called, are the two black aces, the ace of spades and king of hearts, and the ace of clubs and king of hearts; the first being twice the value of the second, and the third half the value of the second. The winner of the majority of tricks is equal to the third "connexion."

Consanguinity.—The relationship subsisting between persons of the same blood, or who are sprung from the same root. It is either lineal, *i.e.*, in a direct line, as between son, father, grandson, &c.; or collateral, *i.e.*, descending from the same stock, but not the one from the other.

Conservatory.—A glass house intended for the display of choice flowers, plants, and shrubs. The terms greenhouse and conservatory are often considered as synonymous; there

is, however, a distinctive difference between them. The greenhouse is the useful building in which the flowers and plants are raised from seed or slip; and carefully tended until they arrive at maturity; the conservatory, on the other hand, is the display-house to which the flowers, &c., may be removed from the greenhouse and shown to greater advantage. The conservatory, indeed, in the majority of cases, adjoins the dwelling-house, opening out



CONSERVATORY.

from the drawing or other of the public rooms, or connected by a glass-covered corridor. It should never be built on the north side of the house, and the south side is preferable to the east and west, to neither of which aspects, however, is there any strong objection. It should never be placed away from the sunshine, and free ventilation is absolutely necessary. The form of a conservatory must of course depend to a great extent on its position and its relation to the contiguous building, for it should in all cases harmonise with its surroundings. (*See* GREENHOUSE.)

Conserves.—Conserves are manufactured both by the druggist and the confectioner; by the first for medicinal purposes, and by the latter as sweetmeats. They are made by mixing new vegetable matter, such as fruit, flowers, herbs, roots, &c., with powdered sugar, the whole being beaten together until they form a stiff paste. Conserves retain their freshness for a considerable time.

Consideration (in Law).—The material cause or ground of a contract, without which the party contracting would not be bound. A consideration in contracts and agreements is the very life of them; it is something given in exchange, something which is mutual and reciprocal, as the price paid for goods sold, wages for work performed, &c. A consideration of some sort is absolutely necessary to the forming of a contract, a *nudum pactum*, or agreement to do some act or pay money on one side without compensation on the other, being totally void at law. A consideration is necessary to create a debt.

Consignment.—The sending of goods to another for sale or purchase; also the goods themselves so sent. The one who consigns is termed the "consigner," and he to whom they are sent the "consignee."

Consistory was the name of a court under Constantine, where he sat in person, and heard causes; and the members of this court were termed "comites." In England every archbishop and bishop has a Consistorial Court held before his chancellor or commissary in his cathedral, church, or other convenient place in the diocese, for ecclesiastical causes. From the Bishops' Court an appeal lies to the archbishop of the province, under the Statute 24 Hen. VIII. c. 12.

Console Glass.—A glass which is supported by a console (corbel or bracket), and is frequently placed above console tables for the adornment of drawing and other richly-furnished apartments.

Console Table.—The term console, is French, and strictly interpreted means a bracket or truss, usually of a decorative character, and mostly composed of scrolls and flowing lines. It is applied to a table supported by such brackets or trusses.

Consolidated Fund.—The Consolidated Fund consists of the public money, comprising the proceeds of the Customs, Excise, stamps, and other taxes, and some small receipts from the royal hereditary revenue surrendered to the public use, and constitutes nearly all the public income of the United Kingdom of Great Britain and Ireland. This fund is dedicated and pledged to the payment of the interest of the National Debt of the country, and besides this it is liable to other specific charges granted at various periods by statute, such as the civil list, and the salaries of the judges, ambassadors, and other high official persons, after payment of which the surplus is applicable to the purposes of the United Kingdom under the direction of Parliament. (*See* CIVIL LIST; PUBLIC FUNDS.)

Consols.—This term is an abbreviated form of "Consolidated Three per Cent. Annuities." In the early days of the National Debt, money was borrowed by the successive Governments of the country, conditional on the payment of a perpetual annuity of so much per cent. on the sums borrowed. By the Consolidated Annuities Act of 1757, all the various stocks then in existence were merged into one consolidated fund, the accounts of which were kept at the Bank of England. Consols form more than half of the whole public debt, the issue now amounting to nearly four hundred millions sterling. The interest on Consols falls due on the 5th of January and the 5th of July in each year. (*See* NATIONAL DEBT; PUBLIC FUNDS.)

Consommé.—This is a strong broth made from different kinds of meat, sometimes used as soup, but oftener as a sauce. The strength of the meat is so well extracted that, when cold, the liquid is changed into a jelly. When used as a sauce, the flavour of the consommé should suit the dish with which it is to be served.

Consort.—Literally, one person whose lot is cast with another; hence a companion, partner, husband or wife. By royalty the word is often used of the husband or wife of the reign-

ing sovereign, as queen consort, prince consort, and even king consort.

Conspiracy, Conspirators.—Conspiracy is an agreement for an unlawful purpose; the unlawful confederation of two or more persons that each of them shall aid and bear the other or others of them as conspirators to carry into effect some object hurtful to another, or to the community at large, or to a particular class of persons. It is punishable by imprisonment and hard labour. Where the offence is a felonious one, and actually carried out, the offence of conspiracy is then merged in the felony. A remedy in damages lies by way of action at law for preferring malicious indictments or prosecutions.

A conspiracy to raise the price of wages is punishable under 6 Geo. IV. c. 129, amended by 22 Vict. c. 34. See also as to trade disputes the Conspiracy and Protection of Property Act, 1875 (38 & 39 Vict. c. 86). Conspiracy to murder is made a misdemeanour by 24 & 25 Vict. c. 100, s. 4, and is punishable by penal servitude not exceeding ten years, or by imprisonment.

Constable (*Comes stabuli*).—A Roman officer whose duty it was to regulate the Imperial stables, and all matters of chivalry, tilts, tournaments, &c. From being the emperor's master of the horse, he at length obtained the command of the army. The Constable or Lord High Constable of England was an officer of high dignity and importance about the reign of Henry VIII., but the office has been disused except on great occasions, such as a coronation. An ordinary constable with us is an officer to whom the law has entrusted the duty of maintaining the peace, and bringing to justice those who break it. Constables are of two sorts—high and petty. High constables are appointed at the courts-leet of the franchise or hundreds over which they preside. These have in many cases become merely honorary officers, as well as the petty constables and borsholders under them. (See 5 & 6 Vict. c. 109, and 32 & 33 Vict. c. 47.) County and district constables were established by 2 & 3 Vict. c. 93; 3 & 4 Vict. c. 88; and 10 & 11 Vict. c. 89. (See also 7 & 8 Vict. c. 52.) As to the borough police, see 19 & 20 Vict. c. 69, and 20 Vict. c. 2. Special constables are occasionally appointed for particular purposes. There are also constables of castles, who are governors or keepers of the same, and whose office is usually of an honorary nature. (*See* POLICE.)

Constipation.—Constipation, or irregular action of the bowels, is perhaps the most common of all complaints, and occurs so frequently in those whose health in other respects appears to be perfect, that it can scarcely be called a disease, though it is often one of the results of it. Constipation arises from various causes, the most ordinary being a deficient secretion of mucus, with want of power in the muscular walls of the intestines. It is also the result of habit. When due to the former cause, suitable aperients, as rhubarb, aloes with iron, compound colocynth pill, and in certain cases castor oil, will be useful. When there is deficiency of bile, indicated by pale stools, some preparation of mercury, as two or three grains of calomel, or grey powder, or four or five grains of blue pill, should be taken at bed-time, and followed in the morning by a wine-glassful of Hunyadi Janos or Friedrichshall water, in half a tumbler of warm or cold water, the latter to be continued for two or three mornings until the stools assume a natural colour. It must not be forgotten, however, that the habitual use of aperients is in itself a common cause of constipation, and is therefore much to be deprecated. The action of the bowels being fairly established, it must be kept up by such diet as is not wholly deprived by cooking or otherwise of certain indigestible matters which are not convertible into nourishment, and which excite what is called peristaltic movement. For example, brown bread acts in this way, and a little taken daily will be found most useful. Vegetables, ripe and even dried fruit, as figs, prunes, &c., are very serviceable; but above all, plenty of exercise, either in riding or walking, is essential, and should, when practicable, never be omitted. Regular habits must also be attended to when these have been at fault. A glass of cold water taken daily in the morning before dressing is considered beneficial by some, whilst others advocate the after-breakfast pipe; but both of these act more probably as instigators of regularity than in any other way. When constipation is due to mechanical obstruction from disease or otherwise, castor oil is perhaps the best remedy; but in such cases medical advice is necessary.

Constitution, Civil.—A regular form or system of government; so much of the laws of a country as mark the designation and form of its legislature, the rights and functions of the legislative body, and the nature and the jurisdiction of the courts of justice. The Constitution, therefore, is the principal section or title of the code of public laws, and the terms constitutional and unconstitutional are only other words for legal and illegal. The jurisprudence of England is composed of (1) ancient usages, (2) Acts of Parliament, and (3) the decisions of the courts of law. These are the sources from which the nature and limits of her civil constitution are to be deduced, and the authorities for deciding in all cases of doubt. An Act of Parliament can be considered unconstitutional only when it militates against other laws which regulate the form of government.

By the combination which happily exists in our Constitution of three species of government —viz., monarchy, aristocracy, and democracy, in Sovereign, Lords, and Commons—the best properties of each are brought into effect, at the same time each branch operates as a check upon the encroachments of the other. The principal excellence of this venerable fabric is that every citizen may become a senator, and when such, he possesses the right of proposing what laws he pleases to the Legislature; and the right of taxation belonging to the Commons, affords every reason for patiently acquiescing in their enactments, particularly as the national disbursements are annually laid before Parliament and the people. The nature and degrees of punishment being fixed by law, neither the

monarch nor the magistrate can vary them; nor can a man be imprisoned falsely with impunity, through the operation of the *Habeas Corpus* Act, or unjustly condemned, when twelve impartial men of his own class in life decide upon his guilt or innocence. The power of framing laws vested in the two Houses of Parliament is restrained by the Sovereign's veto, and the abuse of that is prevented by their ability to refuse him supplies. In addition, all Acts of the Crown are illegal without the subscription of its great officers; besides which, Parliament has the right of addressing the Sovereign, and punishing evil advisers. The appointment of obnoxious Ministers may be resisted by the opposition of Parliament to their measures, and the prerogative of declaring war may be checked by the refusal of money to carry it on with, and by the same means any improper use of the regular army can be frustrated.

Constitution, Mental and Bodily.—This is a term used somewhat vaguely to describe the natural strength or weakness of the body as a whole, and is also sometimes applied in the same way to the mind or brain only. For example, a perfectly healthy, vigorous man may have a severe accident, such as a scald or burn, or a compound fracture, and will in all probability recover, just because he is healthy and vigorous; in other words, because he has a good constitution. On the other hand, if a weak, delicate man meets with a similar accident, he has neither the same power of resistance nor the reserve fund of health to fall back upon; in other words, he has a bad constitution, and his chances of recovery are proportionally less. When the term is applied to the mind or brain, it is used to express a capacity or incapacity for study or mental works.

Consul was the name given to the two chief magistrates of the ancient Roman commonwealth, who were invested with legal authority for the space of one year, and annually chosen in the Campus Martius. The consul of modern times is an officer established by virtue of a commission from the Sovereign and other princes in all foreign countries of any considerable trade, to facilitate and despatch business and protect its merchants. The consuls keep up a correspondence with the ministers of England residing in the courts whereon their consulate depends. A consul is not a public minister, nor entitled to the immunities of such; but in the absence of an ambassador or *chargé d'affaires*, a consul-general may act as temporary minister, and as such he is entitled for the time to those immunities and to that position.

Consumption, Pulmonary.—This is a disease of the lungs characterised by a deposit in the air-cells and tissue of these organs of a peculiar material called tubercle, which appears to be composed chiefly of albumen and earthy salts, as the phosphate and carbonate of lime. Consumption is frequently inherited, but it may also be generated and promoted by unhealthy and depressing conditions of life. It is found in almost every climate, whether hot, or cold, or temperate, but most frequently in crowded, ill-drained cities, and especially amongst those who are engaged in unhealthy occupations, and who are deprived of proper air, food, and clothing; hence it is common amongst miners, metal-workers, bakers, feather-bed makers, and others, where the want of pure air, or the irritating particles floating about in it, tend to develop the disease. The early symptoms of consumption are often very obscure, but they generally take the form of indigestion, more or less severe, with acidity; of loss of flesh, morning cough, and perspiration; heightened colour, and a temperature varying from 100° to 102°. When these symptoms are all well marked, especially the loss of flesh and continued high temperature, with or without a known inherited tendency, then there is cause for grave anxiety. As the disease progresses, the cough becomes more troublesome, and is accompanied by frothy or mucous expectoration, which is sometimes tinged with blood; the perspirations are more profuse, the colour more heightened and changeable; the sufferer has restless nights, rising in the morning unrefreshed and languid; the breathing is hurried after any unusual effort, though in some cases this symptom is not so marked, and in a few rare instances is wanting to a degree almost unaccountable. In the final stage of the disease, all the symptoms above described become more and more intensified. The tubercular deposits break up, excite inflammation around them, and cavities are formed in the lungs which secrete large quantities of matter, which is continually expectorated. Sometimes a blood-vessel is eaten into, and profuse bleeding takes place, the cough is incessant, the perspiration becomes a continuous bath, there is hectic fever and frequently profuse diarrhœa, until death ends the scene—the patient often continuing hopeful until the last. It may here be remarked that in consumption there is generally an absence of pain, and this to some extent accounts for the hopefulness which is so marked a feature of the complaint. The treatment of this formidable disease, which carries off 10 per cent. of our civil population and a much larger proportion of our soldiers, must be both preventive and curative, but especially the former. When there is a well-known hereditary tendency, all the unhealthy conditions above described as likely to generate and promote the disease, as well as one not mentioned, but very important, viz., frequent and sudden changes from heat to cold, should be avoided; and warm clothing and plain nutritious food easy of digestion, into which milk should largely enter, are advisable. When the symptoms first described make their appearance, the digestion must be especially attended to, and the general health, if possible, improved. It is at this period that change of climate so often acts like a charm. It is now well known, from examination of persons who have died late in life from this disease, that they have been the subjects of it in early life, as shown by manifest signs of the healing process having been effected in different parts of the lungs. Consumption is thus proved to be capable under certain conditions of being arrested in its progress, and there is no condition so powerful in bringing this about as change of climate. The

most favourite resorts are Torquay, Nice, Mentone, Pau, Madeira, and Algiers. A long sea voyage will often prove most beneficial. When change of climate is impossible, then the surroundings must be made as healthy as possible. A complete suit of flannel should be worn, and when the cough and breath are troublesome, a chamois-leather breast-plate may be worn during the winter. With regard to medicine, cod-liver oil in all the stages of this disease is the sheet-anchor. It should be taken persistently for lengthened periods, supplemented with a tonic, of which the best is perhaps the syrup of quinine, iron, and strychnine. When cod-liver oil cannot be borne, olive oil or salad oil will be useful. Milk, whether of cow, mare, or goat, is most serviceable—in fact, anything that contains oil is useful. The grape cure, which consists in living chiefly on grapes, has many advocates, but the great advantage derived from this treatment is the pure air which the patient breathes. Mares' milk fermented and skimmed is also highly spoken of. Sponging of the body with vinegar and water, and taking small doses of nitro-muriatic acid in water, when the perspirations are profuse, have proved beneficial; and when the cough is troublesome, and sleeplessness great, morphia, chlorodyne, &c., will afford relief. The diarrhœa, which is sometimes excessive, will be treated best with bismuth or chalk mixture (*see* CHALK MIXTURES), and morphia or sedative solution of opium. But in all these conditions, varying as they do in different individuals, the medical attendant is the best guide.

Contagion, Advice concerning.—The germs of contagious diseases are never wholly in abeyance, but are ever waiting an opportunity for developing. They lurk in old clothes, furniture, papers, &c., as well as in sewers and dust-bins; and every precaution is necessary, when a contagious disease breaks out in a house, to destroy as far as possible those germs which the body throws off during the attack. The sick-room should be well ventilated and disinfected whilst the fever lasts, and after convalescence the clothes, furniture, papers, &c., should be thoroughly submitted to the fumes of chlorine gas (*see* CHLORINE) or sulphur. As few people as possible should be permitted to enter the sick-room, and those obliged to do so, for nursing and other purposes, should wear linen or cotton clothing, which can be frequently washed, and should avoid contact as far as possible with the other members of the household. It is a good plan to isolate, when practicable, the apartments occupied by the sick, and this is best done by hanging a large screen or sheet, which should be kept thoroughly saturated with a solution of carbolic acid, outside the door or lobby, in such a way that all the air passing out should thus be disinfected. It is most important to remember that the secretions from the body should be disinfected with carbolic acid or chloride of lime, and that the closet or place in which these are disposed of should be similarly dealt with at least twice a day.

Contagious Diseases.—These include all diseases which are communicable from person to person by actual contact, through the medium of clothes, papers, &c., the most common being small-pox, measles, scarlet fever, typhus fever, &c., which are referred to under their respective headings.

Contempt.—1. *Contempt of Court.* A refusal to obey the order or process of the Court; or an offence against particular statutes, the contravention of which is declared to be a contempt of Court; or the interfering with, and violating the known and ascertained rules of, the Court (for instance, of the Court of Chancery in regard to the custody or marriage of its wards). Every judge of a Court of Record has power immediately to commit for a contempt committed in his presence, and the offender is only discharged on purging his contempt and payment of fees. Contempt is sometimes punished by a fine—more frequently by commitment for an indefinite period. 2. *Contempt of Parliament.* Any violation of the privileges of either House of Parliament is punishable by committal. 3. *Contempt of the Queen's Person or Government* is punishable at common law by fine and imprisonment.

Contingent Legacy is a legacy which may or may not take effect. If a legacy be left to one when he shall attain the age of twenty-one years, this is a contingent legacy, and if the legatee die before that time the legacy shall not vest. But a legacy to one to be paid when he attains the age of twenty-one years is a vested legacy, an interest which commences *in præsenti*, although it be *solvendum in futuro;* and if the legatee die before that age, his representatives shall receive it out of the testator's personal estate, at the same time that it would have become payable in case the legatee had lived. By 7 Wm. IV., and 1 Vict. c. 26, s. 33, it is enacted that where any person "being a child or other issue of the testator to whom any real or personal estates shall be devised or bequeathed for any estate or interest not determinable at or before the death of such person shall die in the lifetime of the testator leaving issue, and any such issue of such person shall be living at the time of the death of the testator, such devise or bequest shall not lapse, but shall take effect as if the death of such person had happened immediately after the death of the testator, unless a contrary intention shall appear by the will."

Contraband (from *contra*, Latin, and *bando*, Italian).—A prohibited commodity or merchandise bought or sold, imported or exported in prejudice to the laws and ordinances of a State, or the public prohibitions of the sovereign; also a class of commodities which neutrals are not allowed to carry during war to a belligerent power. Contraband goods are not only liable to confiscation themselves, but also subject all other merchandise found with them in the same box, bale, or parcel, together with the horses, wagons, &c., which conduct them. There are contrabands likewise which, besides the forfeiture of the goods, are attended with severe penalties and disabilities.

Contract.—An agreement between competent parties upon a legal consideration to do or not to do a particular act. (*See* AGREEMENT.)

Contractions.—Wounds, and especially burns or scalds, are very liable to contraction during the process of healing. This is especially the case when they occur in the neighbourhood of joints or in the neck. It is the aim of the surgeon to prevent as far as possible distortion from this cause, by suitable splints and bandages.

Contralto.—The lowest kind of female voice, ranging in compass from about G under the second leger line below the treble stave, to C in the third space. Contralti extend their range to E, and even to G, above the treble stave, but beyond C the voice becomes harsh and inflexible. The contralto voice is less brilliant, but more sympathetic, than that of the male alto (*which see*), the compass of the two voices being practically identical.

Controller, or Comptroller.—An officer appointed to control or supervise the accounts of other officers, and on occasion to certify whether or not things have been controlled or examined. In England we have several officers of this title, as the Controller of the Queen's Household, the Controller of the Navy, Controller of the Customs, Controller of the Mint, &c.

Contumacy.—A neglect or refusal to attend a competent Court when legally summoned; or a disobedience to the rules and orders of a Court. (*See also* CONTEMPT.)

Contusions. (*See* BRUISES.)

Conundrum.—This generally takes the form of a question, the answer to which is a pun or play upon words, the sound being regarded rather than the sense. Thus, "When is a sailor not a sailor?" "When he is aboard, afloat, or ashore" (a board, a float, or a shore). The word conundrum is sometimes applied to an undignified quibble, or needless puzzle.

Convalescence.—This is the period of recovering from illness. It may be slow or rapid, according to the nature of the disease which has preceded it, and the natural strength of the patient. Rest of mind and body is essential during this period, as well as good nursing.

Conventicle.—A small convent, denoting properly a cabal or secret assembly. From the ill use of those assemblies the word has come into disrepute, and now stands for a somewhat irregular, if not mischievous, assembly. This term is said to have been first used in England to describe the schools of Wickliffe, and it has since been applied to the religious assemblies of those in this country who do not conform to the Established Church; but this is an entire misapplication of the word, the legal position and existence of Nonconformists having been recognised by the State on several occasions.

Conventionalism.—What is established by common consent or custom, and may have no real reason or authority in its support, is a conventionalism. Hence many phrases and forms of speech, many habits or modes of action are permitted in social life, which have nothing to recommend them, but which have grown into use imperceptibly. To a certain extent the conventional may be followed without harm; but persons of sound judgment, high moral principle, and decision of character will often rebel against conventionalism. Care must be taken to avoid the other extreme, which is eccentricity, whether in dress, manners, language, domestic arrangements, or elsewhere. Abject compliance with all that is conventional is a sign of weakness, and general hostility thereto will be very likely ascribed to self-conceit or pride.

Conversazione.—The word is an Italian one, which means a meeting of company. In our country we apply the term more particularly to large evening assemblies who meet, often in some public room, in which are exhibited works of art and curiosities. Tea and coffee are provided for the company, who pass the time in promenading the room, talking to their acquaintances, and examining the different scientific or artistic specimens which have been provided for their amusement.

Conveyance.—A deed or instrument by which property is conveyed from one person to another. The several conveyances commonly in use at the present time are, for freeholds, "Grant and Release," "Settlement," and "Bargain and Sale;" for leaseholds, "Assignment;" and for copyholds, "Covenant to Surrender." (*See* COMMON ASSURANCES.)

Convex Lenses. (*See* LENSES.)

Convex Mirrors. (*See* MIRRORS.)

Convict, Conviction.—A convict is a person found guilty of a crime or offence, either by verdict of a jury or other competent decision. On conviction the Crown is empowered, under the Act for abolishing forfeitures for treason and felony (33 & 34 Vict. c. 23), to appoint administrators of the property of convicts. (*See* ATTAINT, ATTAINDER.)

Convocation.—An assembly of the clergy to consult together on ecclesiastical affairs. It is held during the session of Parliament, and consists of an upper and a lower house. In the upper sit the bishops, and in the lower the inferior clergy, who are represented by their proctors, consisting of all the deans and archdeacons, of one proctor for every chapter, and two for the clergy of every diocese. The lower house chooses its prolocutor, whose business it is to take care that the members attend, to collect their debates and votes, and to carry their resolutions to the upper house. Convocation is summoned by the Sovereign's writ directed to the archbishop of each province requiring him to summon it. The power of convocation is limited by a Statute of Henry VIII. They are not to make any canons or ecclesiastical laws without the Sovereign's licence, nor when permitted to make any can they put them in execution but under several restrictions; and they have the examining and censuring of all heretical and schismatical books and persons, &c. From its judicial proceedings an appeal lies to the Sovereign in Council, by Statute 2 & 3 Wm. IV. c. 92. Convocation has, however, long ceased to exercise any legislative power.

Convolvulus.—This well-known and useful annual may be found in most gardens, particularly where walls and trellis-work have to be covered or hidden. The Major convolvulus is grown from seed sown in March in a slight hot-bed or in pots, and when sufficiently matured it is transplanted to the place where it



CONVOLVULUS.

is required. When arriving at maturity the variety of its colours forms a very pleasing addition to the garden, the only disadvantage being the shortness of life of the blossom, which is born and dies on the same day, though the number grown from one plant fully compensates for this drawback. There is a pretty variety of convolvulus called the Minor, but this species does not grow above two feet high. This also is raised from seed, and planted where it should remain.

Convulsions, Treatment of.—This is an affection which occurs most frequently in infancy and childhood, and is characterised by muscular twitchings or spasms, painful distortion of the features, and squinting. At this period of life, convulsions are generally due to sympathetic irritation of the brain, from teething, derangement of the stomach and bowels, and worms. When due to the first two causes, the most efficient remedies are the warm bath, and either a tea-spoonful of castor oil, or from one to two grains of calomel, according to age. A strip of mustard poultice may also be placed along the whole spine, and in very severe cases the inhalation of chloroform is most useful; but this should not be given except under medical advice. If worms are suspected, they must be got rid of by suitable treatment. (*See* WORMS.) Convulsions may also occur as a symptom of certain diseases, as, for example, inflammation of the brain, or its membranes, &c.; they also result from poisons, as strychnia, &c.; from injuries of the head, and from the bites of rabid animals; lastly, convulsions, more or less painful to witness, generally mark the final struggle.

Cookery.—Cookery may certainly be considered an art which wives and mothers of families should understand quite as well as paid cooks. In late years much more attention than formerly has been paid to cookery, because it has been found that not only greater comfort, but health also is promoted by the proper cooking of food. The word cookery includes the preparation of meats, fish, vegetables, fruit, &c., to suit the palate, and to make them wholesome and digestible. We cannot live without food, and much disease and sickness may be avoided by food being cooked properly.

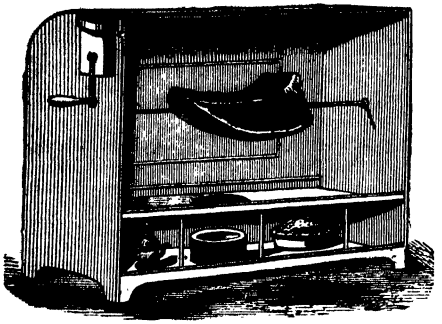
Cookery for Invalids. (*See* INVALID COOKERY.)

Cooking Apparatus.—"Every kitchen," says M. Gouffé, the French *chef*, "should be provided with the best possible utensils. This is a rule which any sensible person must admit, for it is unreasonable to expect cooking to be well done without the necessary implements. Therefore I give this advice to every housekeeper, even to the one who looks the closest to expense: 'Let your kitchen contain every requisite; you will find it to your advantage, both as regards economy and successful results.'" There are few housekeepers who would not be pleased to have their kitchens thoroughly furnished, but all do not possess the means of procuring a large number of utensils. The first consideration for each one of us is the extent of our resources; and on this account many a cook will need to dispense with what she would gladly possess. The point to be aimed at is a *sufficiency* of everything that is absolutely needed. Too many utensils are almost as bad as too few. If a kitchen is profusely furnished, it is almost certain that those things which are not used regularly will be neglected, and will be spoilt for want of being kept properly clean; and after all, cleanliness is the great essential in all cooking operations, and it should be maintained in every kitchen with scrupulous care. There is no disgrace in not being able to afford certain articles; but there is great disgrace if the utensils which are there are not kept clean. The best way of ensuring this is for the cook never to allow any article to be put away dirty. If every culinary utensil is cleaned thoroughly, as a matter of course, each time it is used, there will be little fear that it will not be ready for use at any time it is wanted.

Cooking-clock.—As the name implies, this clock is used to regulate the length of time required for cooking various joints, and also for ensuring punctuality in meals. It is almost an indispensable article of furniture in kitchens where much cookery is required. Very excellent clocks can now be obtained at a trifling cost.

Cooking-screen.—This apparatus is placed in the front of the fire, and is intended to condense the heat as much as possible. Some meat-screens are lined with tin, and are fitted with shelves, upon which the plates and dishes can be warmed. Others are made entirely of tin, and there is a place for the jack, which is connected either with a hook from which the meat can be hung inside the screen, or with a spit similar to that shown in our illustration. These latter kinds of screens possess a great advantage, as by means of them the meat can be cooked at a comparatively small fire, because

the bright tin reflects the heat of the fire upon the meat. When it is used, however, care



COOKING-SCREEN.

should be taken to avoid placing the screen too near the fire, as otherwise the meat may become hard and dry upon the surface.

Cooking, Water for.—Water forms a very important element in our daily supply of food; indeed, without the addition of water very little food could be supplied to us. It is necessary that water used in cooking, whether in the mixing of dry ingredients, in making liquids, or in the boiling of fish, vegetables, &c., should be perfectly fresh. If the water be unfit to drink, it is not fit to cook with, although the boiling of water purifies it to a certain degree.

Cooks.—The position of the cook in a household is a very honourable one, and upon her the health and comfort of its members to a great extent depend. Her chief duty is to prepare the different meals required in the family; and her responsibility and the calls upon her activity are extended or lessened according to the circumstances of her employers and their style of living. In very large establishments, and in hotels, men cooks are generally employed. It is the duty of one of these functionaries, besides himself preparing the more complicated preparations, to superintend all culinary processes, to buy whatever is required, and to make out the bills of fare. When thoroughly efficient he can command high wages.

In ordinary households a woman generally acts as cook. She is considered the head of the kitchen, and the responsibility of its management rests upon her. In large establishments the preparation of dinner is her chief work. She cooks, and afterwards serves, the various dishes, and is careful to provide the suitable sauces for each dish. Her efficiency, her skill, and her experience are shown in the way in which she arranges, without hurry or confusion, but with punctuality and certainty, to present the dishes in perfection and in their proper order. When not occupied with dinner, she employs her time in looking after the larder, in seeing that everything is in good condition, and in providing what is likely to be required for use. In smaller establishments, where a cook and housemaid only are kept, it is customary for the cook to undertake to perform a portion of the household work. The work of the kitchen generally, the keeping in order of the pantries and offices, the door steps, the hall, and the kitchen steps, and everything connected with the outside of the house, devolve upon her.

The wages awarded to a cook in exchange for his or her services vary according to circumstances. In olden times cooks were liberally remunerated. It is said that Marc Antony bestowed a city upon the cook who prepared the supper which pleased Cleopatra; and in the days when Roman luxury was at its height, a skilful cook, acting for a wealthy patrician, received a salary of from £600 to £800 a year. In our own day the *chefs* who are employed in clubs and in noblemen's mansions can command very large salaries. In moderate households the wages paid to an ordinary woman cook varies from £14 to £25 or £30 a year. The amount of wages paid to a cook is, however, a comparatively trifling item in the expense of cookery. The frugal housekeeper will find it is more to her advantage to secure the services of a cook who has economical and enlightened ideas of things, even though she ask high wages, rather than to engage one who is contented with a small remuneration, and who is extravagantly inclined. Unfortunately, many women cooks—and these, it is to be noted, are amongst the most ignorant—have exceedingly extravagant notions. They scorn economy; they are most exorbitant in their demands; and before they can prepare any delicacy, declare that it is indispensable that they should be provided with a number of ingredients which, if they understood their work better, they could do very well without. We may congratulate ourselves that this objectionable class is being gradually improved. The schools of cookery which have been established in various places have spread a knowledge of the culinary art; and it is to be hoped that as this becomes more widely diffused, intelligent cooks will be found who will take a pride in producing wholesome, nourishing, and at the same time palatable and inviting dishes, at a moderate and reasonable cost.

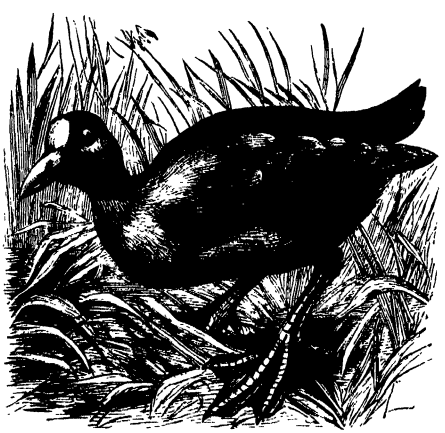
Coolers for Butter.—These are dishes made of china, porcelain, glass, electro, and silver. Some of these designs are exceedingly pretty; and butter balls or pats of butter placed in a cooler in a little water will keep firm a long time.

Coolers for Wine. (*See* WINE-COOLERS.)

Co-operative Stores.—The co-operative principle has made rapid progress in late years, and at the present time some of the largest retail and manufacturing businesses in this country are conducted on this plan. The first co-operative stores were established in the north of England, and for many years were very restricted in their operation; and it was not till 1845 or 1846 that efforts were successfully made to conduct manufacturing processes on co-operative principles. The Rochdale Pioneer Society was one of the first to apply the test of trade on a large scale, and its successful career has exercised a powerful influence on working

men throughout the country. Building societies, corn-mill associations, land societies, cotton and carpet manufactories, coal-mine companies, and a host of other wholesome institutions have since sprung up in different parts of the kingdom. Co-operative stores—that is, establishments where all kinds of goods are supplied to subscribers—exist in most manufacturing towns. The great secret of the success of these institutions consists in ready-money payments; and the most successful competition with which they have been met has been that of shopkeepers who, adopting the same principle, have been enabled to supply their goods on equally advantageous terms. The system has taken too firm a root to be opposed in any other manner, and dealers everywhere are beginning to learn this, and to adapt their terms accordingly.

Coot.—A bird, the *Fulica atra*, belonging to the family *Rallidæ*, is commonly so called. These birds abound in various parts of Europe, Asia, and America; but they are also indigenous to our own country, residing in meres or sheets of water, preferring those that are overgrown with rushes and reeds. Here it builds its large nest, which, when the water is shallow, is sometimes made actually in the water, above which it rises; but it is often built in the midst of a thick bush or tuft of rank vegetation. The



COOT.

eggs, from seven to ten in number, are a dirty white, darkly spotted with brown; and the young, which soon take to the water, are when hatched covered with black down. The bird is about sixteen inches long, leaden colour under, and the upper parts a dark slaty hue. It is often called the bald-headed coot, from a peculiar bare excrescence reaching from the bill to the crown of the head. Although a capital swimmer and diver, the bird seems to fly heavily and with great difficulty.

Copal Gum.—A resinous substance which exudes from various trees spontaneously, belonging to the genera *Hymenæa guibourtia* and *Trachylobium*. The kinds usually met with in commerce are the East Indian, or anime, which is the product of the *Hymenæa courbaril;* and the West Indian, which is procured from numerous species. When good in quality it is so hard that it could not be scratched by the nail. Alcohol and other essential oils dissolve it with difficulty.

Copal Varnish.—Made from a resinous substance, and employed for articles which require durability, transparency, and pliability, such as the varnished wire gauze used in ships instead of glass or Muscovy talc—a manufacture carried on at Rouen. There are six kinds of copal varnish—viz., the colourless copal varnish, the gold-coloured, the ethereal, the turpentine, the oil, and the spirit. The *colourless*, made without heat, may be used on pasteboard, wood, and metals, and will take a better polish than any other. It is used by artists on paintings, both for their preservation and to bring out their colouring. The *gold-coloured* is not suitable for pictures, but is very durable and brilliant. The *ethereal* is expensive, and its use is confined to repairing accidents which occur to the enamel of toys, supplying the place of glass to coloured varnishes used for mending breakages and fractures, and also for the restoration of cracked and injured paintings, to which a smoothness of surface can be thus supplied. The last three varnishes are cheap, and ordinarily used in the arts. The *oil varnish* is both darker in colour and slower in drying than the others. Spirits of wine and camphor dissolve copal readily, and so does caoutchoucine. All copal is not suitable for making a varnish, and the way to test its fitness is simply to let a drop of pure essential oil of rosemary fall on the piece in question, which is good if it soften at the spot that imbibes the oil. Such pieces must then be reduced to powder, and sifted through a very fine hair-sieve into a glass, lying at the bottom not thicker than a finger's breadth. The essence of rosemary should then be poured on it to the same depth above it, and the whole stirred for a few moments. The copal will then be dissolved into a viscous fluid. This should be left standing for two hours, when two or three drachms of very pure alcohol should be gently poured all over the oily mass. This should be repeated by little degrees till the varnish becomes of the proper consistency. It should then be left to stand for a few days, and then bottled off. This recipe produces the *colourless* varnish.

Co-partnership.—The state of bearing an equal part or possession; an equal share. (*See* PARTNERSHIP.)

Copper.—This metal seems to have been known at a very remote period, and was in common use in the early ages for weapons of war, implements, and domestic utensils. It was, however, usually employed in admixture with other metals, and chiefly tin, forming bronze. The name copper (Latin *cuprum*) is probably derived from Cyprus, an island early noted for its supply of the metal. In Great Britain the richest copper-mines are those in Cornwall; large supplies of copper are also obtained in Australia, North and South America, and elsewhere. It is sometimes found

in its native state, but more often as *pyrites*—sulphides of copper and iron.

There are several compounds of copper, the chief of which are the *black* and *red oxides; blue verditer* (common green rust), a carbonate of copper, largely sold as a pigment; *Brunswick green*, a sub-chloride of copper, also sold as a pigment; *blue* and *green verdigris*, oxides of copper acted upon by acetic acid; and *sulphate of copper* or *blue vitriol*, formed by the action of sulphuric acid on oxide of copper.

Copper, Poisoning by.—Poisoning by copper is by no means frequent, but it may occur from certain salts of this metal, as sulphate of copper (blue vitriol), sub-acetate of copper (verdigris), and arsenite of copper (Scheele's green), as well as from food cooked in copper vessels. The symptoms are vomiting, generally of blue or green matter, pain at the pit of the stomach and in the bowels, great depression, headache, and coldness of the extremities. When the amount of poison taken has been excessive, the urine will probably be suppressed, more or less jaundice will be present, and these symptoms may be followed by insensibility and death. The treatment consists in encouraging the vomiting, by copious draughts of warm water, and by administering several eggs beaten up with plenty of milk and sugar. The albumen of the egg is the best antidote for this poison. A well-polished steel knife introduced into a fluid containing copper soon becomes covered with a coating of that metal. There are other tests more delicate—as, for example, that with ferro-cyanide of potassium, which gives, when copper is present, a light-brown or claret-coloured precipitate; and that with sulphuretted hydrogen gas, which yields a deep-brown precipitate.

Copper, Treatment of.—It is most important that copper vessels should be kept scrupulously clean and dry. If they are allowed to remain wet or dirty, and above all greasy, a poisonous green rust somewhat resembling verdigris forms upon the surface, and this imparts a poisonous character to whatever is prepared in them. They should be examined daily, and as soon as they exhibit a red appearance they should be re-tinned. When it is practicable—that is, when the cleansing process can be effectually performed in this way—the inside of copper saucepans should be washed with soda and water only, as sand will be likely to wear off the tin. The copper itself should be cleaned with a mixture of oil and finely-powdered rotten-stone. This preparation should be rubbed on briskly, allowed to rest awhile, then rubbed off with a soft leather. Some people use bath-brick instead of rotten-stone; but the copper quickly tarnishes after the former has been used. Liquids that are acidulous in their nature, or that will need to remain a long time in the saucepan, should not be prepared in copper vessels.

Copper Vessels.—Culinary utensils when made in copper are highly valued, because they wear so well. They require to be used with great care, however, because the metal is liable to be dissolved when it comes into contact with acid preparations. On this account, copper saucepans are generally tinned—that is, lined with a coating of tin and lead. This coating is, however, necessarily very thin, and soon wears off. Ketchups and pickles are often made unwholesome by being boiled in insufficiently tinned saucepans. If copper saucepans are *not* kept in good condition, the soups or stews which are prepared in them are rendered poisonous, and in this way much mischief may be done. (*See* COPPER, POISONING BY.)

Copperas, or Green Vitriol, is a sulphate of iron. For medical and scientific purposes it is made by dissolving iron filings in diluted sulphuric acid; but the commercial article is made from the pyritic shales used in the manufacture of alum. The two products, copperas and alum, are the result of one operation. In the calcination of the alum shales, the sulphur in the pyrites absorbs oxygen, and the bisulphide of iron is converted into the sulphate, the excess of sulphuric acid going to make the sulphate of alumina. These salts are dissolved out with water, and on evaporating the solution down, the copperas crystallises out first, being less soluble than the sulphate of alumina. The crystals as soon as dried are packed in casks for sale; they should be of a clear green, without any rusty-coloured deposit upon them. The commercial article thus prepared is by no means pure, but for some purposes the slight admixture of other ingredients rather adds to than detracts from its value. Copperas is extensively used for dyeing black, especially in the hat trade, in making black inks and Prussian blue, in dyeing with indigo, in calico printing, and for many other purposes. The fuming oil of vitriol is made from the sulphate of iron, whereas the ordinary acid is usually made from sulphur or pyrites. In medicine, the sulphate of iron is used as a tonic and astringent, and in the treatment of worms.

Copy Books. (*See* SCHOOL BOOKS.)

Copyhold. — The tenure of land and hereditaments held by copy of court roll, according to the custom of the particular manor in which they are situate. It is called a base tenure, because the tenant holds at the will of the lord. However, it is not simply at the will of the lord, but according to the custom of the manor by which such estates are descendable, and the tenants' heirs may inherit, and a copyholder, so long as he performs his services and does not break the custom, cannot now be ejected by the lord. Otherwise, he has his remedy for trespass or wrongful ejection against him. But in the reign of Edward I., copyholders were still in the purest state of villainage, cultivating the demesne lands of the lord as serfs, and having no certainty of tenure. In the reign of Edward III. they enjoyed a comparative certainty of tenure; and finally, in the reign of Edward IV., the full certainty of tenure above mentioned was arrived at. To the present day, however, copyholds retain traces of their frail origin, the copyholder for some purposes being a mere tenant at will, the freehold being vested in the lord. The lord is owner of all the mines, minerals, and timber upon it, and the copyholder cannot without a forfeiture grant a

lease for a longer term than one year, nor can he commit waste. There may be various estates in copyhold, as for life, *pur autre vie*, in tail, or fee simple.

Copyholds were first made liable to the debts of the owner after his decease in 1833 by Statute 3 & 4 Wm. IV. c. 104, and during his life in 1838 by 1 & 2 Vict. c. 110. They are also liable in bankruptcy to the same extent as freeholds. They are devisable without any previous surrender to the use of the will; but in case the owner dies intestate, they descend to his customary heir. Upon the death of a tenant the lord is usually entitled to seize his best beast, and also many other specific perquisites, in modern times compounded for by a money payment. By the Act 4 & 5 Vict. c. 35, what is known as the Voluntary Enfranchisement of Copyholds was provided for; and by Acts of Parliament of 1852 and 1858 (15 & 16 Vict. c. 51, and 21 & 22 Vict. c. 94), Compulsory Enfranchisement of Copyholds was enacted, the same having the effect of converting them into freeholds upon payment either of a capital sum, or a fixed annual charge by way of commutation, or confiscation for the lord's fines, perquisites, and hereditaments. There is a Copyhold Commission composed of three commissioners, who act as a Board for carrying out the provisions of these Acts.

Copying Books. (*See* LETTER BOOKS.)

Copying Inks. (*See* BLACK INKS.)

Copying Machine, or Copying Press.—These presses are usually constructed of wrought or cast iron, and consist of a screw and lever acting upon surfaces planed perfectly flat and smooth. In use, the book in which the letters are to be copied is opened, the oiled sheet is laid on the book between two pages, one of which is blank and damped with the brush supplied for that purpose. A drying sheet is then laid upon it, and this process is repeated until the number of pages or copies required suffices, when an oiled sheet is placed upon the last drying sheet, and the whole is placed under the plate of the copying press, and subjected to slight pressure, in order to diffuse the moisture equally through the body of the paper, and absorb any excess from the surface. Remove the copying book from the press, open it backwards, and take out the last of the drying sheets. The letter having been written in copying ink, is then placed ink downwards on the copying paper, and you turn over together the oiled sheet, copying page, and the letter, taking care that the letter is not shifted. The book is once more placed in the press, the lever handle of the screw turned to secure the required pressure, and in a minute or two the book may be taken out, and the letters will be found faithfully reproduced.

Copyright.—The right which an author has in his own original literary composition, so that no other person without his permission may publish or make profit of the copies. It is a class of property founded on industrial occupancy; to wit, labour and invention bestowed on the materials. When a man by the exercise of his industrial powers has produced an original work, he has clearly a right to dispose of that work as he pleases, and any attempt to take it from him, or vary the disposition he has made of it, is an invasion of his right of property. Now the identity of a literary composition consists entirely in its sentiment and language, and whatever method be taken of conveying that composition to the ear or eye of another, by recital, writing, or printing in any number of copies, or at any period of time, it is always the identical work of the author which is so conveyed, and no other man, it has been considered, can have a right to convey or transfer it without his consent either tacitly or expressly given.

The Roman law adjudged that if a man wrote anything, though ever so elegantly, on the paper or parchment of another, the writing should belong to the owner of the material on which it was written; meaning nothing certainly more thereby than the mere mechanical operation of writing, for which it directed the scribe to receive a satisfaction; especially as in works of genius and invention, such as a picture painted on another man's canvas, the same law gave the canvas to the painter. We find in ancient times no other legal recognition of any property in the works of the understanding, though the sale of literary copies for the purpose of recital or multiplication is certainly as ancient as the times of Terence, Martial, and Statius. With us the earliest evidence of a recognition of copyright exists in the Charter of the Stationers' Company granted by Philip and Mary, and in the Decrees of the Court of Star Chamber, and the first Act of Parliament in the matter was the 8 Anne, c. 19, passed "for the encouragement and protection of learned men." This Act was repealed by the 5 & 6 Vict. c. 45, which, with some later Acts amending the same, now regulates the law of copyright. By the 3rd section of the principal Act, it is enacted that the copyright in every book which shall be published in the lifetime of the author shall endure his natural life and the further term of seven years from his death, and shall be the property of such author and his assigns; but if the said seven years shall expire before the end of forty-two years from the first publication of such book, the copyright shall in that case endure for the full period of forty-two years, and the copyright of every book which shall be first published after the death of its author shall endure for the term of forty-two years from its first publication. But the right of property in copyright must be registered in the registry of the Stationers' Company, and after such registry it is assignable by a mere entry of the transfer in the same registry in the manner prescribed by the Act. International copyright is provided for by the Statutes 7 & 8 Vict. c. 12, and 15 & 16 Vict. c. 12, amended by 38 & 39 Vict. c. 12; 25 & 26 Vict. c. 68; but the provisions of these Acts only secure to the authors of books published abroad the right of copyright when the same are republished in her Majesty's dominions, and do not of course oblige foreign countries to extend to British authors the like protection. As to colonial copyright, see 10 & 11 Vict. c. 95, and (as to Canada) 38 & 39 Vict. c. 53.

In addition to copyright in books, such right may exist in music, engraving, sculpture, painting, photography, and in ornamental and useful designs generally.

Coral.—A calcareous deposit or secretion of several kinds of zoophytes, which often assumes very beautiful forms. In many parts of the ocean—especially in the Pacific Ocean—huge coral reefs and large coral islands testify



CORAL.

to the work that is done by these little sea-builders and architects. The carbonate of lime, of which the coral consists, is partly derived from calcareous springs at the bottom of the sea, and partly from the sea itself. The common red coral is obtained principally in the Mediterranean, where there are extensive coral fisheries. Black coral is perhaps the most highly prized.

Coral, Artificial.—Coral is imitated in a variety of substances, such as bone, ivory, wax, certain seeds, and compositions, some of the latter being singularly like the original. What is usually known as artificial coral is in the form of branches, and can be made thus:—Take two ounces of fine resin, and melt it in a brass pan over a slow fire; stir into it four drachms of best vermilion. Then take small twigs or branches ready dried and peeled, and with a hair pencil paint them over with the melted composition. Turn these branches about over your fire, until the work is smooth and bright; then let them cool, and your coral will be very pretty. Instead of mere branches or twigs, a small basket may be made of them and treated in the same way. Cinders, pebbles, wood, &c., are used if the coral is for grotto work or any similar purpose.

Coral, Red, To Clean.—Red coral ornaments will bear washing in water if they are only beads or cameos and other simple pieces. When well dried they may be brightened up by the gentle use of a jeweller's brush, or by rubbing them carefully with soft flannel or silk. If this does not succeed, or if the structure of the ornaments is complicated, it is necessary to hand them over to a practical jeweller.

Coral-stitch.—This also bears the names of tree-stitch and feather-stitch, the latter being its usual designation. It is an ornamental stitch much used on body-linen in lieu of back-stitch. It is a species of herring-bone stitch, in this respect, that one stitch is made on the band or hem, and the next off it on the single material; in appearance it much resembles a straight branch of coral.

Coral, White, To Clean.—When this coral is discoloured it can be made white again by following the subjoined directions:—Steep the coral in acid, and then immerse it in a solution of chloride of lime. When it has become white, it must be taken out and immersed in pure water, which should be changed every few hours for the next two days. Care should be taken not to allow the coral to remain too long in the solution of lime, or it will be destroyed.

Corbel.—A projecting bracket, or block, which is used to uphold a cornice or pier in architecture, and is used domestically for supporting console or pier tables, clocks, &c.

Corchorus.—A genus of plants of the natural order of *Tiliaceæ*, containing a number of species, shrubby and herbaceous, natives of warm climates. The *Corchorus capsularis* is extensively cultivated in China, and is sometimes called "Chinese hemp." It is very similar to the species known as "Jews' mallow," which is cultivated by the Jews in the East. The fibre of the inner bark of both species is very valuable, yielding in India the greater part of the jute of commerce.

Cord.—There are various materials of this description. Rep is one of them. It is made of silk and wool. It wears exceedingly well, the only disadvantage being that the fabric is very heavy for dresses. For covering furniture, for curtains, and such-like purposes, it is most useful and satisfactory. Janus cord is another kind; it also wears well, and is usually made in black for mourning wear. Fabrics made with cords are considered stronger than those with plain surfaces. There is, however, one exception, and that is the material which bears the name of cord which is used for riding-trousers. This is said not to wear so well as the plain cloth known as buckskin cloth. (*See also* CORDS.)

Cordials are warm, stimulating, restorative medicines, usually taken to raise the spirits and quicken the circulation.

Cordova Lace.—Spain was famed for the gold and silver lace which was fabricated in that country centuries ago. It was used to ornament royal robes, and extensively used for the decorations of the churches. So much was required for this latter purpose that but little of this lace found its way into other countries; it was known by the name of "Point d'Espagne."

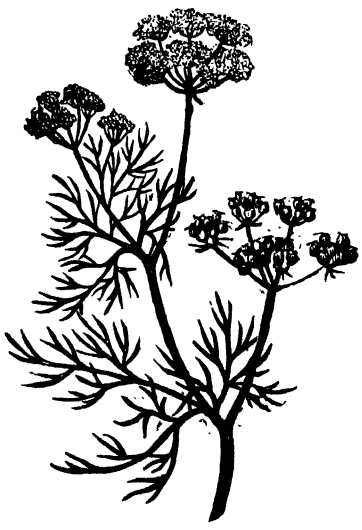
Cordovan Leather.—Some centuries ago, Spanish leather, made of goats' skin and

prepared at Cordova, was extensively used in England, France, and other countries. It was a soft leather, and the peculiar process of preparation had been introduced by the Moors, who for some time held possession of Cordova. This leather was used for the upper parts of shoes. It was called cordovan; and the name gave rise to our words cordwain and cordwainer, which latter name the English shoemakers bore in former days. The French *cordonnier*, which is still used for shoemaker in that country, no doubt sprang from the same origin. At the present time, in England, the name of Cordovan leather has been bestowed on leather made of horse-hide, used for harness, &c.

Cords.—These are used as a finish to the edge of a trimming, or to strengthen the edge of material. They are made in worsted, cotton, and silk, and of various thicknesses. The finest silk cord is used for sewing round the edge of silk embroidery; cotton cords are usually required only for piping cords—these are covered with a material before being used. Worsted cords are often used to trim the borders of curtains when of that material. Cord is the usual finish of sofa-cushions, cozies, and such-like. It is by no means an easy trimming to sew in its place. (*See also* CORD.)

Corduroy.—This material is a kind of fustian; it is very thick, strong, and closely woven, and is consequently considered to be the most useful fabric for the clothes of men who have rough work to perform. It is made of thick twisted cotton. When first corduroy was manufactured it held a high place, for it was then made of silk, and received the name of *cord du roy*, because it was worn by French kings who followed the chase.

Coriander.—The so-called coriander seeds



CORIANDER PLANT.

are produced by an umbelliferous annual, the *Coriandrum sativum*, the globular fruit of which, containing the true seeds, is used in domestic economy and medicine. Coriander is aromatic and carminative, and is employed to flavour curries, as also by distillers and confectioners. It is said to cover the taste of senna more effectually than any other substance known; and its chief use in medicine is in connection with other things.

Corinthian Architecture. (*See* ARCHITECTURE, ORDERS OF.)

Cork for Ornamental Purposes.—Cork is now largely used in its "virgin" or original bark condition for the formation of rustic ornaments used in gardens, or in connection with various forms of floral decoration. The cork-tree is a species of oak which grows abundantly in the southern provinces of France, Spain, and Italy. Cork is used for making models of ruins and architectural remains, &c., and, with the aid of other materials, for the purpose of ornamentation.

Cork Models.—Cork being so readily cut and otherwise suitable, is largely employed in the construction of models of buildings, or geological formation, being solid, light, porous, compressible, and elastic. It lends itself admirably to the formation of models of ancient architectural remains and ruins, can be readily combined with other materials, and is obtainable in sheets and in squares, which can be flattened with the aid of moisture and pressure, or bent with that of heat and pressure. The knife used for cutting the cork should be rather broad in the blade, and will require frequent sharpening, for cork, soft as it appears, blunts the edge of the knife or tool with which it is cut far more readily than the hardest materials in wood or metal will. There are two kinds of cork—the white and the darker kind; the former grows in France, the latter in Spain. The white is the smoother kind, is more free from knots and imperfections than the dark, has a finer grain, and cuts with greater sharpness and precision. A larger and thicker kind of cork boards reach us from Catalonia. Portugal, Italy, and other countries also supply us with cork.

Corks.—These are formed from the bark of the *Quercus suber*. Bad corks, although bought cheaply, are not economical things for domestic use. Good corks, properly made, act more effectually than bad corks do in the exclusion of air, and do not absorb the liquid. If you have a batch of imperfect corks, dip them into a mixture composed of two-thirds of virgin wax and one such quantity of beef suet, and dry them in the oven. Ordinary corks are squeezed with an instrument sold for that purpose before they are forced into the necks of the bottles, so as to allow for their swelling, but corks prepared with this mixture require no squeezing. To ensure the absence of evaporation through the corks, it is usual, after they are driven in, to cover them and the upper portion of each bottle's neck with resin or coarse wax. This "wax" may be made by melting together two pounds of resin with one of Burgundy pitch, a quarter of a

pound of yellow wax, and a little red mastic. This makes an excellent bottle-wax, which adheres well, is sufficiently hard, and not too brittle. The general employment of corks for stopping bottles dates from the fifteenth century.

Corks, To Extract.—Corks are extracted by the aid of corkscrews, instruments which act by securing a firm hold of the cork, so that it can be drawn out by main force, or on the principle of leverage, when a trifling expenditure of force exerted in the form of pressure suffices to withdraw the cork. The lever corkscrews are now most commonly adopted, but they have the disadvantage for some purposes of being less portable.

Corkscrews. (*See* Corks, To Extract.)

Corn.—In England the word corn applies to wheat, rye, oats, and barley. In the United States it has the same meaning, only by custom it is appropriated to maize. The word corn not only signifies the hard seeds of certain plants, but also hail and shot; and until the seed is separated from the ears, the plants or stalks are all included in the term corn.

Of all the cereal grains, wheat is the most valuable and the most extensively cultivated. There are many kinds in commerce; they differ according to the climate and soil where they grow, and also in the variety of the plant. The richest in gluten is that called the hard wheat, which when ground produces a larger amount of flour than other kinds, though not so white. Rye is not so much grown in England as on the Continent. It is much inferior to wheat in strength and nutriment. It will grow in cold climates, and is commonly sown in soils too poor for wheat. Rye-bread was once extensively used in England when the poor people could get nothing better. Oats and barley are well-known valuable grains.

Corn-flour, and Uses.—Corn-flour is a starch made from maize, or Indian corn, and forms a very pleasant food made into puddings, blancmanges, &c. It can be made into a nice gruel for invalids, and is frequently used as a substitute for arrowroot in cases of diarrhœa. It differs from the Indian corn in possessing very much less nutriment; indeed, in the process of its manufacture a great deal of nitrogen is extracted from it.

Corn, Indian. (*See* Maize.)

Corn-salad, or Lamb's Lettuce.—This is a small annual plant of humble growth, belonging to the natural order *Valerianaceæ*. It has long narrow leaves of a pale tint, with small flowers of a light-blue colour, and it grows in cultivated grounds both in Britain and on the Continent. There are several varieties, but the most abundant is the common corn-salad of Britain, the *Mâche* of the French, and *Rapunzcher* of the Germans. This is used as a spring salad, and is much liked. When lettuce is not to be had, corn-salad presents an excellent substitute for it, and it may be employed to increase the variety in small salads. It is rather lacking in pungency.

Cornelian. (*See* Carnelian.)

Corner Dishes. (*See* Courses at Table.)

Cornices and Fittings.—In architecture the cornice is the horizontal projecting moulding which crowns the entablature of a building. On a pedestal it is termed the cap. In Norman architecture it frequently appears in the form of a plain parapet slightly projecting over a row of plain or decorated blocks, which are sometimes united by a series of small arches. In the Early English style it takes a similar form, but is generally of a more ornamental character, the arches assuming the form of trefoil openings between the blocks. In the Decorated style it commonly assumes the form of a sunk hollow under a projecting slope, with an astragal, or small semi-circular "bead" moulding under the hollow. In the Perpendicular style the cornice is formed of several small mouldings with one or two hollows, containing sometimes flowers or grotesque figures, or other ornaments. In classic architecture each of the orders has its own kind of cornice. In room decoration the cornice is used to break the right angle formed by the ceiling and the wall, and to act as a finish to the latter. Cornices are in frequent use to conceal the curtain-poles from which window draperies depend, and in this case it is usual to give them a character more or less elaborately decorative, according to the nature of the room in which they are used, carving and gilding being generally employed for this purpose. Why the simple inoffensive curtain-pole should be thus ostentatiously and elaborately concealed is a funny question, which artists and people of taste are utterly at a loss to understand. If the room is not a more square box, but has architectural pretensions, the cornice should be in keeping with its style or order.

Corns, Treatment of.—Corns are composed of thickened cuticle or scarf-skin, which in its growth penetrates the true skin beneath, causing great pain. There are two kinds—hard and soft. The former are generally found on the surface of the foot, over the joints of the toes, and especially where there is any projection. The latter are situated between the toes. As corns are, in the first instance, caused by pressure and friction, the great object in treating them must be to afford relief in this respect. Boots and shoes must be roomy, and made of soft leather. The pressure may be further relieved by applying a piece of soft leather in which a hole has been punched large enough to admit the corn; if on the sole, a piece of flannel or felt will do. The feet should be washed every night, and the corn smeared in the morning with soap, olive oil, or glycerine. By persevering with this treatment, they will gradually fall off. Soft corns may be touched a few times with nitrate of silver (caustic) or strong acetic acid. If the latter is used, care must be taken that only the corn is touched, and this is best effected by a little cotton-wool or lint soaked in oil, with a hole in the centre, through which the corn can be painted with a camel's-hair brush, dipped in the acid. In any case, where there are soft corns, lint or wool soaked in pure oil should be kept between the toes. If corns become

inflamed, the pain is excruciating, and must be relieved by poultices; and if matter has formed, they must be pared down, until this has been reached, when there will be immediate relief.

Coromandel Wood.—Called also Calamander wood, and by botanists the *Diospyros quæsita*, belonging to the natural order *Ebenaceæ*, the ebony order, the fruit of some of which are used as food by the natives, as well as in medicine, being astringent and tonic. It is a native of the coast of Coromandel, and is also found in Ceylon and Malabar. The wood is very beautiful, and greatly esteemed for the purpose of furniture-making.

Coronation, Coronation Oath.—A coronation is the public and solemn confirmation of the title and the acknowledgment of the right to govern of a king or queen, by crowning. At the coronation of the Sovereigns of this kingdom, the king or queen swears "to govern the people of this kingdom, and the dominions thereunto belonging, according to the Statutes in Parliament agreed on, and the laws and customs of the realm;" also "to cause law and justice in mercy to be executed in all his or her judgments;" also, "to the utmost of his or her power, to maintain the laws of God, the true profession of the Gospel, and the Protestant reformed religion established by law;" and "to preserve to the bishops and clergy of the realm, and to the churches committed to their charge, all such rights and privileges as by law appertain to them."

Coronella.—This flower is so named from its resemblance to a crown, and is a greenhouse plant, but will live out of doors in warm weather. It is a very handsome free-blossoming plant, and can be easily propagated by seeds and cuttings. The latter will strike root very readily during the summer months, but it is necessary to put them under a close frame or hand-glass.

Coroner.—An ancient officer in England, so called because he has principally to do with pleas of the Crown, or such wherein the Sovereign is more immediately concerned; and in this light the Lord Chief Justice of the Queen's Bench is the principal coroner in the kingdom, and may, if he pleases, exercise the jurisdiction of a coroner in any part of the kingdom. A coroner is chosen by the freeholders, and ought to have an estate sufficient to maintain the dignity of his office, and to answer any fines that may be set upon him for his misbehaviour, &c. The office and power of a coroner are like those of the sheriff, partly judicial and partly ministerial, but chiefly the former. These are in great measure defined, by Statute 4 Edw. I., *de officio coronatoris*, and consist, first, in inquiring as to the circumstances attending all cases of sudden death. And this must be *super visum corporis*, for if the body is not found, the coroner cannot sit. He should also *sit* at or very near the place where the death occurred, and he is assisted by a jury chosen from the neighbourhood over which he presides. If any be found guilty by this inquest of murder or other homicide, the coroner commits them to prison to await further trial, and he also inquires concerning their lands, goods, and chattels, which are forfeited thereby; certifying the whole of this inquisition, under his own seal and that of the jurors, together with the evidence therein, to the Court of Queen's Bench or the next assizes. His jurisdiction also extends to shipwrecks and treasure-trove. There are usually four or six coroners for each county in England, besides one for each borough having a separate quarter sessions.

Coronets.—Princes and nobles wear these on state occasions, and have them represented above their coats of arms. In this country coronets are borne by the following:—1. The Prince of Wales. This has a single arch surmounted by a ball and cross. 2. The younger sons of the Queen. These resemble that of the Prince of Wales, except that they have no arch, and have a gold tassel on the top. 3. Dukes. These are known by the eight strawberry-leaves which encircle them. A ducal crest-coronet has no cap, and only shows three strawberry-leaves when painted. 4. Marquesses. These are encircled by four strawberry-leaves alternating with pearls on points. 5. Earls. These have eight strawberry-leaves alternating with as many pearls placed on tall stems. 6. Viscounts. These have around them a series of fourteen or sixteen pearls close together, and resting on a circle. 7. Barons. These have six pearls round them, four of which appear in profile. Besides the above, there are crest-coronets, which do not indicate any particular rank, and are mostly an essential part of the crest of the person bearing them. The late Prince Consort had a special coronet; and coronets are assigned to the royal princesses, as well as to the grandsons, granddaughters, cousins, &c., of her Majesty. The wives of dukes, marquesses, earls, viscounts, and barons also have coronets, somewhat similar to those of their husbands.

Corporation is a body politic or incorporate, so called because its persons or members are joined into one body, and are qualified to take and grant, &c. It is created by Act of Parliament, charter, or letters patent. It is either (1) temporal, (2) spiritual, or (3) mixed. The following are instances of these several descriptions:—1. Temporal, as mayor, corporation, commonalty, bailiff, and burgesses. 2. Spiritual, as bishops, deans, archdeacons, parsons, vicars, &c. 3. Mixed, as heads of colleges and hospitals.

The duty of a corporation is to answer the ends of its institution. It evidences its acts by its common seal, and all its contracts used to be under that seal. But numerous relaxations of this rule have been admitted in modern times, and now for contracts of ordinary occurrence the seal is not necessary.

The distinction between corporations and trading partnerships is, that in the former the law sees only the body corporate, and knows nothing of the individuals composing it, who are not liable for the contracts of the corporate in their private capacity. In the latter, the law looks not to the partnership, but to the individual members of it, who are therefore responsible for the debts of the firm to the

extent of their assets. A corporation may be dissolved by statute, by death of all its members, by surrender of its franchise to the Crown, by forfeiture of its charter, or by bankruptcy or insolvency.

Corpulence.—By this is meant a more than average amount of fat, distributed over the body. When this distribution is equalised, and there is no special deposit in or around any particular organ, interfering with its healthy action, then an unusual amount of fat may not necessarily be prejudicial to health. It may be inconvenient, and it certainly is not graceful, and these reasons have called forth a system of treating this condition, called Bantingism, which consists in abstaining from such things as make fat, as bread, sugar, fat, potatoes, butter, &c. There is no doubt as to the efficacy of this system in reducing corpulence, but great judgment is necessary, so that by very slow gradation only these accustomed articles of food may be dropped, and should be resumed at once if ill effects are experienced. There is also no doubt that many persons have lost their lives by carrying Bantingism to excess, and thereby inducing a condition of health which rendered them an easy prey to the first serious disease which attacked them. Indulging in the fat-producing food and drinks only very moderately, with plenty of exercise in the open air, are the best remedies for corpulence.

Correcting for the Press. (*See* Proofs, Correction of.)

Corrosives. — Those articles which gradually eat into others, and so wear them away by forming other compounds. Thus the acid in most writing-inks acts as a corrosive to steel pens; vinegar acts as a corrosive to copper, forming verdigris upon its surface.

Corrosive sublimate is the name given to the chloride of mercury, on account of its very acrid, poisonous qualities. It is a white crystalline substance, readily soluble in either water, alcohol, or ether. In cases of poisoning by it, recourse should be had immediately to emetics, and, if practicable, to the stomach-pump. The best antidote is white of egg, but one egg will be required for every four grains of the poison; milk, and also wheat flour, may likewise be taken with advantage. It is little used now in medicine, except by veterinary surgeons in the form of an ointment or wash. It is employed in dressing natural history specimens, to preserve them from decay. Timber that has been saturated with it is not liable to dry rot; this is the kyanising process, so named after its inventor.

Corrugated Iron. (*See* Iron, Corrugated.)

Corrupt Practices at Elections.—The principal of these are bribery, treating and corruption. As to what legally constitute these offences, see the 17 & 18 Vict. c. 102, continued and amended by 19 & 20 Vict. c. 84; 21 & 22 Vict. c. 87; 22 & 23 Vict. c. 48; 23 & 24 Vict. c. 99; 25 & 26 Vict. c. 109; 26 Vict. c. 29; and the Parliamentary Elections Act, 1868 (31 and 32 Vict. c. 125). As to municipal elections, see 35 & 36 Vict. c. 60.

Corset.—An article of female attire, used as a foundation on which to measure and fit the figure for other apparel, and on which the latter can be securely fastened without causing inconvenience through the cutting of strings. They are made of jean and French coutil, in coloured materials as well as white, and are supplied with narrow steels or whalebones to keep them from wrinkling. They used to be fastened on by lacing up the back, but they are now more usually opened in front; and the old-fashioned broad busk, or flat steel, is superseded by two narrower ones, which button one on the other, one having a kind of stud, and the other an eyelet-hole. Sometimes a steel busk is attached within them, on one side, to prevent their being snapped when the wearer stoops. The corset had its origin in the "cystus," or girdle of Venus, of the ancients.

Corslet.—A word of French origin. In natural history it designates that under part of crustaceans and of insects which lies between the legs. It also signifies a small *cuirass*, such as worn by the Horse Guards. It was the name given to an article of female attire, much in fashion a few years ago. It was pointed, like a "stomacher," both before and behind.

Corticine.— 1. An inodorous, tasteless substance, said to exist in the bark of the aspen-tree. 2. The name of a patent floor-covering. This and such-like fabrics are usually composed of cork shavings, cotton or wool fibres, caoutchouc, and the substance known as linoleum, spread on a canvas or cotton back, and embossed with coloured patterns.

Corundum.—A term descriptive of the substance which, in various colours, bears the names of ruby, sapphire, oriental amethyst, oriental emerald, oriental topaz, and oriental aquamarine. Emery is a corundum, and the same name is commonly applied to what is otherwise styled diamond spar. In one form or another this mineral is very widely distributed. It is so hard that only the diamond can scratch it.

Cos Lettuce. (*See* Lettuces.)

Cosaque.—The name of a bonbon of the cracker class. Like others of the genus, it is best made by professional hands, and should therefore, when required, be purchased.

Cosmetics.—This word is derived from the Greek *kosmeo*, I adorn. Cosmetics are external preparations employed for the purpose of softening and whitening the skin, and of preserving or increasing personal beauty. They may be divided into three classes—those which are to act upon the skin, or cutaneous cosmetics; those which are to preserve or beautify the teeth; and those which are applied to the hair. Several of those in general use are tolerably innocuous; but others, such as *pearl white*, are poisonous in their nature, and very injurious. The use of cosmetics is not to be recommended, for the particles of which they are composed are liable to close the pores of the skin, and so prevent that free perspiration which is so conducive to health. The best of

all cosmetics are cleanliness, regular exercise in the open air, and sufficient but temperate living.

Costiveness. (*See* CONSTIPATION.)

Costs, Legal.—The expenses which are incurred in the prosecution or defence of an action are called the costs. Costs between solicitor and client are those to which the client is liable in any event, and over and above those which the solicitor, if his client be successful, gets from the other side, which are termed party and party costs, and which the defeated party pays to the successful one, as a matter of course. The plaintiff's right to party and party costs depends on the Statute of Gloucester, that of the defendant to the same costs on the Statute 23 Hen. VIII. c. 15; and under these Statutes the amount sought for or recovered in the action is immaterial. But later Statutes have much affected the ordinary right of litigants to costs, particularly where the damages recovered are trivial; and the judge must in general certify for costs in these cases.

Costume.—This is a form of dress in which all the several parts are conjointly described as a whole, and as universally worn at a certain epoch. Thus the costumes of the different centuries, and the costumes worn by the peasantry of England, France, Switzerland, &c., when spoken of, are understood to refer to the complete dress as worn at that time or by those people. Another and narrower meaning has in late years become attached to the word, for dresses that are sold ready-made at shops are now called costumes.

Costume, Fancy.—At entertainments which are styled fancy dress balls, the guests are attired in dresses which are designated fancy costumes—that is, a style of dress is for the nonce adopted which is different from the usual one worn. This costume may be one which was worn at another period, or in another country, or it may be a modern one worn by members of a different class in society. Ideas as to olden costumes may be gathered by studying old portraits; but sometimes carrying out these fancies is very expensive, particularly as the dress is useless afterwards. An idea, which originated in India, has been followed in this country with success; it is that of wearing such costumes as can be made of cotton materials only. In the present day there is such an immense variety of cotton fabrics that no difficulty need be felt. Velveteen is included in the list.

Cot, Child's.—As soon as a child has outgrown its cradle or bassinette (*which see*), it should have a cot. Some people think this can be dispensed with, and that a little bed can be made on the floor for the baby, or it can be put to sleep with a grown-up person. Either practice is to be deprecated. The most pernicious air in the room is that which lies within one or two feet of the floor, while the best air is in the middle of the room, the inflammable gas rising to the top. Thus if a child shares the bed of an older person, his rest will neither be so undisturbed nor so beneficial in its effects. The cot should be furnished with a hair mattress, which is much more healthy than a feather bed. The clothing should be light, but warm. Everything belonging to the bed—blankets, sheets, &c.—should be taken out and hung in the fresh air for an hour or two after use, and great care should be taken to keep it sweet, clean, and well-aired. Children need plenty of air, and therefore the use of curtains for cots should be steadily discountenanced. If the cot is in such a situation that the light will fall upon the child's eyes, or if it is exposed to a draught, a single curtain may be placed to protect it from either of these evils; but it is better not to fix it in any such position. It is most usually placed by the side of the mother's or nurse's bed, so that during the night its wants can be attended to. Children's cots are made of iron or brass, and are frequently constructed with sloping or movable sides, which are a great convenience when the child is very young.

Cotillon.—Eight dancers take their place as for an ordinary quadrille. The first couple commence by waltzing once round, inside the group. Then the first and second ladies advance twice and cross over; their partners do the same, and afterwards the third and fourth couples repeat the same performance. The first and second couples waltz to their places, and the third and fourth do so also. All now waltz to partners, turn half round with both hands, and meet the next lady; this last action is repeated until all have arrived at their places. Two side lines are then formed, which advance twice, cross over, and turn twice; again the lines advance twice, and then cross to their places, turning twice. All the couples then waltz round, and then the dance is commenced again, and the whole is danced through as described—in all four times. The Germans are very partial to this dance, and they often introduce variations. One form is this:—Beforehand, a basket of small bouquets and a cushion, whereon are a number of small rosettes, are prepared. When the dancers (whose number is not limited) are arranged, the first lady takes her seat on a chair placed in the middle; the master of the ceremonies brings to her two gentlemen. If she wishes to dance with either of them, she takes a rosette from the cushion and pins it on the coat of the one she chooses; if she declines both, two other partners are brought. When she has made her choice she rises, pins on the rosette, and the couple then waltz round the room. The next lady then takes her place. When all the ladies have observed this ceremony, the first gentleman takes a bouquet, goes to the lady with whom he wishes to dance, and offers it. If she refuses it, he tenders it to another; when he is accepted he waltzes once round with the lady. Then the next gentleman offers a bouquet, and so on. The dance is finished by all the couples waltzing at the same time.

Cottage.—This word is of very variable application, for although the dictionary meaning

of the word is "a cot, a hut, a small habitation," it is applied to many dwellings of a comparatively large size. The French cottage (*orné*), for instance, would hardly justify its classification amongst the humble one-storeyed dwelling-houses which in the country we term cottages. English cottages have been greatly improved by the efforts of the Society for Improving the Condition of the Labouring Classes. The late Prince Consort, in the year 1851, built in Hyde Park a couple of model cottages, of which the plans, constructive details, specification, and estimate of cost were published at a low price for the above-named Society.

Cottage Piano. (*See* PIANOFORTE.)

Cottage Range. (*See* RANGES.)

Cottenham Cheese. (*See* CHEESE.)

Cotton Cords.—Corduroy, cantoon, thick-set-cord, are the principal fabrics known as "cotton cords;" but in corduroy the stuff is cut in ribs, so as to give the appearance of being corded. White cotton cord is used by dressmakers and sempstresses to strengthen and ornament garments, by applying them as bindings, enclosed in a covering, cut bias, of silk or other material. They are of various dimensions, and are used in bedroom-furniture for dimity and chintz curtains, &c. The old-fashioned name in common use was "bobbin."

Cotton Fabrics. (*See* FABRICS, COTTON.)

Cotton, Sewing, or Cotton Sewing Thread, has been latterly so beautifully manufactured that it has partially superseded the use of linen thread. The following list supplies the names of many varieties in common use:—*White ball-cotton*, distinguished by numbers or letters, specifying the respective degrees of fineness or otherwise. There is also *coloured ball-cotton*. *Reel-cotton*, a superior kind; *darning-cotton*, for repairing stockings and such-like woven or knitted materials; *Trafalgar cotton* and *Morvian cotton*, used for working net, muslin, and cambrics; *knitting-cotton*, used for gloves, socks, fringe, &c.; *marking-cotton*, dyed previously to being twisted, so as to render the colour fixed; *lace thread*, for mending lace or bobbin net; *gymp thread*, for embroidering.

Cotton, To Dye.—Scour with an alkaline lye, wash in water, then subject to a process of aluming and gall, after which dip in the dye. For red, dye with madder; for scarlet, by means of murio-sulphate of tin, cochineal, and quercitron bark—but this colour fades; for nankeen down to drab, with acetate of iron, after which the cotton must be plunged in the potash lye; for yellow, acetate of alumina, and the cloth dyed with quercitron; for lilac and blackish-brown, give a madder dye and a mordant of acetate of iron; for olive or drab, quercitron and acetate of iron; and olive-green, quercitron and a mixture of acetate of iron and alumina. Indigo is the only colour which cotton receives permanently. Cotton takes rather less than equal parts in weight of itself and of madder for the dyeing. On account of the comparative insolubility of madder, it must be boiled along with the cotton, and not removed from the decoction. By adding bran to the madder bath the colour is rendered lighter. To dye cotton "Turkey red," employ unbleached cotton, as receiving a more permanent colour. The process consists of a series of baths; first alkaline, and followed by oily liquors, with an admixture of carbonate of soda, a bath of sheep's manure, then alkaline baths, two or three times repeated—the cotton being thoroughly dried after each bath. Then succeed galling, aluming, maddering, and brightening, by boiling with alkaline liquids and soap. The whole is concluded with the treatment by spirit of tin.

Cotton, To Take Stains from.—Lemon-juice, if rubbed immediately on cotton which has been stained with ink, and succeeded by a washing in hot water and soap, may prove sufficient to remove the stains. Salts of lemon (otherwise salts of sorrel) are always efficient, both as regards ink and iron-mould. Well mix and rub together in a mortar a quarter of a pound of these salts with as much of cream of tartar. Then stretch the cotton over a vessel full of hot water, and when thoroughly wet with the steam, apply a small quantity of the salts to the stain, rubbing it well with the finger. Should no salts be at hand, dip the stain in some melted tallow from a mould candle, and send the article to the wash thus greased. The above methods are applicable to wine, fruit, and other stains.

Cotton-wool.—The fleecy substance growing on a plant belonging to the genus *Malvaceæ*, of which there are at least four species—the



SPRIG AND FLOWERS OF COTTON-PLANT.

Gossypium arboreum, or tree cotton; the *G. Barbadense*, or Bourbon cotton-plant; the *G. herbaceum*, and *G. Peruvianum*. The natural cotton is cream-coloured, tawny, and iron-yellow; the inferior kind is white. That used by jewellers is called "medicated wool," and is bleached white, but is of the best quality, and is free from the extraneous matter mixed up in that employed in the haberdashery trade, used as wadding. The best cotton-wool is much used in hospitals, and in all medical practice, for binding-up wounds and applying to burns.

Cotton-wool is also procured from cotton-grass, *Eriophorum*, a genus of the order *Cyperaceæ*. It is employed for stuffing pillows and making candle-wicks. It is a native of Britain. There is a Himalayan species, of which the wool is made into cordage.

Couch Grass, also called Spear Grass and Creeping Wheat Grass—botanical name *Triticum repens*, natural order *Graminaceæ*—is a most troublesome weed with a strong underground stem, any portion of which, if left in the ground, sends up a fresh bud and stem. It is consequently a great pest to the farmer, and most difficult to get rid of.

Couches.—A couch is a small bed or movable seat on which a person can lie or sit. The couches used in the present day range from the old-fashioned angular stiff-backed mattress kind, with gouty legs and a little bolster at one end or at both, upholstered in horsehair and decorated with brass, through various modifications to the low broad divans profusely supplied with large cushions, and having their woodwork entirely covered with rich materials, often heavy with embroidery, which is sometimes of gold. The old mahogany spring-stuffed couches with uncomfortable scroll ends still retain their favour in households of moderate means, but they are less convenient and pleasant in use than the more luxurious kinds now manufactured by the larger manufacturers of superior furniture. A well-made couch is solid without being cumbrous, rich in decoration without loss of simplicity, and suggestive of solidity and strength in its general character, which it will not be if it has the still popular curved legs bent, apparently, by the weight they are unfitted to support. The different materials in use for couches, &c., are—satin brocade, which, being composed exclusively of silk, is very durable; silk damask, a showy material differing from the satin brocade in being woven without a raised pattern, under which a covering of thick Canton flannel should be used to prevent it chafing against the edges of the seats and arms; brocatelle, which is faced with floss silk and backed with cotton or linen; and India silk, the most lasting of all materials for upholstering, although now but little used, and only equalled by plush, the proper name of which should be hair velvet. Utrecht velvet, or stamped plush, is also a good, material; but the plush made in Germany should be avoided. This is thin and made of wool instead of goats' hair. The most costly of the plush fabrics is mochette. It is made, when genuine, as the finest carpets are made, the pattern being woven in colours; but it is largely imitated. The greatest drawback to the use of plush for couches is its width, which is limited to twenty-four inches. If plush is put upon the furniture so that its nap runs *down* the seat and the back, it will wear better and much longer than it otherwise would. The covering of a couch, like that of every other piece of furniture, to accord with good taste should be adapted in character to that of the furniture and architecture, and in colour to the general predominance or variety of colour given by the walls, curtains, carpet, rug, and upholstery generally.

Couching. (*See* LAYING.)

Couching.—This is one of the operations for cataract, having for its object the removal or displacement of the cataract from the axis of vision. The operation is not in much favour, and is now seldom performed. (*See* CATARACT.)

Coughs. (*See* BRONCHITIS; CATARRH; CONSUMPTION; INDIGESTION.)

Count-out.—Forty members at least are required to form a sitting of the House of Commons; and though there be ever so many at the commencement of the debate, yet if the members should be reduced to below the number of forty, any member may have the debate adjourned upon the House being counted; hence this term. But a debate may be continued as long as any single member remains, provided the adjournment is not moved.

Countenance.—This word refers more to the appearance of the face than to the face itself, *i.e.*, than to the features which form the face. Thus the remark is often made, "That person has a benevolent countenance," or "That man has a disagreeable countenance;" and so with respect to the words, "What a beautiful countenance," the idea conveyed to the mind of the hearer is, what a beautiful expression of face, and not what beauty of features. (*See* FACE.)

Counterfeit Coin. (*See* COINS AND MEDALS, COUNTERFEIT.)

Counterpanes.—This is a name used for the over-coverings of beds; they are also termed coverlets and quilts. A description of the various kinds fabricated is given under the heading of BED-QUILTS.

Counting-house.—A place set apart and appropriated by traders, merchants, and others, to keep their books and accounts, transact business with customers, &c.

Country Dance.—The one known as Sir Roger de Coverley is the greatest favourite; it usually concludes the programme of the dances. Two lines are formed, all the ladies on one and all the gentlemen on the other side. Partners stand opposite each other, and any number of couples may join in this dance. The first lady and the last gentleman advance to the centre, bow, and retire; their partners do the same. The first lady and last gentleman advance, turn, and retire; their partners follow the same. Once more the first lady and the last gentleman advance, and go round one another back to back; the lady holds her dress, the gentleman has his arms folded. When the other couple have done the same, the lady at the top turns to the right and walks to the bottom, followed by the rest of the ladies. The gentleman at the top turns to the left, and, followed by the other gentlemen, meets his partner at the bottom; he and the lady then join hands, and hold them arch fashion, when the remaining couples pass under. The top couple now remain at the bottom, and immediately begin to dance with the couple which is now at the top. In this way each couple has two turns, once while at the top and once when at the bottom, and therefore if there are many, the dance is of

long duration; but it can be discontinued at any time. Quickness, briskness, and alacrity should be the leading features of a country dance, or else it becomes monotonous. The designation of country dance has arisen from the French *contre-danse*, a dance in which all partners face one another.

County.—This word originally signified the territory of a count or earl, but now it is used in the same sense as shire—the one word coming from the French, the other from the Saxon. In this view, a county is a circuit or portion of the realm, into fifty-two of which the whole land of England and Wales is divided, for better government and the more easy administration of justice. Scotland is similarly divided into thirty counties. The larger counties are subdivided for the purpose of Parliamentary representation. Each county has a lord-lieutenant and a sheriff, the former being an officer of great distinction, and having the management of its military affairs, and the latter being its principal civil officer. His duties are chiefly ministerial, and to him are directed writs of execution, and other legal proceedings from the courts of law, against persons and estates in his county. There are separate quarter sessions for every county, held quarterly before two or more justices of the peace, one of whom must be of the quorum.

County Corporate is a title and privilege heretofore granted by the Sovereign of England to several cities or ancient boroughs, which have thus become constituted counties in themselves, and have a separate sheriff and magistrates. These Counties Corporate are London, Chester, Bristol, Coventry, Canterbury, Exeter, Gloucester, Lichfield, Lincoln, Norwich, Worcester, York (cities); and Caermarthen, Kingston-upon-Hull, Nottingham, Newcastle-upon-Tyne, Poole, and Southampton (towns). Formerly, the freeholders resident in all these several Counties Corporate had no share in the election of the knights of the shire or members of Parliament for the counties at large in which they were locally situate; but now the following thirteen Counties Corporate are, for Parliamentary purposes, included within their respective counties:—Caermarthen, Canterbury, Chester, Coventry, Gloucester, Kingston-upon-Hull, Lincoln, London, Newcastle-upon-Tyne, Poole, Worcester, York and Ainsty, and Southampton.

County Courts.—Several local and inferior tribunals for the recovery of debts to a certain limited amount, which have been constituted in England and Wales. As regards the term itself, it is a resuscitation of the shire-gemots, or County Courts of the Anglo-Saxon and Anglo-Norman times, remodelled to suit the necessities of the present age. The original County Court Act is the County Courts Act, 1846 (the 9 & 10 Vict. c. 95), intituled "An Act for the more easy recovery of small debts and demands in England." Under this Statute, the whole of England and Wales (with the exception of the City of London) was, in the year 1847, by Order in Council divided into districts, varying in extent and population, and a County Court was established for each district. These district Courts number at present more than five hundred. The jurisdiction of the County Courts has, since the passing of the above Act, been repeatedly enlarged by subsequent Statutes, so that now they engross a very large share of the administration of justice. They have an unlimited jurisdiction in bankruptcy matters arising within the districts specially created for this purpose; also an equitable jurisdiction to a limited amount (£500). The extent of their common law jurisdiction is a debt of £50; but by agreement between the parties, they can adjudicate to an unlimited amount, both in contract and tort, *i.e.*, damage. They have also jurisdiction to grant probate or letters of administration where the estate does not exceed in value £200; and to contentious business in probate and administration, where the personal estate is under £200, and the real estate under £300. They have also a jurisdiction in Admiralty and in a variety of other subjects, such as friendly and industrial societies, charitable trusts, joint-stock companies, &c., specially conferred on them by Statutes. (*See* COURT AND COURTS OF JUSTICE.)

County Palatine. — Of the fifty-two counties in England and Wales, there were three of special note, and therefore termed Counties Palatine. These were Lancaster, Chester, and Durham. Lancaster was created by Edward III., in favour of Henry Plantagenet, first Earl and Duke of Lancaster. Chester and Durham were Counties Palatine by prescription or immemorial custom at least as old as the Conquest.

Formerly the chief governors of these Counties Palatine sent out, by special charter from the Sovereign, all writs in their own names; and touching justice, did all things as absolutely as the Sovereign himself did in other counties, only acknowledging him their superior and governor; whence palatine (from *palatium*), because the owners of them had *jura regalia* as fully as the Sovereign had in his palace. They might pardon treason, murder, and felonies; they appointed all judges and justices of the peace. All indictments ran in their names, &c. These privileges were probably granted to them because they bordered on enemies' counties, viz., Wales and Scotland. In King Henry VIII.'s time their power was much abridged; and now, by the Judicature Act, 1873, the jurisdiction of the Court of Common Pleas at Lancaster, and of the Court of Pleas at Durham, is transferred to the High Court of Justice. The jurisdiction of the Chancery Courts is, however, still retained.

The Counties Palatine are now in the hands of the Crown. The jurisdiction of Durham is vested as a separate franchise and royalty in the Crown, by Statute 6 & 7 Wm. IV. c. 19. Lancaster was vested in the Crown by King Henry IV. Chester was abolished as a County Palatine by the 11 Geo. IV. and 1 Wm. IV. c. 70. Some rights and privileges are, however, still attached to the Duchy of Lancaster.

County Rate.—An assessment or tribute made on the occupiers of lands for defraying the county expenses, such as the repairing of

bridges and highways, the maintenance of prisons, county police, and costs of prosecutions, &c. (See Statute 15 & 16 Vict. c. 81.)

County Sessions.—These take place four times every year—viz., in the first week after the 11th of October, the 28th of December, the 31st of March, and the 24th of June, provision being made to prevent the April sessions clashing with the spring assizes (1 Wm. IV. c. 70, and 4 & 5 Wm. IV. c. 47).

As to Middlesex, two sessions are held quarterly, the general quarter sessions being the first of these, held in January, April, July, and October; and the general sessions being the second, or adjourned sessions, in the months of February, May, August, and November, and such other sessions as shall be fixed by the magistrates. (See 14 & 15 Vict. c. 55; also the article on COUNTY.)

Coupons.—Coupon is a word of French origin (from *couper*, to cut), and signifies a slip of paper *cut off* from its counterpart. The term is chiefly used, however, to denote dividend or interest warrants attached to transferable bonds—state, railway debenture, and other—for a fixed term of years. Coupons are usually printed at the bottom of the bond, there being one for every period at which interest becomes due. They must be cut off from the bond as they fall due, and presented for payment to the appointed banker or agent. Many coupons require an adhesive draft-stamp at the back, across which the owner signs his name before presenting for payment.

Courier.—The courier, or outrider, which is the same, was much more extensively employed in the old posting days than at present. The office was usually filled by an under-coachman or a groom, and the duties were to ride with the family when travelling, to protect them on the road, to go forward with orders, to pay toll-gates, &c. They took care of their own horses. Private couriers are employed by great families when travelling abroad, and their work is to make arrangements for the comfort and accommodation of their masters, by whom they are sent forward when necessary. Public couriers are used for the rapid and safe conveyance of Government despatches to or from ambassadors. They are accomplished linguists, and are thoroughly versed in all the modes and exigencies of foreign travel, passport regulations, &c.

Courses at Table.—The order of a dinner is supposed to be from the substantial to the light and delicate. It is generally understood that at formal dinners the first course shall consist of soup and fish, removed by roasts, boiled poultry, stews, and vegetables, with a few entrées or made dishes, which consist of ragôuts, fricassées, fillets, scollops, salmis, sweetbreads, cutlets, vol-au-vents, fricandeaux, &c. The entrées are, as a rule, served before the joints, dishes, or entremets. The second course should consist of roasted poultry or game, with dressed vegetables, creams, salads, pastry, and sweet dishes. When cheese is served, it comes after the second course, before the dessert. It is, however, omitted at many tables; but this is entirely a matter of taste. When it is introduced, butter, watercresses or fresh salad, sliced cucumber, &c., are served with it. At French dinner-tables the cloth is never removed, and the dessert forms the third course. When there are three courses, the second course consists of roasts and stews for the top and bottom, poultry or fricandeau and ham or tongue for the sides, and small made dishes at the corners. These usually consist of curries, fricassées, stewed mushrooms, and similar preparations. The third course is composed of game, pastry, confectionery, delicate salads, and such preparations as would otherwise be served in the second course. Finger-glasses precede the dessert, which follows in its due order. It is not unusual to hand round to the guests oysters or hors d'œuvres—which are dainty little preparations, intended to serve as whets to the appetite, and consist of sardines, anchovies, Dutch herrings, savoury butters, tunny, &c.—before the soup is served. These are served in small oval dishes, and are passed round immediately after the soup and fish.

Court.—From time to time her Majesty holds what are called "Courts," and which differ in some respects from "Drawing Rooms," especially in the limit usually placed upon the numbers attending. On one occasion only 250 were allowed to be present. Notice of these Courts appears in the *Gazette*, with the intimation that those who wish to attend must send in written applications. Such as are approved receive a green card of invitation, on the back of which are instructions for the holders to appear in full dress, if ladies, or in uniform or Court dress, if gentlemen. Persons to be presented receive pink cards, each bearing the name of the presenter and that of the lady or gentleman to be presented. The forms gone through correspond in the main with those at "Drawing Rooms" (*see* COURT DRAWING ROOMS), but with differences of detail. On some occasions a "Court" is very exclusive indeed.

Court and Courts of Justice.—A court is a place wherein justice is judicially administered; and as by our Constitution the sole executive power of the laws is vested in the person of the Sovereign, it will follow that all Courts of Justice, which are the medium of administering the laws, are derived from the power of the Crown; for whether created by statute or letters patent, or existing by prescription (the only methods by which any Court of Judicature can exist), the Sovereign's consent in the two former is expressly, and in the latter impliedly, given. In all these Courts the Sovereign is supposed, in contemplation of law, to be always present; but as that is, in fact, impossible, she is there represented by judges, whose power is only an emanation of the royal prerogative.

For the more speedy, universal, and impartial administration of justice between subject and subject, there exist a great variety of Courts, some with a limited, others with an extensive, jurisdiction; some constituted to inquire only, others to hear and determine; some to determine in the first instance, others upon appeal

and by way of review. One distinction may be here mentioned which runs throughout them all—viz., that some are Courts of Record, others not of Record. A Court of Record is one where the Acts and judicial proceedings are enrolled for a perpetual memorial and testimony, which rolls are called the Records of the Courts, and are of such high and pre-eminent authority that their truth is not to be called in question. All Courts of Record are the Sovereign's Courts in right of her Crown and dignity, and therefore no other Court has any authority to fine or imprison, so that the very erection of a new jurisdiction, with power of fine or imprisonment, makes it instantly a Court of Record. A Court not of Record is the Court of a private man, with whom the law will not entrust any discretionary power over the fortunes or liberties of his fellow-subjects. Such are the Courts Baron (*see* COURT BARON) incident to every manor, and other inferior jurisdictions, where the proceedings are not enrolled or recorded; but their existence, as well as the truth of the matters therein contained, shall, if disputed, be tried and determined by a jury.

In every Court there must be at least three constituent parts—the actor, or plaintiff, who complains of an injury done; the *reus*, or defendant, who is called upon to make satisfaction for it; and the index, or judicial power, which is to examine the truth of the fact, to determine the law as applicable to that fact, and if any injury appears to have been done, to ascertain, and by its officers to apply the remedy. It is usual in the superior Courts to have solicitors and counsel, or advocates, to conduct a litigant's business.

The following is a list of Courts of Justice as now existing, classed under the respective jurisdictions they exercise:—

1. GENERAL JURISDICTION.—*Original:* The Courts of Queen's Bench, Common Pleas, and Exchequer; the Court of Chancery, the Probate and Divorce Court, the Courts of Assize and Nisi Prius—all of which are now divisions of the High Court of Justice. *Appellate:* The Court of Exchequer Chamber and the Court of Appeal in Chancery, both now merged in the Court of Appeal; the House of Lords; the Judicial Committee of the Privy Council.

2. ECCLESIASTICAL, MILITARY, AND MARITIME.—Comprehending the Archdeacons' Court, the Consistory Court, the Court of Arches, the Court of Peculiars, the Prerogative Court, and the Court of Admiralty, which is now part of the High Court of Justice. (See Public Worship Regulation Act.)

3. SPECIAL, STATUTORY, OR LIMITED JURISDICTION.—The Court of Bankruptcy; the County Courts; such ancient Courts as the Court of Piepondre, the Forest Courts, the Court of Sewers, the Court of the Duchy Chamber of Lancaster, the Chancery Courts of the Counties Palatine, the Courts of the Stannaries, the Borough Courts, the Court of Requests or Courts of Conscience, the University Courts, &c.

The jurisdiction of such of the inferior Courts as are not Courts of Record, and as had not previously become obsolete, was practically taken away by the County Courts Act, 1867, s. 28, which provides that no action which can be brought in any County Court shall thereafter be brought in any such inferior Court. As to the jurisdiction of the inferior Courts since the commencement of the Judicature Acts, see Judicature Act, 1873, s. 88, 91.

Court Balls.—These—otherwise, and preferably—called State balls, are appointed to be held from time to time. Notice of them is officially given, and many invitations are issued; but the invited are supposed to be persons who have been presented at Court. This rule is not rigidly adhered to, and exceptions are not rare in the case of distinguished Americans, and of some who are associated with the diplomatic corps or foreign embassies. A certain etiquette is observed on these occasions, and the costumes are regulated by authority.

Court Baron.—A Court incident to every manor in the kingdom, holden by the steward within the said manor. It formerly consisted of two parts—the one a Customary Court, appertaining entirely to the copyholders, in which their estates are transferred by surrender and admittance, and other matters transacted relating to their tenures only; the other a Court of Common Law, being the Court of the Barons (by which name the freeholders were anciently called), having jurisdiction to determine by writ of right all controversies relating to the right to lands within the manor, and also a common law jurisdiction in debt or damages to the amount of forty shillings; but the jurisdiction of a Court Baron as a Court of Common Law is now practically abolished by the County Courts Act, 1867. (*See* COURT AND COURTS OF JUSTICE.)

Court Drawing Rooms.—These are assemblies held from time to time by the Queen, especially for the reception or presentation to her Majesty of such ladies as, by custom, right, or courtesy, are admissible. Notice of the Queen's intention is given in the *Gazette*, with announcement of place, day, and hour, and of regulations to be observed. Ladies who propose to attend must be prepared with two large cards, with their names legibly written, one to be left with the Queen's page in attendance, and the other to be handed to the Lord Chamberlain, who announces the names to the Queen. Ladies who propose to be presented comply with the ordinary rules for presentations. Gentlemen are not expected, unless in attendance on the ladies of their families; but any who wish to be presented must comply with the rules laid down for Levées. On so-called "collar days," the knights of the various Orders appear in their collars; at other times this is not required. It is to be noted that the Queen is not always personally present, and that she sometimes deputes the Princess of Wales, or another of the royal princesses, to officiate in her stead. Presentations made at such times are equivalent to those made to the Queen in person.

Court Dresses.—Gentlemen who are civilians must appear at Court in the regulation

dress. The coat is of black velvet or of dark cloth, but not blue; it is cut as a dress coat, but is single-breasted, and has a straight collar, which, with the pocket-flaps and the cuffs, can be bordered or embroidered with gold braid. At Levées the trousers are of the same material, with a narrow gold lace stripe down the side. At Drawing Rooms, breeches (not trousers), silk stockings, buckled shoes, swords, and cocked hats are enjoined. Waistcoat and necktie are white. These regulations date from 1869. The old Court dress—a more elaborate, if a more picturesque costume—is also permitted. Ladies wear a costume which consists of several elements. There is a splendid silk dress, with low bodice and short sleeves; a richly ornamented petticoat; a train of silk or satin about seven yards long, and fastened at the waist or shoulder; a head-dress of feathers, with lace lappets or veils; costly jewels; white satin shoes; and a fan. Newly-married ladies wear white when presented, as also do young unmarried ladies.

Court Leet.—A Court of Record, held once or twice in every year within a particular hundred, lordship, or manor, before the steward of the leet, for the preservation of the peace and the chastisement of divers minute offences. Its original purpose was to view frank pledges, *i.e.*, freemen within the liberty, who, according to the institution of Alfred the Great, were all mutual pledges for the good behaviour of each other. (*See* CONSTABLE.)

Court Levées.—These are for the reception or presentation of gentlemen. The regulations correspond very much with those for Drawing Rooms. On various occasions Levées have been held for her Majesty by the Prince of Wales or another of the royal princes. Persons attending must either have been presented, or propose to be presented with the usual forms; and presentations to the Prince are accounted equivalent to presentations to the Queen in person. (*See* COURT DRAWING ROOMS.)

Court Martial.—A Court established for the trial and punishment of military or naval offences, under the authority of the Crown, recognised by several Acts of Parliament. There are general, district, and regimental Courts Martial. The jurisdiction of these Courts does not, however, exempt any officer or soldier from liability to the ordinary laws. As to Naval Courts Martial, see 29 & 30 Vict. c. 109.

Court Mourning.—When a member of the royal family, or any distinguished personage in close alliance therewith, dies, the Court goes into mourning. A *Gazette* is issued, announcing the fact and the occasion, and directing those who are concerned as to the modifications of costume which will be required from a certain date to such a time. When the Court is in mourning, it often happens that there are not only the customary alterations in costume, but alterations are made in arrangements for State balls, &c. On most occasions, and generally when the Court is only in complimentary mourning, the outer world is uninfluenced; but when a great loss overtakes the royal family, many private individuals show their sympathy and respect by adopting some of the recognised emblems of mourning.

Court Plaster. (*See* PLASTER.)

Court Presentations.—These usually take place at Courts, Drawing Rooms, and Levées. They are made either to the Queen in person or to the prince or princess deputed by her Majesty for the occasion. In regard to ladies, where there are no objections to their character and social standing, those who may be presented as of right are the wives and daughters of the nobility, clergy, naval and military officers, barristers, and physicians. Wives and daughters of merchants, solicitors, &c., have no claim to the honour, though it is often conceded. Every person who desires to be presented must secure a presenter who has enjoyed the same privilege, and who is of as elevated a status as can be secured, and must be present to perform the office. The names of those who wish for presentation are to be sent in, with those of the presenters, beforehand; if approved, two cards are forwarded from the Lord Chamberlain's office; upon these cards the names are to be written, and they must be taken and handed to the proper authorities as mentioned under the headings of COURT DRAWING ROOMS and LEVÉES. A Court dress is absolutely necessary, and nothing else, not even a scarf or a cloak, is allowed. On entering the presence chamber, a lady lets down her train, which is spread out for her, and she advances to the Queen, where her name is read aloud from the card then given up. She then makes a very low curtsey, and if a peeress, or the daughter of one, her Majesty kisses her on the forehead. If a commoner, the Queen holds out her hand to be kissed, when the lady rises, curtseys to the royal family, and passes on, steadfastly looking at the monarch, and retires backwards from the room. Gentlemen are presented with corresponding formalities, but bow, and kneel on one knee. They have the honour of kissing the hand, or rather the glove of the Queen, and retire backwards, bowing as they go.

Courtesies (Social).—There are many acts of courtesy which may be shown by every one to those about them; by men to women, and to each other, and by women to women. The opening and shutting of a door for another person, allowing a person to walk first in or out of a room, the attentions at table, such as helping others first, and seeing that others have what they require both at table and elsewhere—these and a thousand other actions are the marks of good breeding. The term courtesy originally meant manners of the Court, and arose at a time when Courts alone were the special places where refinement of manners was to be found.

Courtesy (Legal). (*See* CURTESY OF ENGLAND.)

Courtesy, Titles of.—A courtesy title is one which, though regularly used by its bearer, has no legal validity. By courtesy the eldest son of a peer is allowed to use his father's second title, as marquis, earl, &c. If the second title is of the same name as the first, the family surname is adopted, with the prefix of "Lord." Younger

sons of dukes and marquesses prefix "Lord" to their Christian and surname, as was the case with Lord John Russell, a younger son of a Duke of Bedford. Courtesy titles, even when marquis or earl, confer no right to a seat in the House of Lords, the holder being still a commoner; hence we find such in the House of Commons. Daughters of dukes, marquesses, and earls have by courtesy the title of "Lady" prefixed to their Christian and surnames, their true title being "Honourable." Those who are members of the Privy Council are called "Right Honourable." "Mr." and "Esquire," as usually applied, are titles of courtesy, given by common consent, and not based on any legal right.

Courtship. (*See* ENGAGEMENTS, MATRIMONIAL.)

Couvre-pied.—This is a cover for the feet, which is used when lying down on a couch or sofa; it is also known by the name of Afghan quilt and sofa-blanket. These are generally knitted or crocheted in thick wool; they should not be very light, or they will be continually slipping to the ground. A piece of silk patchwork wadded and lined can be made into a handsome couvre-pied. These are expensive luxuries, as, when made of wool, the latter ought to be double Berlin, and as the pattern should be a close one, a considerable quantity is necessarily consumed.

Couvrette.—This is the popular name by which, of late years, anti-macassars have been called. The French word refers, like our English one, to the covers which are placed on the backs of chairs. (*See* ANTI-MACASSAR.)

Covenant, in law, is a written consent, agreement, or promise, under seal, to do or not to do some act or thing. He who thus promises is termed the "covenantor," and he to whom it is made the "covenantee." Covenants are construed strongly against the covenantor, and in favour of the covenantee; the intent of them is, however, regarded. In some cases equity will relieve against breaches of covenant.

Coverlets.—These are a lighter form of covering than counterpanes or quilts, and the term is often applied to the small light counterpanes used on bassinettes, cots, and cribs. For these some people prefer white marcella, while others make fancy ones in wool with crochet or knitting needles.

Covers, Dish, are used for putting over hot dishes of various kinds for the purpose of enabling them to retain their heat. They are made either of silver, plated metal, Britannia metal, or block-tin, and are usually sold in sets of four or five. The price, of course, varies with the quality. When not in use they should be hung up, as they are then out of the way of bruises and scratches. The laths and hooks necessary are not always found in houses of moderate rental. When they have to be provided, two uprights must be driven into the wall, one at each end, and not deeper than the largest dish-cover. A wooden lattice-work must be fixed on these, with the necessary brass hooks screwed in for holding the covers. The lattice-work prevents the dish-covers from greasing the wall if, as occasionally happens, they are hung up without being properly wiped.

Covers, Table, &c.—As a rule, those in plain dark colours look better than the variegated, either in pattern or colour. For drawing-room tables, a maroon or crimson cloth will agree generally with all the surroundings, and on such colours books and ornaments look their best. For dining-tables, on which usually there is merely the cloth, one with a pattern upon it gives a cheerful air to the room; but the pattern should be small and distinct, and black only should be mixed with the prevailing colour of the cloth. At one time tapestry cloths were in fashion—they were thick and rough, and very gaudy with flowers; at another time patchwork covers were in use; but the variety of both had not a good effect. The most serviceable cloths, more particularly for the dining-room, are those of worsted, for they can be washed, and appear none the worse, whereas the cloth covers have to be sent to the cleaners; but the latter are the favourites, for they look smoother and better than the others. Plain cloths often have their borders embroidered; if the table is small, a narrow ribbon binding of a contrasting colour is preferable. Coloured checked linen covers are most useful for nurseries, &c.

Coverture, in law, is applied to the condition of a married woman, who by the laws of this realm is considered under cover, or the power of her husband, and therefore called a *feme-covert*, and disabled from making bargain with any, to the prejudice of herself or her husband, without his assent and privity, or at least without his allowance and confirmation. As to her property at common law, and before the passing of the Acts mentioned below, all freeholds of which she is possessed at the time of marriage or afterwards vest in the husband and wife during coverture in right of the wife; and the husband is entitled to the profits and has the sole control and management, but cannot convey or encumber the lands for any longer period than the duration of his own interest. She can convey, with her husband's concurrence, by any of the ordinary modes of assurance, duly acknowledged under the Fines and Recoveries Act. As to her inheritable realty, the husband becomes, under certain circumstances, "tenant by the curtesy" if he outlive his wife (*see* CURTESY OF ENGLAND); and he and his wife together may make leases of her lands of inheritance, so as to bind her or her heirs after his interest in the property has determined. As to the wife's leaseholds, they belong to the husband, and may be taken in execution for his debts, and should he survive her they are absolutely his; but if he makes no disposition of them and she survive him, they then belong to her. The husband at common law becomes generally absolute owner of his wife's personal chattels, except her necessary apparel. (*See* PARAPHERNALIA.)

The above statement of the effect of coverture is, however, now qualified by the Married Woman's Property Acts, 1870 and 1874, and the following is an epitome of the chief enactments therein:—1. That the earnings of a married

woman are to be deemed her own separate property; as also deposits by her in savings banks. 2. That any married woman, or any woman about to be married, and being entitled to, or being about to acquire money in, the public stocks and funds, shares or stocks in companies, or interests in friendly and benefit societies, may have the same registered in her own name, as for her separate use. 3. That personal property coming to her during coverture as next of kin, and any sum of money not exceeding £200 under a deed or will so coming, shall belong to her for her separate use. 4. As to any freehold, copyhold, or customary-hold property coming to her as heiress or co-heiress of an intestate, the rents and profits shall (subject to the trusts of any settlement affecting the same) belong to her for her separate use. 5. That she may insure her own life or that of her husband for her own separate use. She may maintain an action in her own name in certain cases. Under the Judicature Act, 1875, married women may, by leave of the Court or judge, sue or defend without their husbands, and without a next friend, on giving such security (if any) for costs as such Court or judge may require. The wife when acting in *autre droit* as executrix is independent of her husband. Marriage settlements and provisions modify, in particular instances, the husband's common law rights. As a rule, a married woman is incapable of entering into any contracts, except for necessaries, and of suing and being sued. Coverture protects her from criminal liability, except in cases of treason, murder, manslaughter, or cases of mere misdemeanour, or crimes committed in her husband's absence.

Cow-itch. (*See* COWHAGE.)

Cow-pox.—This is an eruption of vesicles occurring on the teats and udder of the cow, and communicable to those who milk them. Jenner discovered that those who took this disease in this way did not take small-pox. This was the origin of vaccination. (*See* VACCINATION.)

Cowage. (*See* COWHAGE.)

Cowhage consists of the hairs obtained from the pods of the common cowhage, or cow-itch (*Mecuna pruriens*), growing in the East and West Indies. The pod is shaped like the letter *f*, is about four or five inches long, contains from four to five seeds, and is covered with brown, bristly, stinging, sharp-pointed hairs, which when applied to the skin cause intense itching, which is increased by rubbing. Cowhage is not now officinal, but it has been, and still is, largely used in the treatment of worms, especially the large round worm (*Ascaris lumbricoïdes*) and the small thread-worm (*Ascaris vermicularis*). It is best given mixed up with syrup, treacle, or honey, and should be of the consistence of an electuary, of which about a tea-spoonful is the dose for a child, and a table-spoonful for an adult. This should be taken for two or three days, the last thing at night and the first thing in the morning, followed at the end of the third day by a brisk aperient of jalap, senna, or castor oil. The itching which results from the application of cowhage is best relieved by rubbing olive oil into the affected part.

Cowries.—These constitute a genus of univalve shells called *Cypræa*, including a number of species, varying in size and colour. They are nearly oval in shape, are prettily marked on the back, and open underneath from end to end. Some of them are common and cheap, and are popular as ornaments. A small cowry of a yellowish colour does duty for money in various African and Asiatic countries. The genus is widely disseminated, and representatives of it are found on our own shores.

Cowslip.—This (*Primula veris*) is a kind of primrose which grows wild in the meadows of England and in many parts of Europe. It is a pretty little flower, and is a general favourite on account of its delicate fragrance. It is no uncommon sight to those who visit the



COWSLIP.

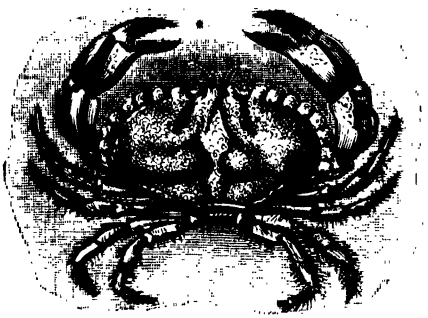
country to see whole bands of children laden with these flowers, some of them to make garlands, while others are collected for making cowslip wine. (*See* COWSLIP, USES OF.) The bright yellow colour forms a striking contrast to the green of the meadows; but, strange to say, it is one of those flowers that are rarely introduced into the garden.

Cowslip, Uses of. — The cowslip is largely used in country places in the manufacture of home-made wine, which is made by bruising a sufficient quantity of flowers and infusing them for a few days in any simple wine, or in thin syrup flavoured with lemons and Seville oranges. The wine is allowed to ferment for two or three days, then is put into a cask, and after two or three months is bottled for use. Cowslip wine is thought by some to possess slightly sedative properties.

Cozy.—This is a cover for a tea or coffee-pot which has of late years come into use. Old-fashioned people declare a cozy to be unnecessary; but there can be no doubt that it is well to keep a tea or coffee-pot warm when in use, and that this can be done more effectually if a cozy is used. Cozies should be made large in size, and between the outer covering and the

lining there should be washleather. The outside can be made decorative in a variety of ways, either by braid on cloth, embroidery on satin, wool-work on canvas, beads on canvas, or velvet with ticking work. The two last-named are very serviceable as well as pretty ways; heat and steam spoil many materials, but do not seem to have a bad effect on those.

Crab.—The crab is the name given to all the crustaceans of the order *Decapoda* and sub-order *Brachyoura*. The number of the different species of crabs is very great, those coming under the sub-order *Brachyoura* being alone those that are now classified into many genera. The only crab of any importance for eating is the one commonly exposed for sale in the fishmongers' shops, called the large edible crab,



CRAB.

or *Cancer pagurus*. It is caught by means of a kind of trap, the entrance to which is made very easy. It may be distinguished by its broad back and its black claws, and is sometimes nearly a foot in breadth. Another crab, very common on all parts of the coast, is the small edible crab, or *Carcinus mænas;* but this is very much inferior to the larger kind. Crabs differ very much in shape, especially in the back, some being much broader than others; some are quite smooth, too, while others are very rough. The eyes are raised on stalks, which are usually short, though sometimes very long. These stalks are movable, so that the animal can turn its eye in any direction. A strange faculty is possessed by the crab, and also by the lobster—that of being able to reproduce a limb if deprived of it. This accounts for the specimens we sometimes see of crabs with claws only half-grown, or even smaller still. In the boiling of crabs, great care has to be exercised, or they may be spoilt for sale. If the water they are put in is warmer than they like, they immediately throw off their claws, which, of course, renders them of less value. The water should heat gradually, so that the crab should faint away under the process. The male crab has larger claws than the female; the flavour of the meat, too, is stronger. Formerly, the claws of the large crab were ground to powder and used as a medicine.

Crabs (Fruit).—The common crab-apple is the only apple indigenous to this country. All other apples have either been imported from other lands, or have been produced by cultivation. It is popularly believed that the apple is a native British fruit, and this has led to carelessness in its preservation and neglect in its culture. It is so hardy and so fruitful that it has come to be thought that it will grow and produce fruit of itself. But this is a mistake. If allowed to run wild, apple-trees will deteriorate; and it should be understood that the garden and orchard apples are foreigners, and need all sorts of delicate attentions.

Crackers. — The manufacture of these, under the more technical name of Cosaques, or Cossaques, is a speciality, and had better not be attempted by private families. The articles themselves are very popular at the dessert-table, and appear in the greatest variety. Within a loosely-fastened wrapper of fancy paper is enclosed the "cracker," which explodes when the two ends are pulled, and is formed by a combination of stiff paper slips and a fulminating powder. The other contents usually involve mottoes on printed papers, bonbons, perfumes, paper caps, or anything else which the maker thinks may serve to amuse his customers and patrons.

Crackers (Fireworks). — Small fireworks which when ignited explode with a series of sharp reports. They consist of long tubular cases filled with an explosive composition, folded backwards and forwards at distances of about an inch, and then tied together. A pinch of corned powder is generally placed at each bend of the case, and both ends are primed with touch-paper.

Cradle.—This form of bed for infants is now but rarely used, the bassinette having taken its place. A cradle is a wooden frame placed on rockers; a bassinette is wicker-work in a similar form, but without the rockers. The motion of the rockers, if a gentle one, is soothing and provocative of sleep, and for this reason cradles were much used by busy mothers, who could move the rockers with their feet while their hands were otherwise employed; but when the cradle is violently and roughly rocked, as was often the case when older children had the charge, it was injurious to the infant. Another objection made to a cradle is that an infant accustomed to the swinging motion will not sleep when it is deprived of it. The Anglo-Saxon word was *cradol;* this shows that the use is an olden one.

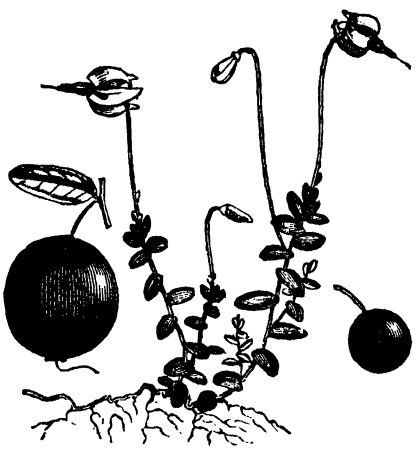
Craft, Water.—A name given sometimes to the water-bottle and glass with which every washstand is provided.

Cramp.—This is a painful and uncontrollable muscular contraction or spasm. It is one of the most marked symptoms in English or Asiatic cholera. It sometimes attacks swimmers, when it is probably due to remaining too long in the water or to excessive fatigue just before bathing. Cramp is best relieved by vigorous rubbing, either with the hands alone or with hot dry flannel, or with a liniment composed of equal parts of soap liniment, camphor liniment, and laudanum. Flannels wrung out of scalding water, and freely sprinkled with turpentine, have been

found most useful in the cramp of cholera. If cramp occurs in the legs or arms whilst bathing, the great point is to retain presence of mind, and to keep the affected limb motionless, if possible, until the spasm passes off.

Cranberry. — This fruit, so much in request for making tarts, pies, &c., is the fruit of a species of *Oxycoccus*, and grows on a thin bending stalk. There are not many species, all of which are natives of cold countries. It is sometimes called moss berry or moor berry, as it grows well in swampy land. The fruit is too acid to be eaten raw, but has a very pleasant taste when cooked. The leaves are small and oval; the blossoms, too, are small and very beautiful, of a deep flesh colour.

They form a very valuable article of food, in



CRANBERRIES

consequence of their keeping their freshness so long. They are preserved in bottles closely corked, or in wooden barrels, and when fresh fruits are out of season, they stand as a very good substitute. In sea voyages they are especially useful. If a little attention were paid to them, they might be cultivated in England much more extensively than they are. They require a peat soil, kept very moist; with proper care a large product might be obtained from only a small space of ground. The American cranberry is a brighter red, and the fruit is larger; indeed, the plant itself is much larger, though the fruit is not equal to the small kind.

Cranefly. — In its fully-developed state, this is popularly called the daddy-long-legs, or horse-fly. It is, however, called a *tipula* by entomologists. Although harmless as a fly, in its larva or grub state it often commits terrible havoc on the grass of lawns and fields. The grub is a slow-moving maggot of a blackish-grey colour, and less than half an inch long. It lives underground by day, to the great injury of the root-fibres of the grass; but by night it emerges from its hole, and devours the leaves of the grass, which soon succumbs to this twofold attack. No certain remedy appears to be known, though by cutting narrow trenches and placing salt in them many may be caught, and the onward progress of the destroying hosts may be partly or wholly checked.

Cranes.—These birds are called *Gruidæ* by naturalists, and are somewhat akin to the *Ardeidæ*, which includes the herons, spoonbills, storks, &c. The common crane (*Grus cinerea*) is a native of the northern parts of Europe, where it breeds, migrating, however, to equatorial regions as the cold weather comes on, the flocks often choosing the night-time for their departure, but flying so high that even by day they cannot be seen, and only traced by their cries. They used to be common enough in England in ancient times, and were much esteemed, not only for the sport they afforded, but as an article of diet, the flesh being, according to Willoughby, "very savoury and well-tasted, not to say delicate." The common crane is about four feet in length, the bill is rather longer than the head, the nostrils in the middle of the bill being pierced through and through. The plumage is an ashy-grey, but the throat, the front of the neck, and occiput, deep greyish-black; the top of the head in the older birds is naked and red, and the forehead and space between the eyes and bill furnished with black hairs. The bill is a greenish-black, horn-coloured towards the point, and reddish next the head; the feet are black, long, and strong. The crane delights in marshy lands and in the waste land that lies near them; it is fond of corn and seeds of various kinds, but will also eat worms, frogs, &c. It builds among the rushes, laying two eggs, bluish-green in colour and marked with brown. There are several other species of crane, such as the demoiselle, a native of Africa; the Stanley crane, and the crowned crane.

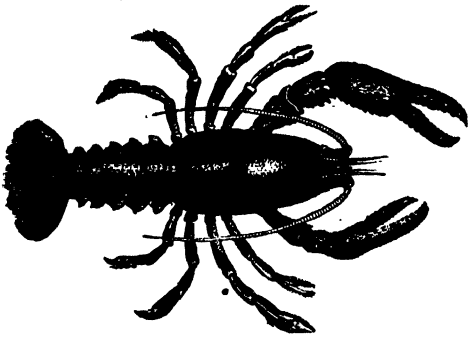
Crape.—This textile fabric is made at Norwich; it is said to be of Bolognese invention. Crapes are made double and single. The former are used in deep mourning; the latter, being lighter and more transparent, are worn for slighter mourning. The fabric is made of raw silk; this is twisted more or less tightly when spun, according to the kind of crape that is to be made of it. For thick, deeply-crimped crape, the degree of twisting must be greater than when the crape is lighter and smoother. This material is delicate and soon spoilt by damp: a more modern invention is that of spotless crape which will not show rain-drops.

Crash.—An unbleached and unglazed linen fabric, without twill or pattern, of single width a fine kind, much employed in the present day for the purpose of crewel-embroidery.

Crates (a Latin word meaning "wicker-work").—Strong and close frames of wood or wicker-work, used for the purpose of packing and conveying earthenware so as to be secured from breakage.

Cravats.—These are of French introduction, and were so named after certain officers, called *cravates* or *croats*. They are rather complicated in form and stiff to wear. They are preferred by some because they are no trouble to fix and arrange, like scarves and ties. They are made of silk or satin, and stiffened with buckram or cardboard.

Crayfish.—The crayfish is a crustacean of the same order as the crab (*Decapoda*). It very much resembles the lobster in appearance, only it is stronger, and clings to life more tenaciously. Its colour, like the lobster's, is bright red when



CRAYFISH.

boiled, consequently it is used very extensively for garnishing. It is to be found in England, especially in the midland and southern counties. The shell is so thick and strong that a pair of nutcrackers is sometimes found of great assistance in breaking it.

Crayons.—These are also known as chalk pencils, and are used for drawing purposes. As crayons are soft and easily broken, it is necessary to have holders for them when in use. These are called porte-crayons; they are tubes of metal split at each end, in which the crayon is inserted, and a sliding-ring holds it in its place.

Cream. — Cream consists mainly of the fatty portion of milk, which is at first distributed throughout the mass, but which, by reason of its lightness, rises to the surface after the fluid has been left at rest for awhile, and accumulates in a caky form as cream. The cream thus separated can be removed by means of a skimmer, and is used for making butter and cream cheese. Cream is very variable both in quantity and composition. It is affected by the quality of milk, and also by the completeness and duration of the repose to which it is subjected, and the care exercised in skimming it. If water is added to it, the cream rises quicker, although it is not increased in quantity.

The various preparations of cream are very numerous. There is the *Devonshire* and *Dutch clotted cream* (both of which *see*). *Moulded creams* are simply cream mixed with isinglass, sugar, fruit-juices, and different flavouring ingredients, and afterwards turned into a mould and allowed to stiffen. These generally take their name from the flavouring material. Thus we have *Vanille Crème*, or *vanilla cream*, which is cream stiffened with isinglass and flavoured with vanilla. *Crème café*, or *coffee cream*, is strongly flavoured with coffee, and is served in a liquid form in glasses. It is mixed with eggs, and whisked till a foam rises and the froth is piled on the top. Then there are *lemon cream*, *orange cream*, *pistachio cream*, *raspberry cream*, *stone cream* (which is moulded cream poured over jam), and *velvet cream*, or cream flavoured with lemon and white wine. *Ice creams* are very varied. The principal ones are orange, lemon, ginger, Italian, walnut, filbert, caramel, chocolate, cinnamon, chestnut, strawberry, raspberry, black currant, red currant, apricot, peach, plum, cherry, and many others. Great care is needed in the preparation of cream ices. When the cream, sugar, eggs, and flavouring ingredients are mixed, they should be stirred quickly and continuously over the fire until the cream begins to thicken, when it should be removed from the fire and stirred again until it is nearly cool, when it may be rubbed through a sieve into a basin, and afterwards frozen in the usual way. *Saturnine cream* is a cooling ointment, useful for ulcers and sores; it is applied externally. *Taraxacum cream* is a medical preparation; it is useful as a tonic and stomachic. *Cold cream* (*which see*), or *granulated cream*, is good for sores and chaps, and to soften the skin; it is made of wax, spermaceti, and almond oil. *Almond cream* is cream pleasantly flavoured with almonds. Cream should be partaken of sparingly by those who have weak digestive powers. It is so delicious that it is a very tempting accompaniment to fresh and stewed fruits, but when it is rich and good it will produce biliousness if not taken judiciously.

Cream Cheese. (*See* CHEESE.)

Cream, Clotted. (*See* CLOTTED CREAM.)

Cream, Cold. (*See* COLD CREAM.)

Cream, Devonshire. (*See* DEVONSHIRE CREAM.)

Cream of Tartar. — Acid tartrate of potash, called also bitartrate of potash and cream of tartar, occurs either as a white gritty powder, or as fragments of cakes crystallised on one surface, and is of a pleasant acid taste. Cream of tartar is obtained from crude tartar, or argol, a substance which is deposited on the sides of the cask during the fermentation of wine, and which is either red or white according to the colour of the latter. This is purified by charcoal and clay—which remove the colouring matter—and is then crystallised. When heated, this salt gives off an inflammable gas, with an odour of burnt sugar. Cream of tartar in small doses is cooling and diuretic. It is much used as a refreshing drink in fever, &c. One or two table-spoonfuls dissolved in a quart of boiling water, to which some sliced lemon and sugar may be added, when cooled down and iced, make a most refreshing beverage. In doses of from one to two tea-spoonfuls, combined with jalap, rhubarb, or scammony, cream of tartar is an efficient watery purgative useful in dropsy. It is also used as a tooth-powder, when its value may be increased by the addition of equal parts of powdered rathany root and myrrh.

Cream Skimmer. (*See* SKIMMER.)

Creases, To Remove.—The material should be made damp with a sponge or piece of flannel, and then pressed with an iron on the wrong side. Sometimes merely hanging up a silk dress will remove its creases. It is always well to try this treatment first, because damp and pressure are always liable to injure delicate materials.

Creasote, or Creosote.—A term compounded of two Greek words meaning "to

preserve flesh." It is one of the products of the distillation of wood, and has a strong smell resembling that of peat or wood smoke. Its anti-septic properties are due to its power of coagulating albuminous substances, so that if meat is washed over with it the outer layer thus treated serves as a protection to the rest. It acts upon vegetable matter in a similar way, timber that has been steeped in creosote being preserved from the growth of fungus, and the consequent ravages of dry rot. The timber to be creasoted is put into a close tank, and the air is pumped out, until it is drawn out of the pores of the wood; the creasote is then forced in with a pressure of about 150 lbs. to the square inch, by which means a cubic foot of pine timber will take in about 10 lbs. of creasote. Railway sleepers are usually creasoted. In surgery, creasote is used as a wash for wounds, and made into an ointment it is applied in cases of ringworm.

Crèche.—This is the French word for a manger. The manger in which the child Jesus was laid is spoken of as "the crèche." Latterly the name has had a new significance, and is applied to those rooms where infants are received and taken charge of while their mothers are engaged at work away from their homes. A small payment is charged per day. These charitable institutions were first started in Paris in 1844; England followed the example, and the crèche is now a common and useful institution in this country.

Credit, Creditor. — Credit, in law, is a transfer of goods or property in the trust or confidence of future payment, the transferrer of the same being the creditor. A creditor is entitled to a grant of letters of administration to his debtor's estate if there be no next of kin, or being any, they decline to act. The word credit also signifies honour, reputation, trust, as well as confidence in a person or his statement or testimony.

Credit, Letter of, is a document in common use for the transmission of money by bankers within the United Kingdom or to places abroad. It is not negotiable as a bill of exchange or cheque, but is only an authority from the bankers signing it to the bankers or others to whom it is addressed to honour the drafts of the person named therein upon his producing the letter. If stolen or lost, the banker upon whom it is drawn is liable in case he honours the draft or pays upon a forged signature.

Crème Café. (*See* CREAM.)

Crème de Cacao is a liqueur made from roasted cocoa-nuts cut very small, and soaked in brandy, then flavoured with vanilla and thickened with syrup.

Crème de Menthe.—A liqueur, so called from its flavour. (*See* LIQUEURS.)

Crème de Myrobalanti. (*See* LIQUEURS.)

Crème de Rose.—A liqueur, the basis of which is whisky flavoured with rose-leaves and sweetened with sugar. (*See* LIQUEURS.)

Crème de Thé.—A kind of liqueur. (*See* LIQUEURS.)

Crème, Vanille. (*See* CREAM.)

Creosote. (*See* CREASOTE.)

Crêpe and Crêpe Lisse.—These are extensively made at Lyons and Avignon. They are a transparent fabric made of silk or fine wool; that known as *crêpe* is somewhat thicker and also more crimped than *crêpe lisse*, which is a very thin, fine, gossamer material, made usually in white or in different colours. It is smooth, and has not the deep crimps of ordinary *crêpe*. The fabric known as *arophane* is of this description.

Cress, American. — This is a biennial plant that is raised from seed. The leaves on the stalk are pinnatifid; the lower leaves are lyre-shaped. It is used in early spring as a salad, or in winter as a winter cress. It thrives best in a dry light earth. By sowing every six weeks a crop may be preserved for both summer and winter use—though like the corn-salad it will in time get self-sown, when there will always be a plentiful supply. If seed should be wanted, have some of the best plants from the first spring sowing, which will flower in summer and ripen the seed before autumn.

Cress, Land.—This is a hardy annual plant, considered by gardeners as the chief amongst salad herbs. It has a very mild and pleasant taste. There are two or three kinds of land cress; the one most extensively cultivated is the common plain-leaved. The curled-leaved is good for salads, and forms a pretty garnish; and the broad-leaved is chiefly used for feeding young turkeys. Land cress will grow in almost any kind of soil.

Cress, Water. (*See* WATERCRESS.)

Cresset.—In architecture, &c., a cresset is a candlestick or lamp to contain a light. The name was specially given to a sort of metal framework filled with combustibles and mounted on a pole or tower, to serve as a signal or beacon, or to give light.

Crest.—A device which is complete in itself, and one which is exclusive to men. This heraldic insignia is never borne by ladies of whatever rank, with the sole exception of the sovereign. Crests came into use in the Middle Ages, when knights wore them upon their helms as a distinguishing mark; consequently crests then had a significance which now they cannot possess. They are frequently represented resting on a wreath; being hereditary, the same person may exhibit two or more crests if he inherits the right to them.



HELM, CREST, MANTLING, AND BADGE OF RICHARD II.

Crest Albums.—A kind of scrap-book for the collection of crests, monograms, &c. In the case of those usually sold every page is divided into squares, in each of which crests may be pasted. The crests may also be

arranged very prettily to represent patterns, devices, &c.

Cretinism is a form of idiocy occurring most frequently amongst the inhabitants of certain valleys in Switzerland and Savoy, and in some parts of France. In the latter country, persons so affected are called cagots. Cretins are remarkable not only for deficiency of intellect, but also for bodily deformities, frequently of the most hideous kind; they also suffer from an enlargement of the throat called goitre. Cretinism varies in degree from absolute vacuity to a certain power of acquiring a little knowledge; and praiseworthy efforts have been made, and still continue, to implant some ideas in the minds of these poor creatures, and with varying success. Curiously enough, Cretins are not born so. The disease generally begins about the fifth or sixth month, when development appears to be arrested, and is only resumed fitfully and unnaturally, to form the dreadful monstrosities these unfortunate people present to us.

Cretonne and Cretonne Chintz.—This material was introduced by the Normans some two centuries ago, and is made at Lisieux; it is woven with flax and hemp, and of different qualities; its use in that country is for body-linen. In this country we are accustomed to call cretonne a flowered material made either of fine wool or of cotton. The former is expensive, but wears exceedingly well for curtains, covers, and bed-furniture; the latter is cheap, but is soon shabby, for the colours are soon worn off the surface. Cretonne chintzes which are glazed are serviceable. There are an immense variety of patterns; as a rule, stripes look the best, and yellow and light-blue are the colours which keep their freshness the longest.

Crewel Stitches.—Among these may be enumerated chain-stitch, which is also called tambour-stitch, tapestry or feather-stitch, long-stitch, and outline-stitch, and to these may be added French knots, which add considerably to the effect of the work. Chain-stitch is used for outlines, and tapestry-stitch for large masses of work. It is said that the true crewel-stitch is worked from one end, and it is the same on both sides. In specimens of old work of this kind this is the case, for it is difficult to discern which is the wrong side.

Crewel Implements.—These are few in number, simple, and inexpensive, but they require to be good of their kind. The thimble should be very smooth, or else the crewels will be roughened; those of white ivory or of black ebony are better for this purpose than either silver or gold thimbles. The scissors should be small, sharp, and have tight-fitting points, in order that they may snip off the wool expeditiously and without catching it. The needle should have a large eye and a sharp point; the chenille or embroidery needle, as such a one is called, is the best kind for this work. An instrument known as a steel-piercer is the last on this short list of requirements; this piercer is round and pointed at one end, and wide and flat at the other end. The pointed end is used as a stiletto, and the flat end is to keep silk, when such is used, smooth and open.

Crewel Materials.—The materials on which crewels are worked are very various and, generally speaking, inexpensive. Coarse unbleached sheeting, hop-sacking, towelling of different kinds, unbleached linen, Java canvas, serges of all qualities, and diagonal cloths are some out of the list. Of the two latter woollen materials, diagonal cloth is preferable to serge, because it is not so easily drawn up in working. In former days, crewels were much used both in England and on the Continent; and the definition given of "crewel" was a two-threaded yarn or worsted. Lately this work has been revived, and in the present day it has the first and highest place in fancy work. Only colours of a certain class are employed by true artists, whether wool or silk be used, and these have not many shades. No hue that is bright or gaudy is chosen; gas-greens, cobalt, and Prussian blues, scarlet, &c., are not allowed to appear; in their stead are the brown, yellow, and olive-greens, the indigo and sky-blues, and dull reds.

Crewel Work.—This is really inexpensive work, but it should exhibit taste and artistic skill, otherwise it is better not attempted. The stitches should be minute, the colours selected with judgment, and the design should agree in all respects. There are a great number of uses for work of this kind—couvrettes, or chair backs, as they are usually termed when in this style, tea-cloths, toilet-covers, doileys, &c.; all these look well, and as crewel work can be washed, are serviceable. When the materials are woollen, the work is more difficult to do, because they are apt to draw and pucker; the material requires to be held firmly and not to be stretched out by the hand. On these soft fabrics the designs should be worked in satin-stitch, and filoselle may be introduced in the centre of flowers with good effect. When finished, the work should be damped on the wrong side and pressed with a warm iron, also on the wrong side. For babies' cloaks, children's coats and frocks, crewel work is an exceedingly pretty adornment, more particularly because the designs which look best are small and stiff. Daisies, forget-me-nots, violets—such flowers as these are usually chosen.

Cribbage.—Of all card games, Captain Crawley says that, next to whist, cribbage is the most scientific. It is played with the full pack of fifty-two cards, and a board for marking the points made. (*See* CRIBBAGE-BOARD.) There are several varieties of the game, such as "five-card," "six-card," and "eight-card" cribbage, the first and second of these being the more common. In this game, court cards and tens count as ten each, and all the rest count for the number of "pips" upon them. The rules for cribbage, and the terms employed in its different forms, are too complicated to be given here, and should be learned from a professed player, and such manuals as that of the above-named Captain Crawley. The players may be two, three, or four, according to circumstances. We doubt its asserted utility to young people in assisting them to make calculations.

Cribbage-board.—A board usually ob-

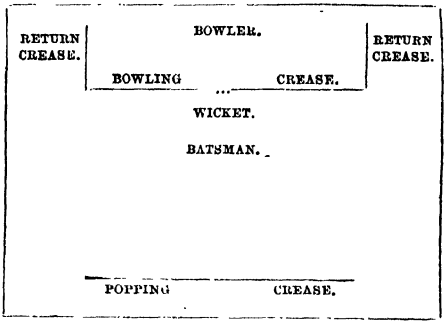
long, but for one form of the game triangular, pierced with rows of holes, in which pegs are inserted to mark the number of points which each player makes. The score is sixty-one.

Cribs, Child's. (*See* COT, CHILD'S.)

Cricket.—This well-known and universal out-door pastime of England is of very ancient origin, the name itself being probably derived from the Anglo-Saxon *cricce*, a stick or staff with which something was struck. In its early days, however, the game probably differed considerably from its modern representative, and it was not till 1774 that it assumed its present form. In that year a meeting was held by a number of noblemen and gentlemen, when a code of rules, &c., was drawn up, settling the character of the implements and the mode of play to be followed. These rules were subsequently amended and modified, resulting at length in the code issued by the famous Marylebone Club, and universally accepted at the present day.

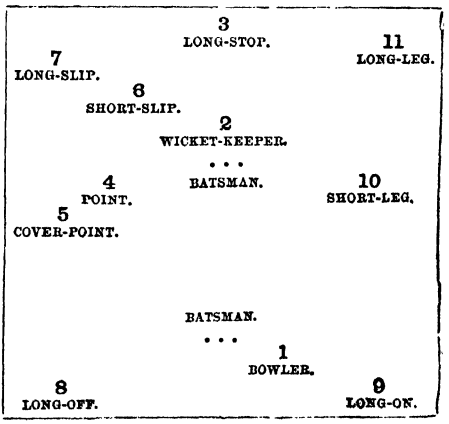
There are two distinct forms of the game of cricket, known as single and double wicket. Single wicket may be played by two or more players, but for double wicket two sides should be formed, each consisting (if the full game be played) of eleven players. The game may be played on any large and tolerably level field, but the smoother the ground and the shorter the grass, especially between the wickets, the better. The implements required are bats, a ball, and wickets or stumps. Bats are the implements with which the ball is struck, and are constructed principally of willow, the handles, however, being generally made of cane, or of willow spliced with cane or whalebone. In length the bat should be suited to the height of the player, but by the rules of the game it must not exceed four inches and a quarter in width, nor may it be more than thirty-eight inches in length. The regulation ball is constructed of leather, and must weigh not less than five ounces and a half nor more than five ounces and three-quarters; in addition it must measure not less than nine inches nor more than nine inches and a quarter in circumference. Each wicket consists of three stumps, usually made of lance-wood or ash, pointed at one end to allow of their insertion in the ground, and tipped with brass and grooved at the top. The stumps when fixed should stand twenty-seven inches out of the ground, and should be of equal and sufficient thickness to prevent the ball from passing through them. In the grooves at the tops of the stumps are set, when fixed, two small pieces of wood, termed bails, their length being fixed at eight inches. For single wicket one set of three stumps only is required, but for double wicket two sets.

We come now to the description of the game, ground, &c.; and here we shall speak more particularly with relation to the double wicket game, single wicket being but a simpler form of the same. The wickets, then, must be pitched directly opposite each other, and twenty-two yards apart. A line six feet eight inches in length is drawn at each wicket, the stumps standing in its centre; this line is termed the *bowling crease*. At each end of this line, short lines are drawn at right angles behind the wicket, known as the *return creases*. Within the spaces marked out by these lines the bowler stands to deliver the ball. Four feet in front of the wicket, and parallel to it and the bowling crease, is another line of unlimited length, but not shorter than the bowling crease; this is known as the *popping crease*. Within the space marked by these two creases stands the batsman, and he only moves out of them at the risk of losing his wicket. The accompanying diagram will further explain the nature of these creases:—



THE BOWLING AND POPPING CREASES.

Before commencing play the wickets are pitched by the umpires, one of whom is appointed to represent either side, to see that the rules of the game are adhered to, and to settle all disputed points. The captains of either side then toss for choice of innings, *i.e.*, to determine which side shall first "handle the willow." This settled, the "out" team take their place in the field, each man standing in the position appointed to him by the captain. Custom, founded on past experience, has shown the most effective positions in the field, and the men should be placed by the captain according to their several capabilities for catching, throwing, &c. The regular positions vary somewhat, according as to whether the bowling be fast or slow, but for medium bowling the men are usually stationed somewhat as shown in the diagram below:—



DISPOSITION OF THE PLAYERS ON THE CRICKET FIELD.

Two batsmen, appointed by the captain of the "in" team, having taken their places at the wickets, the umpire calls "play," and the game commences, the bowler delivering the ball in the direction of the far wicket. The bowler's object is to hit the wicket with the ball, in which event the batsman is out. The batsman, on the other hand, tries to defend his wicket with the bat, and at the same time to make "runs." A run is made when the ball, leaving the bowler's hand, is either hit by the batsman, or passes far enough behind the wicket to enable the batsmen to cross from wicket to wicket without being put out. (See Rule 21 below.) Every time the batsmen thus pass from wicket to wicket, a run is scored. The batsman may be "out" in a variety of ways, for explanation of which see Rules 15 to 25. Runs may also be scored from "no balls" and "wide balls," for explanation of which see Rules 10 and 12. When all the batsmen of a side are out, the runs they have individually scored are added together, and the opposite side now essay batting, and try to beat the collective total of their predecessors. For other particulars as to the game, together with all directions as to the best positions for bowling, batting, &c., reference must be made to any of the well-known books, &c., on the game. Appended are the laws of the game, as revised by the Marylebone Club—the recognised authority on the subject :—

THE LAWS OF DOUBLE WICKET.

1. The ball must weigh not less than five ounces and a half, nor more than five ounces and three-quarters. It must measure not less than nine inches nor more than nine inches and one-quarter in circumference. At the beginning of each innings, either party may call for a new ball.

2. The bat must not exceed four inches and one-quarter in the widest part; it must not be more than thirty-eight inches in length.

3. The stumps must be three in number; twenty-seven inches out of the ground; the bails eight inches in length; the stumps of equal and of sufficient thickness to prevent the ball from passing through.

4. The bowling crease must be in a line with the stumps; six feet eight inches in length; the stumps in the centre; with a return crease at each end towards the bowler at right angles.

5. The popping crease must be four feet from the wicket, and parallel to it; unlimited in length, but not shorter than the bowling crease.

6. The wickets must be pitched opposite to each other by the umpires, at the distance of twenty-two yards.

7. It shall not be lawful for either party during a match, without the consent of the other, to alter the ground by rolling, watering, covering, mowing, or beating, except at the commencement of each innings, when the ground shall be swept and rolled, unless the side next going in object to it. This rule is not meant to prevent the striker from beating the ground with his bat near to the spot where he stands during the innings, nor to prevent the bowler from filling up holes with sawdust, &c., when the ground shall be wet.

8. After rain, the wickets may be changed with the consent of both parties.

9. The bowler shall deliver the ball with one foot on the ground behind the bowling crease, and within the return crease, and shall bowl one over before he change wickets, which he shall be permitted to do twice in the same innings, and no bowler shall bowl more than two overs in succession.

10. The ball must be bowled. If thrown or jerked, the umpire shall call "no ball."

11. He may require the striker at the wicket from which he is bowling to stand on that side of it which he may direct.

12. If the bowler shall toss the ball over the striker's head, or bowl it so wide that in the opinion of the umpire it shall not be fairly within the reach of the batsman, he shall adjudge one run to the party receiving the innings, either with or without an appeal, which shall be put down to the score of wide balls; such ball shall not be reckoned as one of the four balls; but if the batsman shall by any means bring himself within reach of the ball, the run shall not be adjudged.

13. If the bowler deliver a "no ball" or a "wide ball," the striker shall be allowed as many runs as he can get, and he shall not be put out except by running out. In the event of no run being obtained by any other means, then one run shall be added to the score of "no balls" or "wide balls," as the case may be. All runs obtained for "wide balls" to be scored to "wide balls." The names of the bowlers who bowl "wide balls" or "no balls" in future to be placed on the score, to show the parties by whom either score is made. If the ball shall first touch any part of the striker's dress or person (except his hands), the umpire shall call "leg bye."

14. At the beginning of each innings, the umpire shall call "play;" from that time to the end of each innings no trial ball shall be allowed to any bowler.

15. The striker is out if either of the bails be bowled off, or if a stump be bowled out of the ground;

16. Or, if the ball, from the stroke of the bat, or hand, but not the wrist, be held before it touch the ground, although it be hugged to the body of the catcher;

17. Or, if in striking, or at any other time while the ball shall be in play, both his feet shall be over the popping crease, and his wicket put down, except his bat be grounded within it;

18. Or, if in striking at the ball, he hit down his wicket;

19. Or, if under pretence of running, or otherwise, either of the strikers prevent a ball from being caught, the striker of the ball is out;

20. Or, if the ball be struck, and he wilfully strike it again;

21. Or, if in running, the wicket be struck down by a throw, or by the hand or arm (with ball in hand), before his bat (in hand) or some part of his person be grounded over the popping crease. But if both the bails be off, a stump must be struck out of the ground;

22. Or, if any part of the striker's dress knock down the wicket;

23. Or, if the striker touch or take up the ball while in play, unless at the request of the opposite party;

24. Or, if with any part of his person he stop the ball, which in the opinion of the umpire at the bowler's wicket shall have been pitched in a straight line from it to the striker's wicket, and would have hit it.

25. If the players have crossed each other, he that runs for the wicket which is put down is out.

26. A ball being caught, no run shall be reckoned.

27. A striker being run out, that run which he and his partner were attempting shall not be reckoned.

28. If a lost ball be called, the striker shall be allowed six runs; but if more than six shall have been run before lost ball shall have been called, then the striker shall have all which have been run.

29. After the ball shall have been finally settled in the wicket-keeper's or bowler's hand, it shall be considered dead; but when the bowler is about to deliver the ball, if the striker at his wicket go outside the popping crease before such actual delivery, the said bowler may put him out, unless (with reference to the 21st law) his bat in hand, or some part of his person, be within the popping crease.

30. The striker shall not retire from his wicket and return to it to complete his innings after another has been in, without the consent of the opposite party.

31. No substitute shall in any case be allowed to stand out or run between wickets for another person without the consent of the opposite party; and in case any person shall be allowed to run for another, the striker shall be out if either he or his substitute be off the ground in manner mentioned in laws 17 and 21, while the ball is in play.

32. In all cases where a substitute shall be allowed, the consent of the opposite party shall also be obtained as to the person to act as substitute, and the place in the field which he shall take.

33. If any fieldsman stop the ball with his hat, the ball shall be considered dead, and the opposite party shall add five runs to their score; if any be run, they shall have five in all.

34. The ball having been hit, the striker may guard his wicket with his bat, or with any part of his body except his hands; that the 23rd law may not be disobeyed.

35. The wicket-keeper shall not take the ball for the

purpose of stumping until it have passed the wicket; he shall not move until the ball be out of the bowler's hand; he shall not by any noise incommode the striker; and if any part of his person be over or before the wicket, although the ball hit it, the striker shall not be out.

36. The umpires are the sole judges of fair or unfair play; and all disputes shall be determined by them, each at his own wicket; but in case of a catch which the umpire at the wicket bowled from cannot see sufficiently to decide upon, he may apply to the other umpire, whose opinion shall be conclusive.

37. The umpires in all matches shall pitch fair wickets; and the parties shall toss up for choice of innings. The umpires shall change wickets after each party has had one innings.

38. They shall allow two minutes for each striker to come in, and ten minutes between each innings. When the umpire shall call "play," the party refusing to play shall lose the match.

39. They are not to order a striker out unless appealed to by the adversaries;

40. But if one of the bowler's feet be not on the ground behind the bowling crease and within the return crease when he shall deliver the ball, the umpire at his wicket, unasked, must call "no ball."

41. If either of the strikers run a short run, the umpire must call "one short."

42. No umpire shall be allowed to bet.

43. No umpire is to be changed during a match, unless with the consent of both parties, except in case of violation of the 42nd law; then either party may dismiss the transgressor.

44. After the delivery of four balls, the umpire must call "over," but not until the ball shall be finally settled in the wicket-keeper's or bowler's hand; the ball shall then be considered dead; nevertheless, if an idea be entertained that either of the strikers is out, a question may be put previously to, but not after, the delivery of the next ball.

45. The umpire must take especial care to call "no ball" instantly upon delivery; "wide ball" as soon as it shall pass the striker.

46. The players who go in second shall follow their innings, if they have obtained eighty runs less than their antagonists, except in all matches limited to only one day's play, when the number shall be limited to sixty instead of eighty.

47. When one of the strikers shall have been put out, the use of the bat shall not be allowed to any person until the next striker shall come in.

THE LAWS OF SINGLE WICKET.

1. When there shall be less than five players on a side, bounds shall be placed twenty-two yards each in a line from the off and leg-stump.

2. The ball must be hit before the bounds to entitle the striker to a run, which run cannot be obtained unless he touch the bowling stump or crease in a line with his bat, or some part of his person, or go beyond them, returning to the popping crease as at double wicket, according to the 21st law.

3. When the striker shall hit the ball, one of his feet must be on the ground, and behind the popping crease, otherwise the umpire shall call "no hit."

4. When there shall be less than five players on a side, neither byes nor overthrows shall be allowed, nor shall the striker be caught out behind the wicket, nor stumped out.

5. The fieldsman must return the ball so that it shall cross the play between the wicket and the bowling stump, or between the bowling stump and the bounds; the striker may run till the ball be so returned.

6. After the striker shall have made one run, if he start again he must touch the bowling stump, and turn before the ball cross the play, to entitle him to another.

7. The striker shall be entitled to three runs for lost ball, and the same number for ball stopped with hat, with reference to the 28th and 33rd laws of double wicket.

8. When there shall be more than four players on a side, there shall be no bounds. All hits, byes, and overthrows shall then be allowed.

9. The bowler is subject to the same laws as at double wicket.

10. No more than one minute shall be allowed between each ball.

Cricket, Costume for.—Flannel costumes are decidedly the best for cricket. White flannel trousers, a flannel shirt (white or coloured), and a woollen peaked cap complete the regulation dress. Braces should be avoided, their place being taken by an elastic belt or handkerchief. The sleeves of the shirt should not be loose; indeed, a tight-fitting guernsey is often worn instead of a shirt. A flannel or serge jacket or short coat will be found convenient to slip on when the player has finished his innings or is fielding. Cricket shoes, made of leather and canvas, and provided with spikes in the soles, are almost indispensable, especially to the bowler. Batting gloves with india-rubber guards for the fingers, wicket-keeping gloves made of soft leather, and padded leg-guards are generally used by good players, and are very useful in these days of fast bowling. They are not, however, absolutely necessary, and the young cricketer may well do without them.

Crickets.—These insects belong to the class of orthopterous insects, and are allied to the grasshopper and locust. By name the house cricket is looked upon as a nuisance, though more frequently its cheerful note makes it a welcome visitor. The chirp is supposed to be caused by the wings striking against each other. Cold renders the cricket almost lifeless; in winter it often lies dormant. These insects are frequently found in bakehouses, which they like for the sake of the warmth and food. In Sicily a cricket exists which makes a noise that can be heard a mile away.

Crickets, Extirpation of.—These insects may be destroyed by putting the rind of cucumber where they abound, the strong flavour of which will drive them away.

Crier.—A person who issues proclamations, generally relating to articles lost or found, persons missing, &c. The office of Town Crier is a very ancient institution, and although now almost obsolete in large towns, still exists in country districts. The crier usually prefaces each clause of his proclamation by ringing a hand-bell.

Crime.—The breach or transgression of a law, an action contrary to the purport of a law, either natural or divine, civil or ecclesiastical, and to which a penalty is annexed. The term crime includes in it the idea of determination and design formed to do an injury. It is derived from the Latin word *crimen*. The cognisance and admeasurement of crimes and punishments form in every country the code of its criminal law, or, as it is more usually denominated in England, the "Pleas of the Crown," so called because the Sovereign, in whom centres the majesty of the whole community, is supposed by the law to be the person injured by every infraction of the public rights belonging to that community, and is, therefore, in all cases the proper prosecutor for every public offence. The knowledge of this branch of jurisprudence, which teaches the nature, extent, and degree of every crime, and adjusts to it its adequate and necessary penalty, is of the utmost importance to every individual in the State. In distinguishing between words often promiscuously used, we may remark that actions contrary to the precepts of religion are called "sins;" actions contrary to the principles of morals are called

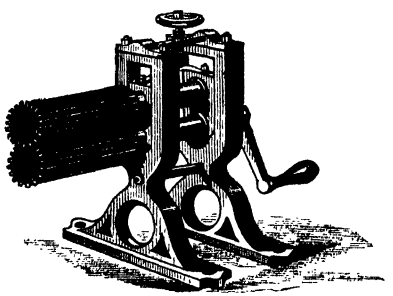
"vices;" and actions contrary to the laws of the state are called "crimes." Consistently with this distinction, says Gibbon, "a sin, a vice, a crime are the objects respectively of theology, ethics, and jurisprudence."

Criminal Information, in law, is an accusation or complaint exhibited against any one for alleged libellous publications and other matters. It differs principally from an indictment in this, that an indictment is an accusation found by the oath of twelve men, but an information is only the allegation of the officer who exhibits it. It is within the discretion of the Court to grant or refuse it, according to the circumstances, and it is not usually granted on light or trivial grounds. To an information for libel the defendant may, under 6 & 7 Vict. c. 96, plead in his justification the truth of the matter published. A criminal information also lies against a magistrate who acts from corrupt motives, or who improperly grants or refuses an ale licence; but the magistrate must have notice of the intention to apply for the information against him, and the party applying for an information must in all cases come with clean hands. (*See* CROWN OFFICE.)

Crimping.—In former days this form of ornamentation was done with the help of a knife, and in those days there was much of this work to be done, for collars had frills, as also night-cap borders, baby-cap borders, and shirt-fronts, and it required nimble and expert fingers to crimp these quickly and with even regularity.

Crimping (Cookery).—Crimped fish is very highly esteemed by epicures. The operation of crimping consists in making deep incisions on either side of the fish with a sharp knife, and then plunging it at once into cold spring-water. The fish which is to be treated in this way should be perfectly fresh, and should be washed and gutted before being crimped.

Crimping Machine.—This was invented about thirty years ago, and its introduction has saved much labour. By the help of such a machine it is possible to crimp or goffer about



CRIMPING MACHINE.

two thousand yards in twelve hours. For private houses where laundry-work is done, these machines are most useful. They are quite small, and will stand upon a table, and are easily worked.

Crimson.—A deep-red colour, formed by an admixture of blue with red, giving it a purplish hue.

Crimson Dyes.—*Cochineal, lac,* and *madder.* In the dyeing of wool it is produced by means of *cochineal,* cream of tartar, and chloride of tin. *Cudbear* gives a wine tint. If the fabric be of a mixed quality, *i.e.,* woollen and cotton, two or more processes will be required to fix the colour on the latter. A decoction of *lac,* the production of an Indian insect, gives a fine deep crimson; but cochineal gives the brightest colour in dyeing wool. To produce a pale crimson, a little *madder* should be added to the *cochineal.* For common crimsons, cochineal alone, and alum is the mordant. In dyeing silk, also, cochineal is sufficient to produce crimson. In the coal-tar colours, *roseine*—composed of two equivalents of binoxide of lead, to a boiling solution of one equivalent of sulphate of aniline, the whole being boiled for a short time—will produce a very intense crimson, when the dry cake is dissolved in alcohol, suitable both for silk and wool.

Crinoline (from Latin *crinis,* hair).—The name given to a species of stiff petticoat worn to amplify the skirts of a woman's dress. It is manufactured with a horsehair fabric, although every kind of petticoat worn for the same purpose rather than for warmth is so styled, many so-called "crinolines" being stiffened with steel wire or hoops, and by thick cord. It was formerly called a "fardingale," introduced by Queen Elizabeth, and stiffened with whalebone. In Queen Anne's time it was composed of a series of horizontal steel hoops, held together by vertical bands or by being sewn into a sort of petticoat. It is at present reduced into a horsehair pad, with lappets of the same, worn just below the waist at the back of the dress. The production of crinoline-wire was one of the leading branches of manufacture at Sheffield, the consumption at one time exceeding one hundred and fifty tons weekly.

Crochet Implements.—There is no kind of work which requires so few implements as crochet. An ivory hook when using wool, and a steel one when using cotton, are the sole necessaries. Much of the speed with which the work is done depends upon the excellency of the hook; it should be smooth and round. The common hooks are not highly polished, and have not that roundness of body or of head which is so desirable, and which expedites the work. The hook should not be a very short one, for length also adds to speed and comfort too. The steel needles are not often called into action, as not much crochet is worked with cotton; they also should be smooth and round, and firmly fixed into the handle.

Crochet Materials.—Cotton and wool are the staple materials for this work. The cotton is of a special kind; it is more twisted and much harder than knitting-cotton. The articles made with it are most durable. Wool of every description is used; every thickness, from double Berlin down to Pyrenean, can be brought into use of some kind.

Crochet Stitches.—These are six in number, and all of them are exceedingly simple. The first to be learnt is *chain-stitch.* A loop is

formed, and the thread is drawn through that loop by the hook, and thus another loop is made; a continuation of this proceeding makes a chain of stitches. *Slip-stitch* is when the thread is drawn through the stitch and through the loop on the needle at the same time; this makes close crochet work. *Single crochet* is made when the needle, having a loop on it, draws the thread through a stitch, and thus has two loops on it, and then completes the stitch by drawing the thread through both those loops; thus it has only one loop again. *Double crochet* is to twist the thread once round the needle previous to drawing the thread through the stitch: this makes three loops on the needle; the thread is drawn through two, and then through the two which remain. *Treble crochet* is the term used when the thread is twisted twice round the needle before making a stitch. Sometimes the thread is twisted three and four times round, when a pointed vandyke has to be formed; the order remains the same, but the thread should only be taken through two loops at a time.

Crochet Work.—Very fine and elaborate patterns were, some twenty years ago, worked with cotton into anti-macassars, covers for toilet-cushions, for bread-baskets, and other useful purposes. The patterns for these were marked out on paper similar to those for Berlin wool work, and the work occupied much time. Although crochet cotton work was most satisfactory as to wear, it has now almost entirely gone out of fashion, wool having taken its place. The patterns for these are much more simple, and written directions merely are given to the worker. Couvre-pieds in thick wool, and couvrettes in thinner wool, look especially warm and comfortable in the winter season. Very lovely shawls may be crocheted in the finest wool. It is better to do these in coloured wools, for crochet loses its beauty when washed. Crochet is exceedingly simple, and very expeditious work; it is admirably fitted for children's and old people's amusement.

Crockery. (*See* EARTHENWARE.)

Crocus.—This flower is one of the first to make its appearance in the very early spring; indeed, it shows its bright yellow blossom during the decay of winter, whilst frost and snow are on the ground. It is a close companion to the snowdrop, and may be said to be wedded to it, as they are generally closely planted together, and are born and die at the same time. Crocuses are very useful, as they can adorn the house as well as garden, and are frequently planted in various shaped pans and pots, which are pierced with holes and filled with earth. Care should be taken that the point or top is near the hole: through this they grow, and form a compact mass of flower. There are varieties of colours, but those mostly known are yellow and purple. Plant the bulbs in October, placing a stick or label at the place; but if put into pots, a soil of light rich earth is necessary, covering the bulb about half an inch. When the leaves begin to decay they should be tied together, and if required to remain in the ground, the label must remain; but it is better to take them up, dry the bulbs, and take off the off-sets, which, if planted, will blossom in the next season. It is advisable, however, to let the bulbs remain in the ground two years, as they obtain a finer growth and propagate more. A dry and sandy soil is conducive to their growth.

Croquet.—The origin of this game is a little obscure; one thing, however, is certain, *i.e.*, that it is very closely connected with Pall-mall, a game in great favour in this country after the Restoration. As at present played, croquet is of comparatively recent introduction, and a few years ago was a favourite out-door amusement; and for the reason of this we must look further than the inherent interest of the

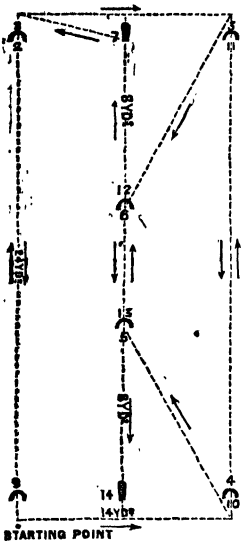


CROQUET.

game itself. At the time of its introduction it was almost the only open-air pastime available to people of both sexes alike. Lawn tennis and Badminton have since been introduced, and on account of their novelty and greater interest have to some extent depreciated their forerunner; but croquet still holds its own, more especially in country districts.

The prime object of the game is to strike a wooden ball with a mallet, so that it may pass through a series of iron hoops ranged in a particular order upon a level piece of ground; and in this last we get the first requisite for croquet—a well-rolled level lawn of moderate dimensions, ranging from ten yards square upwards. Croquet sets, consisting of eight mallets and balls, ten iron hoops, starting pegs, and clips, may now be purchased at low prices. In cheap sets the mallets are constructed of ash, but in the best sets, mallet-heads and balls are alike made of boxwood—the best possible material for the purpose. There are very many ways of arranging the hoops in the ground, many of which may be seen illustrated in the book of rules, &c., sold with every set. The diagram given on the next page shows the "All England Match" setting, an arrangement which will be found most suitable to small grounds, as affording plenty of scope for skilful play, even when the distances from hoop to hoop are short. It will be seen that for this setting six hoops only are required. The figure shows plainly the course the player has to take, the two pegs being

numbered 7 and 14, the latter being the winning-post. There is no widely-recognised code of rules for the game of croquet, those published differing in many minor particulars. As previously mentioned, however, the laws, together with sundry hints for playing the game, are published in pamphlet form, and sold with the sets of all the best manufacturers.



THE "ALL ENGLAND MATCH" SETTING.

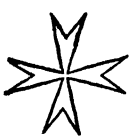
Of the technical terms used in the game, *roquet* is to hit any other ball that you are entitled to hit with your own ball; *croquet* occurs when the striker hits with his mallet his own ball placed in contact with the roqueted ball; a *rover* is a player who, having completed the round of the hoops, and having but to strike the final peg, still continues to assist his partners in the game.

Cross-examine. — To try the faith or value of evidence by captious questions of the other side. Leading questions are allowed, which is not the case in the examination in chief; but the questions must be relevant to the issue, although great latitude is allowed, as a question seemingly irrelevant often turns out otherwise.

Cross-stitch.—This is particularly adapted for Berlin canvas, and is sometimes called Berlin stitch. It is made by two diagonal threads crossing one another, and thus completely covering four threads of the canvas, for a cross-stitch covers two threads in each direction.

Crossed Cheques. (*See* BANK CHEQUES.)

Crosses, Heraldic.—The simplest form of heraldic cross is that in which two vertical lines meet two horizontal lines; that cross which has four limbs of equal length is known as the Greek cross; the one where the uppermost limb and transverse limb are of the same length, and the fourth limb longer than the other three, is known as the Latin cross; the one without any upper shaft is the cross of St. Anthony. A diagonal cross is called a saltere —of this description are those of St. Patrick and St. Andrew. The cross with eight points is called the Maltese cross.


MALTESE CROSS.

Croton Oil.—This is expressed from the seeds of the *Croton tiglium*, natural order *Euphorbiaceæ*, a tree growing from fifteen to twenty feet high in India and Ceylon. The oil is of a brown colour, disagreeable smell, and acid taste. It is composed of a fixed oil, crotonic acid, and some other unimportant ingredients. In doses of a quarter of a drop to one drop, it acts as a powerful purgative, but must be given with great care, owing to its irritating qualities. Combined with castor oil, it is a valuable medicine in suitable cases, as by it the efficacy of the castor oil is increased, whilst this, in its turn, corrects the irritating properties of the croton oil. Given in this way, or dropped on the tongue or on a piece of sugar to be dissolved in the mouth, or in the form of a pill, when this can be swallowed, croton oil is largely used in head affections, as apoplexy, inflammation of the membranes of the brain, paralysis, and in obstinate constipation. In the form of liniment, mixed with six times its quantity of olive oil, it is extensively used as a counter-irritant, producing after a few applications a copious eruption of pustules, and in this way is considered beneficial in chronic disease of the lungs, in rheumatism, and glandular swellings. This liniment must be used most carefully, in order to prevent any of it being accidentally rubbed into the eye or elsewhere. The person rubbing should wear a glove, and the part rubbed should be protected in such a way that it cannot be touched in sleep or thoughtlessness.

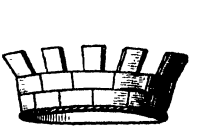
Croup.—There are two kinds of croup known—viz., *trachealis*, or true croup, and *laryngismus stridulus*, false or spasmodic croup. Both are characterised by a peculiar sound like the crowing of a cock, occurring at each effort to take a full breath. Though possessing some symptoms in common, the two diseases are quite distinct, and must not be confounded one with the other. *True croup* is really diphtheria in the windpipe, the false membrane formed being frequently expectorated in a tubular form. The disease begins with feverishness, hoarseness, dry cough, difficulty of breathing, which rapidly increase until the crowing sound is heard. The child frequently grasps the throat as if to remove an obstacle, and the expression in the face is one of terror and anxiety. If the child survives this stage, which is always one of danger from suffocation, then pieces of false membrane are brought up, and this is accompanied with inflammatory fever and threatened strangulation. The disease is very fatal. The treatment consists, in the first instance, in subduing inflammation, by the application of one or two leeches, according to age, to the upper part of the breast-bone where it joins the throat; by administering doses of ipecacuanha or antimonial wine (a tea-spoonful of the former every half-hour until sickness is induced, and ten drops every three or four hours after until the breathing is relieved, will suffice); by the immediate use of the warm bath, and the inhalation of hot water by an inhaler, if the child is old enough to use one. Calomel or mercury in some form is recommended to prevent or check the formation of the false membrane. The strength must be supported throughout by beef tea, broth, and fluid nourishment of every kind. In case of danger from suffocation coming on suddenly, an emetic should be at

once given. This failing to relieve, the operation of making an opening into the windpipe may be performed; but as a rule this operation comes too late, as the disease will probably have extended below the opening, and little or no relief will be given. *False croup* is a spasm of the muscles of the windpipe, and is due generally to teething, worms, irritation of the bowels, certain skin affections, and diseased glands. The symptoms, in the first instance, resemble those of true croup; but as a rule the attack is more sudden, and unaccompanied by feverishness or catarrh, and unlike that disease, there are intervals of quiet breathing, which become longer as the complaint disappears. When the spasm is severe (and it is sometimes fatal), the same means as those recommended for true croup must be resorted to, and even the operation of opening the windpipe may be necessary, and with better chance of success than in that disease. The after treatment must consist in removing all sources of irritation from the bowels and elsewhere, in a suitable diet, and in change of air.

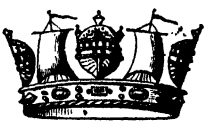
Crow.—The *Corvus corone*, natural family *Corvidæ*, is known by many names, such as carrion-crow, gor-crow, the hoody-crow, the corby, &c. It is a bird supposed originally to have come from Japan, but now indigenous not only to a large number of European countries, but to our own as well. Crows are by no means welcome guests, let them go where they will; especially do farmers hate them, for they will not only attack young fowls and carry them off, but are even very troublesome to lambs. Their principal food is flesh when they can procure it, but they will eat shell-fish by the sea-shore, and at times will feed on potatoes or grain and other vegetables. They are not like the rooks, gregarious in their habits. They build their nests on high trees, pairing early in February, lay four or five eggs of a greenish hue spotted and speckled with black, and seldom hatch more than one brood in the season.

Crowfoot.—This flower is also known as the *Ranunculus*, of which there are many varieties, all of which possess much beauty. It may be planted in beds or in large patches in the open border, the time for which is about the middle of February. In a tolerably dry soil, drills should be made with a small hoe on a fine morning, a little sand placed at the bottom of each drill; this helps to drain. After putting in the roots, place labels against the different sorts, then level the earth over the roots. As soon as the leaves turn yellow after the blossoms have faded away, the roots should be taken up; but when the season is dry, they may remain longer in the ground. When July arrives, the roots must all be taken out of the ground, care being taken to remove all the earth away, and then they may be placed in bags until the following spring.

Crown.—The ornament worn on the head by kings and sovereign princes, which denotes imperial and regal dignity. In Scripture there is frequent mention of crowns; and the Roman emperors had four kinds, still seen on medals —viz., a crown of laurel, a radial or radiating crown, a crown adorned with pearls and precious stones, and the fourth a kind of bonnet or cap, something like the mortier. The latter had also various kinds of crowns, which they distributed as rewards for military achievements. The investiture with a crown is practised in the present day, when a sovereign is solemnly and finally installed; but in this country the crown used at a coronation is subsequently borne in state on only a few occasions of great ceremony.



MURAL CROWN.



NAVAL CROWN.



CROWN OF QUEEN VICTORIA.



RADIATED CROWN.



CELESTIAL CROWN.

With us the word is frequently used to describe the Sovereign herself, or her rights, duties, and prerogatives. Crowns of several kinds are to be found in heraldic charges: such are the Mural crown, the Naval crown, the Radiated, Antique, or Eastern crown, and the Crown Vallary, all of which are borne by subjects. There is also what is called the Celestial crown.

This word also signifies a silver coin of the value of 5s.

Crown Court. — The Court where the Crown or criminal business of the assizes is transacted.

Crown Debts.—Debts due to the Crown from persons who are accountants to the Crown, and also on record, bond, or specialty. The liability of lands for these debts attached to them, even in the hands of *bonâ fide* purchasers, for value without notice, and notwithstanding the purchaser had no means of notice. But by the Statutes 2 & 3 Vict. c. 11, s. 8, and 22 & 23 Vict. c. 35, s. 22, it was enacted that lands should not be charged in the hands of purchasers with Crown debts, unless or until such debts were duly registered and re-registered, whether or not the purchaser had notice thereof. And now, by Statute 28 & 29 Vict. c. 104, s. 4, a writ of execution in respect of the debt must also have been issued and registered in order to affect a purchaser, in addition to the registration and re-registration of the debt

itself under the former Acts, whether or not the purchaser have notice of the debt.

Crown Lands.—The demesne lands of the Crown, which it is now usual for the Sovereign to surrender at the commencement of his reign, for its whole duration, in consideration of the civil list settled upon him. They are placed in the charge of Commissioners, and the revenues go to the Consolidated Fund. See 1 & 2 Vict. c. 2; Land Revenues of the Crown and the Crown Lands Act (29 & 30 Vict. c. 62); and the Crown Lands Act, 1873 (36 & 37 Vict. c. 36). (*See also* CIVIL LIST.)

Crown Office.—An office appertaining to the Queen's Bench division of the High Court of Justice, the master of which is usually called "Clerk of the Crown," and in pleading and other law proceedings is styled "Coroner and Attorney of Our Lady the Queen." In this office the Attorney-General and Clerk of the Crown exhibit informations for crimes and misdemeanours, the former *ex officio*, the latter commonly by order of the Court; and by 4 & 5 Wm. and Mary, c. 18, the master of the Crown Office may file criminal informations, with leave of the Court, upon the complaint or relation of a private subject.

Crucible.—A vessel intended to contain substances exposed to a high temperature, and therefore formed of materials which can resist the action of fire without burning, breaking, or melting. Crucibles for fusing metals are made of certain kinds of clay, or of a mixture of plumbago and clay; for other purposes they consist of iron, lime, platinum, porcelain, &c.

Cruelty to Animals. (*See* ANIMALS, CRUELTY TO.)

Cruet-frame.—A cruet-frame is a stand constructed to hold bottles which are to contain seasoning and aromatic preparations likely to be required at table. Cruets are usually made either of silver-plated metal or ornamental wood. A few years ago they were placed in the centre of the table, in the position now given to the épergne. According to the present fashion, two or more small frames are used instead of one large one, and these are placed at each end of the table to suit the convenience of the guests.

Crumb-brush.—These are made narrow and semi-circular in shape; they are used for clearing the table-cloth of crumbs after a meal. Some persons prefer to have this done by the back of a knife, and others have silver trowels for collecting the crumbs. When such have been presented for laying the foundation-stone of a building, their daily use at table is an admirable way of employing what is generally considered to be a useless possession.

Crumb-cloth.—This is a square of woollen or linen drugget, which is placed in the centre of dining and breakfast-rooms and nurseries. It is fastened down by flat-headed pins, so that it can easily be taken up, shaken, and replaced, for these covers are not intended to be heavily brushed.

Crumpets.—These are cakes eaten at breakfast or tea, very much resembling muffins. When buttered hot they are generally found to be acceptable. (See "Cassell's Dictionary of Cookery.")

Crust in Kettles, Boilers, &c. (*See* INCRUSTATION OF BOILERS, &c.)

Crypt.—A vault beneath a building, and wholly or partly underground. Though most frequent as part of a church or cathedral, a crypt sometimes occurs in connection with other buildings. The roof or ceiling of a crypt is vaulted, or is supported by groined arches upon pillars. The use of the crypt was either for a chapel or for a receptacle of the dead.

Cryptogram.—A cryptogram is a writing, the sense of which is supposed to be hidden from those who do not possess the key. The art of cryptography, or writing in cipher, as some call it, is of ancient origin, and is represented by a multitude of systems. It is much resorted to by diplomatists and others, the secrecy of whose communications is thought important. The result may often be attained in a very simple way, as by counting *b* as *a*, *c* as *b*, *d* as *c*, and so on; the effect of which would be to transform the word *cryptogram* into *dszquphsbn*. Any other arrangement would produce the same essential result, and figures can be introduced for diphthongs, &c. It is easy to see that a cryptogram should be very carefully written, and that it should be ingeniously contrived, if it is to be understood by the receiver and not to be liable to be found out by clever people. As a fact, the most complicated have been found out, and expounding simple ones is little more than an amusement.

Crystal.—A name commonly given to vitreous quartz, or rock crystal. (*See* ROCK CRYSTAL.) In imitation of the French usage, this term is sometimes employed to designate glass of superior quality.

Crystal Oil. (*See* LAMP OILS.)

Crystalline Lens. (*See* EYE.)

Crystallising Leaves, &c.—This process can be performed in several ways. The most expeditious is that of washing the leaves over with gum-water, and then dredging flour on them. Another plan is to use the gum-water and to dredge them with crystal-frost, which is sold for the purpose, and which consists of minute atoms of glass swept up in glass manufactories. A third method is to boil ground alum in water for about four hours; the proportions are a pound of alum to a gallon of water. Afterwards the leaves are placed in the solution, and the crystals adhere to them, but these are soon shaken off unless great care is taken. Leaves should be cleaned from dust and smoke before they are crystallised. Rough leaves are better suited for the purpose than smooth ones. The arbor-vitæ, yew, pines, and grasses are particularly adapted for the last-named method; holly-leaves are better than laurel.

Crystals.—Many substances under certain circumstances assume a regular geometrical form; in other words, they crystallise. Crystals occur either separately or in masses, and in such variety that their external forms amount to thousands, all of which have been classified and

reduced to systems. These systems are six in number, and each of them includes things which in their nature differ greatly from one another; thus common salt crystals and those of gold and the diamond belong to the same system. However diverse the appearance exhibited by the crystals of any substance, they will be found on analysis to be all reducible to their proper type. The effects of crystallisation are so varied that the study of crystals is one of the most curious and interesting that can be followed.

Cubit.—A measure of length, in common use among the ancients, especially the Hebrews, and frequently mentioned in Holy Writ. As a standard measure, it was founded on the length of a man's arm from the elbow to the tip of the middle finger. The Hebrew cubit seems to have been of two lengths, the one being nearly 22 and the other about 18 English inches; this latter equivalent is now, however, more generally accepted. The Roman cubit was about 17¾ English inches in length.

Cuckoo.—The cuckoo—so called from the peculiar and well-known sound it makes—has various names, according to the countries in which it is found. By naturalists it is termed the *Cuculus canorus*, natural family *Cuculidæ*. It is, when seen close, a short-legged, shapely, and somewhat pretty bird, about fourteen inches long. The bill is black, and yellowish towards the base; the inside of the mouth is red; and the head and upper part of the plumage are of a dark ash colour; the throat, neck, and upper part of the chest a pale ash inclining to rufous brown; the belly and lower part of breast white, with transverse bars of black; the tail is straight, and composed of ten feathers of unequal length, colour black, white, and ashy. The female is smaller than the male, and the neck and breast are of a tawny brown. The young are different in plumage from the old, and are supposed by some not to assume the proper colours until the second year's moulting. Arriving in this country in April, the cuckoo is a great traveller, for it journeys as far north even as Lapland. It comes to us from Northern Africa and Asia Minor, emigrating again in August. There is some difference of opinion about what the birds eat, though we ourselves have known instances in which caterpillars formed their food. The great peculiarity of the cuckoo is that, instead of building a nest of her own, she deposits her eggs, one by one, in those of other birds, such as the hedge-sparrow, the tit-lark, the yellow-hammer, and robin. It is believed by many that the cuckoo first lays her egg on the ground, and afterwards carries it to the nest where she means it shall be hatched.

Cucumbers.—The cultivation of the cucumber has been known from very early times. It is a native of Asia, and is extensively used both there and in other parts of the world where it grows. Where it can only be produced by means of artificial heat, it is considered a delicacy. The varieties of them are numerous; a good deal of labour is necessary in their cultivation. Two points require special attention; one is that they have plenty of ventilation, and great care must be used, too, in the regulation of the linings and the watering of them. They must have warmth and rich soil. In the south of England they are reared in the open fields, but in the north they require a hot-bed.

Cucumbers for Pickling.—The best pickling cucumbers are gherkins, which are quite young cucumbers from one to two inches long. The French are very partial to this pickle, a peculiar kind, called the *cornichon*, short and thick, being exclusively used for the purpose. In France the cucumber is rarely eaten sliced as it is in England.

Cudbear.—A purple or violet-coloured powder, employed in dyeing, procured from a species of lichen (*Lecanora tartarea*), or crustaceous moss, which grows commonly in Sweden, Scotland, and in the north of England, on limestone-rocks. The process by which the dye-stuff is produced is nearly similar to that in making archil. It is watered with ammoniacal liquor, ferments for three or four weeks, and is then poured into a flat vessel till all smell has disappeared and it has assumed a violet colour. It is then ground to a powder. Like archil, there are two varieties of this dye-stuff—blue cudbear and red cudbear. The colours produced by it are very evanescent. Its use is confined to a few cases of silk-dyeing, for the purpose of producing ruby and maroon. It gives to wool a deep-red shade. The powder itself is of a violet-red hue. In consequence of its fugitive character, it is usually employed in connection with other dyes, to give them body and vivacity. In this country it is used to give brilliancy to indigo blues, and as a ground for madder reds, imparting to them a rosy tint, when naturally inclining to yellow. Cudbear is only a variety of archil, which is prepared from the same rock-moss, and may be regarded as almost synonymous with it, archil being the expressed liquor of that lichen.

Cue. (*See* BAGATELLE; BILLIARDS.)

Cuffs.—These are pieces of material which are attached to or laid on to the lower part of a sleeve which fits close to the wrist. The name also applies to the loose bands, broad or narrow, which are worn under the sleeve as a covering for the wrist. The fashion of wearing cuffs on a dress is an economical as well as a comfortable one, for that portion of the dress usually is the first to show signs of wear, and cuffs are easily renewed, while a close sleeve is warmer and not so inconvenient as one which hangs down. Under-cuffs should be made of linen, and be lined with two thicknesses of thin cotton. Cuffs should always match the collar, whether made of linen, muslin, or lace.

Cuirass.—This article of attire, used at first as a defensive one, is an outer covering for the body from the neck to the waist, before and behind. It is of very ancient use, and is said to have originated with the Egyptians. They wore folds of linen in this form; the Romans and Greeks wore gold or silver, brass or steel; while the Gauls introduced iron. In France the use died away and revived again several times; at the present day they are worn by the cuirassiers and the carabiniers. In England also their usage has not been

continuous; but now they form part of the accoutrements of the Life Guards. They have of late years come into use for ladies' wear, when they are often made of kid, leather, or some thick but pliable material. The word cuirass doubtless has arisen from the French word *cuir*, leather, of which they were frequently made.

Culet. (*See* CULETTE.)

Culette, or Culet.—1. The term given to broken glass brought to the glass-house for the purpose of being re-melted with fresh materials. 2. The small square or octagonal piece cut from a diamond, and terminating in a point on that side which, when the stone is placed in a setting, will be the under-side.

Culinary Utensils.—The different utensils used in culinary operations are made either of metal, wood, earthenware, or glass, according to the purpose for which they are intended. Those which are to be subjected to the action of heat are made of metals, such as silver, copper, brass, iron, and lead. Of these, silver is the best and sweetest, and lead is the worst, for leaden vessels are very unwholesome. Brass is to be met with only very occasionally. Copper vessels are always tinned, as the metal is liable to be dissolved, and consequently may impart a poisonous character to any preparation. The most scrupulous care should be taken to examine tinned copper utensils regularly, and as soon as they begin to redden to send them to be re-tinned. Insufficiently-tinned saucepans are exceedingly unwholesome, in addition to which they are almost sure to spoil both the colour and the taste of whatever is cooked in them. Iron saucepans are frequently tinned also. Tinned iron articles are cheaper than tinned copper, and answer almost as well; they are not, however, so durable. Iron is not in itself an unwholesome substance, even if a portion of it should be dissolved and mixed with the food, and on this account it is one of the metals most to be recommended for the manufacture of culinary articles. The objection to it is that it is apt to rust and soon decays; it needs to be cleansed very thoroughly. What are called block-tin vessels are merely iron plates coated with tin. There is a kind of hollow iron-ware, lined with enamel, which is excellent for culinary purposes, as it can be easily cleaned and is very sweet; it is not particularly durable, however, as the enamel is liable to crack. The same objection may be urged against porcelain vessels, which, but for their exceeding brittleness, would be preferable to any other. Wooden, glass, and earthenware vessels are used for keeping food in. Of these, glass vessels are the best, and should be preferred for all suitable purposes. Pottery-ware should be particularly well glazed, otherwise acids and greasy substances will be liable to penetrate below the surface, and impart a bad flavour to any preparation. Pottery-ware in which the glazing is cracked should be particularly avoided. Wooden vessels are very good for certain purposes, but they are apt to get musty. They should never be used for anything that has fermented or become putrid, as no amount of after cleansing will be likely to remove the taint from a vessel thus spoilt.

Cullender, or Colander.—A very useful article for the kitchen. When vegetables are being cooked it is continually in request to strain them. It is shaped like a basin, and perforated for the water to run away. Cullenders are made both of tin and earthenware. The tin ones are more durable, but the earthenware ones are sweeter.

Cullis, or Coulis, is a kind of rich brown gravy employed for the purpose of enriching, as well as thickening and colouring, various soups and sauces. It is made in different ways and of a variety of materials. Ham and veal are the ingredients usually employed. The slices of meat are put into a closely-covered stewpan, with a very small quantity of stock or water, and boiled over a brisk fire till the desired colour and consistency are produced. This preparation is the foundation of brown sauce, Spanish sauce, or sauce Espagnole.

Cumin.—An annual plant, a native of Egypt, and cultivated largely in Malta and Sicily. These seeds have a bitter warm taste, and a strong and peculiar odour, but formed a favourite ingredient in the cookery of our forefathers. It was also used in medicine, is used in artificial food for cattle, and is employed in farriery. It is umbelliferous in form, and resembles fennel, though smaller. The colour of the seeds is an ashen-grey; they are oval in shape, and linear and flat on one side, and convex and striated on the other.

Cumin, Oil of (syn. *Oleum cumini*, *O. cymini*), is extracted from the fresh seed of cumin. The colour is a pale yellow; the scent and taste are strongly like that of the seeds. This oil is a mixture of two oils, which differ in their volatility, but may be separated by careful distillation: cymol being the name of the more volatile, and cuminol of the other.

Cumulative Legacy.—A legacy is termed cumulative in contradistinction to one which is merely repeated. Where a testator twice bequeaths a legacy to one person, it becomes a question whether the legatee is entitled to both—*i.e.*, whether the second gift should be considered as a repetition merely of the first, or as an additional gift and cumulative to the other benefit. On this point the intention of the testator will be the guide to the construction.

Cup-moss.—A somewhat vague and unsatisfactory name given to a group of cryptogamic plants called *Musci*, or mosses, owing probably to the peculiar and conspicuous urn or cup-like shape of their organs of fructification. (*See* MOSSES.)

Cupboards.—Cupboards were originally mere shelves of the simplest kind, which afterwards grew into that piece of furniture now called a sideboard. Mere boards on trestles were the cupboards of our old forefathers in rude and simple times. Becoming fixtures against the wall, they soon rose one above the other, shelf fashion, and being in time carved and otherwise decorated with corbels and sides,

they assumed the name of "joined cupboards." At the marriage of Prince Arthur, son of Henry VII., we are told that a grand feature at the feast was a triangular cupboard of this kind five stages high, on which ornamental plate of a costly kind was displayed. Cupboards are now, however, rather useful than ornamental, and are banished from the drawing-rooms to the parlours, kitchens, and bedchambers; although even in the last century they held their place for the display of valuable china, and, glazed, inlaid, or decorated with painting and gilding, stood in the corners of the most richly-furnished rooms a gentleman's mansion could boast.

Cupolette, or Lawn Cupolette.—This is a game suitable for out-door amusement, and is very simple. Seven wooden pins, pointed at the bottom, and each with a sort of cup at the top, are driven into the ground, one in the centre and six around it at equal distances. A ball is placed in each cup, and the player, standing at a certain distance, aims with a wooden quoit to knock down the balls. Every pin is numbered, and the player must say, before he throws, which he fixes upon; but if he strikes out more balls than the one he names, he counts them all. If he misses the one he names, and knocks down others, his opponent counts them. If all the balls are struck off before the player has used up his seven quoits, he may employ the remainder in trying to "ring" any stick, and adding its number to his score if he succeeds.

Cupping.—This derives its name from the cup-shaped glasses used in the operation. (*See* BLEEDING.) What is called dry cupping is the application of the glasses only (in the manner described under BLEEDING), without the use of the scarificator, the object being, not to abstract blood, but to draw it to the surface, and with the purpose, it may be, of relieving some internal congestion.

Cups.—The word cup, strictly speaking, denotes a drinking vessel, but it is frequently used to signify the liquor which is contained therein. Thus we have *cooling cups*, *fiery cups*, *claret cups*, *champagne cups*. *Stirrup cups* were once very celebrated. They originated in the *parting cup* of the ancients, and received their peculiar name from the fact that they were given to travellers whose feet were already in the stirrups, ready to start on their journey. The *loving cup* is also a time-honoured institution. It is a large goblet made of silver, gold, or plated metal, and is filled with spiced wine or sack, and passed round, after dinner is over and grace has been said, at City feasts and banquets of a similar character. The givers of the feast drink first a welcome to their guests, and the cup is passed round; and it is customary for each person to wipe the cup with the napkin provided for the purpose before he passes it to his neighbour. Fairholt tells us—"The more formal practice is for the person who pledges with the loving cup to stand up and bow to his neighbour, who, also standing, removes the cover with his right hand and holds it while the other drinks—a custom said to have originated in the precaution to keep the right or dagger hand employed, that the person who drinks may be assured of no treachery like that practised by Elfrida on the unsuspecting King Edward the Martyr at Corfe Castle, who was slain while drinking. This was why the loving cup possessed a cover." The *wassail cup* was so named because the Saxons were accustomed to pledge each other before drinking, saying "*wæs-hael*," or "health be to you." Amongst the ancients it was customary for the Bacchanals to dedicate a cup to a favourite deity. It is said that at their banquets the guests usually allowed themselves three cups. The first they drank to allay thirst, the second they took for enjoyment, and the third they offered to the gods. These cups were passed round by slaves richly apparelled, who were careful to note when the supply of the generous liquor needed to be replenished. The use of the word cup in this way has given rise to one or two proverbs. Thus we are often told that "There is many a slip between the cup and the lip." A person who is intoxicated is sometimes described as being "in his cups;" and one who has been unfortunate is said to have "drunk the bitter cup."

Curaçoa. — This is a well-known and favourite liqueur, made frequently from the small oranges called by the same name. These oranges are those that drop from the tree before they are ripe; consequently they are only useful for this purpose. They taste very much like ordinary orange-peel, only they are more bitter. An inferior liqueur is made sometimes from orange-peel. The oranges should be digested in sweetened spirits, with cinnamon added and mace or cloves—whichever is preferred. The spirits used are generally reduced to about fifty-six under proof, and mixed with three pounds and a half of sugar to the gallon. The liqueur may be coloured by the addition of a little powdered Brazil wood allowed to dissolve in it for a week or ten days. A little burnt sugar will make the colour not so deep. Caramel too is used to soften the colour. Another excellent mode of obtaining this liqueur is to use the Seville oranges. Good sound fruit must be chosen, and put perfectly whole, without either bruise or prick, into a jar, covered then with good brown brandy, and allowed to stand for a month in a cool place. After that strain, and to every quart of the liquid add one pound of sugar-candy; digest seven or eight days, then strain carefully until quite clear. After the liqueur has been extracted, the fruit can be kept in syrup and used as dessert fruit. The Dutch excel most in the manufacture of curaçoa. That made at Amsterdam by Wynand Fockink is unquestionably a very fine drink, and many unsuccessful attempts have been made to equal it. This is made from the small oranges, and is known in commerce as the curaçoa of Holland, to distinguish it from other liqueurs which are continually springing up as rivals of it, and which are often sold in its place.

Curator. — An officer under the Roman emperors who regulated the prices of all kinds of vendible commodities in the empire; a protector of property, his duty being to see that the person under his care does not waste his goods.

Curd Soap. (*See* SOAP.)

Curds.—Milk is composed of three ingredients—the oily part, known as cream, which rises to the surface after standing; the whey; and the curd, which remains dissolved in the whey until coagulated by some acid. There are different ways of curdling milk, but the most usual method is to use rennet. This is made by taking a small piece of the dried inner stomach of the calf, and soaking it in a cupful of hot water for four hours. A little alum is sometimes used to make curds, or a few eggs well beaten and stirred into the milk when hot. Curds are served in various ways; they are made into cheese-cakes, puddings, &c., and are very delicious too served with cream, sugar, wine, &c. Cheese is made from the curd of milk, salted, pressed, and dried.

Curfew (from *cŏuvre*, cover, and *feu*, fire). —A bell which rung at eight o'clock in the evening in the time of William the Conqueror, whereupon every one was obliged to put out his fire and light. The law was abolished by Henry I. in 1100, but the practice of ringing the curfew bell is to this day kept up in some places.

Curled Hair.—The best hair useful for this purpose is the horsehair obtained in England, as the hair from foreign horses is inferior, owing to their not being so well fed. Short black or grey hair is selected; after this has been disentangled, it is tossed lightly together in heaps, which are beaten until consolidated. They are then twisted into hard ropes, which are coiled into bundles, and then steeped in cold water for some hours. Finally they are put into a very hot oven, the heat of which is gradually let down, and at the end of twenty-four hours, when the twists are taken out and untwisted, the hair is found to have acquired that springy curling character which fits it so particularly for stuffing mattresses, cushions, chair-seats, &c. This process increases the expense beyond that of hair-stuffing which has not been curled; the advantage is that this curling makes the mattresses, &c., very much softer both when new and for a continuance.

Curling-irons.—When curls were more in fashion than they are in this day, these irons were in constant requisition, and were to be found in most houses. They were long pieces of iron fixed with a rivet in the centre similar to scissors; one of the limbs was slightly hollowed, and the other fitted into it. The irons were put half-way into the fire, and when warm the manipulator took hold of the end of the curl by the irons, and turned the irons round, when of course the hair was wound round them. Skill in the use of these was required—to take hold of the tip of the curl, otherwise the end was left straight; to be expeditious in winding and unwinding, otherwise the curls would be too tight, and the irons would constantly require to be re-heated; and also to take care that the irons were not overheated, otherwise the hair was singed and broken. Curls made by these irons always look stiff, but the nature of some hair is that it will not curl under any other treatment, and at one period ringlets were indispensable.

Curls.—These, when long in form, are often termed ringlets; they are but seldom worn, except by small children in the shape of short curls. These are usually made by the aid of a tail-comb; this mode is not so stiff, and certainly not so injurious to the hair, as the use of curling-irons or twists of papers. Twenty or thirty years ago, when it was the fashion for girls to have showers of ringlets round the head, this system of screwing the hair tightly in paper was a nightly torture. Fair hair and white hair look well when curled, but for black hair other styles agree better with its usually heavy appearance.

Currant Wines.—Very good wine may be made from red, white, and black currants. The fruit may be used separately, and made into black, red, or white currant wine, or it may be mixed, and then made into "mixed fruit wine." The different processes in all fruit-wine manufacture are very much alike, and strongly resemble those used in making foreign wine. Black currants and all strong-flavoured fruits are better boiled before being made into wine. (See "Cassell's Dictionary of Cookery.")

Currants, British.—The currants known in England, and that are cultivated with us to so great an extent, are of the same species as the gooseberry, both fruits being very much alike in their alimentary properties. There are really only two varieties of the currant berry—the red and the black. White currants are merely



BRANCH AND FLOWERS OF THE WHITE CURRANT.

red ones changed in colour by means of cultivation; and in Russia there is a currant-tree with yellow berries, which is a variety of the black. They are easily reared, and without much trouble most families in England may, from a moderate-sized garden, be supplied with currants for their own use.

Currants, Foreign (Dried).—The dried currants we buy in shops are small grapes imported from the Levant, and are very much like the Corinth raisins; they are sometimes called Corinths. They come chiefly from Zante and Cephalonia.

Currants, Preparations of.—The uses to which currants are applied are numerous—indeed, so many and various are the different preparations that are made from them, that we should be sadly at a loss without them. When fresh they are used for tarts and puddings. They are made into all kinds of jams and jellies, as well as wines (*see* CURRANT WINES), syrups, liquors, &c. They may be bottled whole, so as to be fresh in winter; and in many other ways they may be converted into pleasant and wholesome dishes.

Currency.—By the term currency is understood the capacity a thing may have for passing current—*i.e.*, for passing from hand to hand at fixed value. When the currency of a nation is spoken of, that is meant which, being current throughout the country, serves as the means for negotiating sales or purchases. It will be seen, then, that currency need not necessarily be money, although it is so in the majority of cases; it may consist of promissory notes—valueless as far as the material of which they are manufactured—or, as is the case amongst uncivilised nations, it may take the form of shells, beads, &c. The two currencies, however, common to most civilised states are the metallic and the paper. The metallic currency consists of coins of gold, silver, and copper, generally stamped by the authority of the Government of the land in which issued. In our own country the gold currency is worth its full nominal value, but not so with the silver and copper. For this reason silver is not a legal tender for more than forty shillings. In Great Britain, too, the paper currency—that is to say, the promissory notes of the Bank of England (*see* BANK NOTES)—are always worth their nominal value; but this is not the case in many foreign countries, where the paper currency in some instances is not worth in gold more than 60 per cent. of its nominal amount. Currencies which are not bullion (*see* BULLION), and are not worth their nominal value in bullion, are known as "depreciated currencies."

Current Coins. (*See* MONEY.)

Currents of Air. (*See* DRAUGHTS.)

Curricle.—A sort of two-wheeled chaise drawn by a pair of horses which run abreast. The pole is inserted in the front cross-bar, and is provided with a metal cross-bar, which rests on the backs of the horses. The curricle was never a safe vehicle, and has fallen into disuse. It may be noted that sometimes it had a seat behind, though it was more common without one.

Curries.—This is a very favourite dish in Indian cookery—indeed, throughout the East, curries are highly thought of. Curries can be made from any kind of meat, fish, game, &c. Their peculiarity consists in their high flavour, which is varied in many ways. (See "Cassell's Dictionary of Cookery.")

Curry Powders.—When the real Indian curry powders cannot be obtained, these act as very good substitutes. When made they should be kept air-tight. (See "Cassell's Dictionary of Cookery.")

Curtain Rings, Hooks, &c. — When valances are used, small brass rings are attached to the curtains, such as will pass along a thin wooden rod. The rings should be stitched on with strong thread, and be placed at equal distances not very far apart, or the curtains will hang down between. Muslin curtains, when they are not intended to be drawn, have loops of tape attached; for rings have to be taken off when the curtains are washed, and these loops may remain. When poles are used, long hooks are sewn to the curtains; for the poles have rings, and on each ring is an eye, into which the hook is placed; each hook should be stitched to a plait in the curtain. This method is a quicker one than the first-named, for the curtains are much more readily taken down and put up than when the rod has to be moved and the rings slipped over it. On the other hand, the hooks are liable to slip out when the curtains are pulled to and fro.

Curtain Rods, Poles, &c.—The rods are made of iron or wood, and they are small when used for the purpose of supporting curtains placed under a valance. One end of the rod is fastened, and the other rests upon a projecting hook, and can be taken off at will. Poles are ornamental, and generally made of brass; they are used in lieu of valances. From the poles hang a series of rings, to which the curtains are attached. Cornices are also used. They are plain and broad, usually of wood painted white and gold, or gilt merely. They stand in the place of valances and poles, and, like the former, require rods underneath. For rooms where the windows are high, valances are the most agreeable, for they soften the light, and take away the staring appearance which such rooms have when poles only are across the tops of the windows. Bands are for confining the curtains; they have taken the place of cords and tassels. These bands are sometimes embroidered, sometimes worked with beads, and sometimes made of plain ribbon.

Curtains.—These should look handsome, and this desirable appearance is not to be gained entirely by rich material, but also by breadth and length of the curtains themselves. These are not now spread on the ground or looped up as high as formerly, but they should lie on the ground an inch or so, and they should fall in ample folds. This applies more particularly to curtains hung over windows; it is not so necessary to have bedstead curtains so full in folds, and certainly not so long in length. All curtains, unless of very thick material, such as woollen rep, look as well as hang much better when lined. For drawing-room windows silk rep is a suitable material; chintz, provided that it is good and has a handsome pattern on it, may also be chosen. Fine woollen cretonne is a third fabric which has a good appearance; and silk patchwork curtains, interspersed with broad stripes of black velvet, are handsome. Plain cloth and woollen reps suit the character of

a dining-room, which requires the material to be somewhat heavy, plain, and dark; for other rooms, glazed chintz and cretonne chintz, or some of the many fancy woollen materials which are now manufactured for the purpose. It is well to remember that those who often look upon striped materials soon grow weary of them. For summer curtains, embroidered net are light and pretty; and there are many artistic patterns to be found amongst muslin draperies. A lining of coloured tarlatan improves muslin curtains. Unbleached sheeting, having a border of dark cloth embroidered in crewels, makes exceedingly effective curtains. Netted or knitted curtains usually look untidy, because they never hang gracefully.

Curtesy of England.—A legal term signifying that estate which by the favour of the laws of England arises and is allowed to a husband for the term of his natural life in his wife's freehold estate after her death. To cause this estate to arise and take effect there must be (1) a legal marriage, (2) seisin of the wife, (3) issue born alive capable of inheriting the estate, (4) death of the wife in the husband's lifetime. When a surviving husband acquires this estate he is said to be "tenant by the curtesy of England." This right is left unaffected by the Married Woman's Property Acts, 1870 and 1874.

Curtilage (from *cour*, French for court, and *leagh*, Saxon for place).—A piece of ground lying close to a dwelling-place; a court-yard; the limit of the premises in which house-breaking can be committed. (See 24 & 25 Vict. c. 96, s. 53.)

Curtsey.—This act of woman's reverence is not so generally performed as it was in olden days, when it was the custom for women and girls of all classes to curtsey to their elders and to their superiors, and also when an introduction was made. The bend of the head in form of a bow has taken the place of the lowly bend, except when noticed by royalty, and then a deep curtsey is made. This movement should be made with grace; it is quite necessary for those who would be proficient in the art to practise it. The left foot is taken a step backwards, the right foot is taken to it, and the while a graceful bend of the body is made from the waist. Doubtless the word curtsey arose from courtesy, of which this was one of the forms.

Cushions.—These when used for reclining are very similar to pillows, being of the same luxurious nature and made for special comforts. They are usually square or round in shape, and are filled with feathers. A substitute for feathers is paper, which if shred finely, or cut in long strips and curled with a paper-knife, makes a comparatively soft stuffing. The round cushions are after the Turkish pattern. Toilette cushions should be prettily trimmed with muslin and lace. These are filled with bran, and compressed, in order that their form, whether round or square, may be perfect. Air-cushions are made of mackintosh, and have a small tube through which they can be inflated with air. They are of much value to invalids, being particularly soft and light, and capable of being transported without trouble.

Custard Apple.—This is a large round dark-brown fruit cultivated only in tropical countries. It is a native of America, though now it abounds in the East Indies; the finest known are those growing in the Eastern Archipelago. It belongs to the *Anona* species, a genus of trees of the natural order *Anonaceæ*. It is a very delicious fruit. In the West Indies it is often called bullock's heart, on account of its great size and its shape. Some other specimens of American *Anona* have the same name (custard apple), and also two or three which belong to Western Africa. To the same species belongs the alligator apple, which is very sweet and pleasant, but is highly narcotic in its effect, and consequently dangerous.

Custards.—These are a mixture of eggs, milk or cream, sugar, and flavouring. They may be made very rich, or plain as required. The flavouring constitutes the variety of them. Vanilla, lemon, laurel, and chocolate are all used, as well as many other flavours. They have long been known in France as English creams. It is needless to say custards are always eaten cold, and generally served in custard cups. A macaroon, soaked in wine and laid at the bottom of the cup, will be found an improvement.

Custom.—Habit; habitual practice; fashion. A law or right not written, which being established by long usage and the consent of our ancestors, has been and is daily practised. The requisites to make a particular custom good are—(1) it must have been used so long that the memory of man runs not to the contrary; (2) it must have been continued, and (3) peaceable; also (4) reasonable, and (5) certain, (6) compulsory, and not left to the option of every person whether he will use it or not; (7) consistent with other customs, for one custom cannot be set up in opposition to another. Customs are of several kinds, as among merchants appertaining to a particular district, as the customs of the City of London, customs of a particular manor, &c. If there be an invariable certain and general usage or custom of any particular trade or place, the law will imply that the intention of the parties to a contract having reference thereto was to follow such usage or custom.

Customary Freeholds, Customary Tenants.—A peculiar species of estate of the nature of copyhold chiefly prevailing in the north of England. The freehold and fee are both in the lord, but they are not held at his will as copyholds are. In general, however, their incidents are similar to those of common copyholds; thus the tenant cannot grant a lease without his lord's licence. Both copyholders and customary freeholders are termed in law "customary tenants."

Customs, Custom House.—Customs, in political economy, consist of the duties, toll, tribute, or tariff payable by Act of Parliament upon merchandise exported and imported, forming a branch of the perpetual taxes. The

considerations upon which this revenue (or the more ancient part of it which arose only from exports) was invested in the Sovereign were said to be two:—1. Because he gave the subject leave to depart from the kingdom, and to carry his goods along with him. 2. Because the king was bound of common right to maintain and keep up the ports and havens, and to protect the merchants from pirates. Some have imagined they are called with us customs because they were the inheritance of the Sovereign by immemorial usage and the common law, and not granted to him by any Statute; but Sir Edward Coke has clearly shown that the king's first claim to them was by grant of Parliament (3 Edw. I.), though the record thereof is not now extant. And, indeed, this is in express words confessed by Statute 25 Edw. I. c. 7, wherein the king promises to take no customs from merchants without the common consent of the realm—"saving to us and our heirs, the customs on wool, skins, and leather, formerly granted to us by the commonalty aforesaid."

By Customs we understand at present, says Blackstone, a duty or subsidy paid by the merchant at the quay upon all imported as well as exported commodities, by authority of Parliament, unless where for particular national reasons, certain rewards, bounties, or drawbacks are allowed for particular exports or imports.

The various custom duties were collected for the first time in a book of rates, published in the reign of Charles II. A new book of rates was published in the reign of George I. But exclusive of these duties, many more had been imposed at various periods, giving rise to great complications, to remedy which the Customs Consolidation Act (27 Geo. III. c. 13), introduced by Mr. Pitt in 1787, was passed. This Statute established one single duty on each article equivalent to the aggregate of the several duties by which it had previously been loaded. It also introduced a more simple and uniform system into the business of the Custom House. (See also the Supplementary Customs Consolidation Act, 1855, and the Customs Tariff Act, 1855.)

The Custom House is an office established in the maritime cities and port towns, for the receipt and management of the proper customs and duties of importation and exportation. The principal British Custom House is in London, and there are custom houses subordinate to it in all the considerable sea-ports.

Cut-glass. (*See* GLASS.)

Cut-work.—An old style of fancy work effected by cutting out of a piece of linen the details of a pattern in open-work. The edges of the holes left were sewn over or button-holed. This was once a very popular employment for ladies. Its modern representative is well known. A pattern is cut or punched out of a piece of cotton fabric or other material, and the work is finished as above, but with such additions as fancy may suggest.

Cutaneous Ailments.—These are certain affections of the skin, the most important of which will be found described under their respective headings. (*See* ACNE; NETTLE-RASH; SCALD; SHINGLES; &c.)

Cuticle, which is called also epidermis and scarf-skin, is the external covering of the *cutis vera*, or true skin, which it serves to protect. It is composed of layers or cells, which are being continually cast off and renewed, and which are thickest in the palms of the hands, and soles of the feet where friction and pressure are greatest. The cuticle is thrown off in large quantities after scarlatina and other fevers. It is also well seen after the application of a blister, which causes the cuticle to separate from the true skin with fluid between. This is what is meant by a blister rising.

Cutlery, Domestic.—By domestic cutlery we mean all kinds of cutting instruments, such as knives, forks, &c. These are finished now to great perfection, and no country yet has outstripped England with regard to cutlery in taste, cheapness, and excellence. In making the best table-knives it is necessary to use iron as well as steel. The shoulder and the long piece that fastens into the handle are made of iron; the blade is steel. There are three kinds of steel—cast, shear, and common steel. Cast steel being the best, can be very highly polished; consequently scissors, razors, penknives, &c., are made from it. Shear and cast steel are generally used for table-knives. Quite common knives are made from iron; they can be purchased for very little, the cheapness arising both from the use of the inferior material and also from the much greater ease in making them. In the manufacture of good table-knives, the steel and iron have to be welded together, the blade has to be ground to the proper shape, and after that it requires polishing and hardening. In the uniting of iron and steel together it is not only advantageous on account of economy—steel, of course, being much more costly than iron—but also, owing to the combination, the durability will be much greater. It is necessary that all articles needing any great pressure should be made of iron, excepting the actual edge. The making of forks is a distinct line of business, so much so, that many manufacturers of table-knives buy the forks finished, ready to place in the haft. In making forks they are roughly forged into the shape of the tang and shank, as though one thick prong was all that would be required. The dry grinding necessary in their construction is, however, very injurious to the health of the workmen, though its former ill-effects have now been to a great extent prevented by the invention of a revolving fan which is generally used in the workshops. The principal manufactories of cutlery are in London and Sheffield.

Cutlets. (*See* CHOPS.)

Cuts, Treatment of.—These should, when practicable, be first of all washed in warm or cold water, in order to remove any irritant matter which may have been introduced into the wound. Simple cuts require only the application of a little strip of adhesive plaster. If more severe, two or three more strips may be necessary, a little space being left between each for the escape of matter if this should

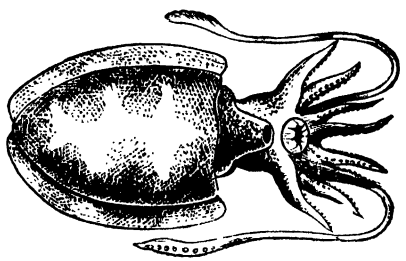
form. A pledget of lint should be placed over this, and a bandage applied. If the wound is severe and gapes, two or more stitches will be necessary, with the application of a pledget of lint wet with cold water, and a bandage as just described. Cuts about the face, especially the lips, generally require stitching, owing to these parts being constantly in motion. Stitches are not advisable in wounds of the scalp. When plaster, lint, bandages, &c., are not available, simply wet the cut as already directed, and protect it from the air by means of a handkerchief wet with cold water. The latter must be kept wet without removing it, until there is something better to take its place. For excessive bleeding, *see* BLEEDING, TO STOP.

Cutters for Pastry.—As it is well known that pastry is lighter and better for being handled as little as possible, everything that can assist in any way to ensure success should be obtained. Pastry-cutters are little articles well known to cooks, and are used for the purpose of cutting the edges and for ornamentation. Pies, tarts, &c., always look prettier where the cutters are used.

Cutting-out Garments.—Exactness is the chief requirement. If measurements are exceeded here and there, even if only by a quarter of an inch, this inexactness is sure to cause a defect in the shape, and most probably much extra trouble when fixing the parts together. Some few gifted people can cut out without patterns, but the majority require them to do the work properly. Linen and calicoes should be cut by a thread. It is always possible to draw out linen threads, but not always practicable to do so with cotton; then the eye must guide correctly. It is always better to cut than to tear materials, for that stretches the edges, especially when the rent is made across the width. If this expeditious way is adopted, the material should be turned down where held, and the hands often moved farther on.

Cuttings from Plants.—By this term is meant the propagation of plants by portions of the main stems or branches being cut off. Some cuttings, such as those of geraniums, strike readily in pots or open borders, and the method to be adopted is as follows:—Having selected the plant most rich in growth, and from which the cutting can best be spared, cut off with a sharp knife either the top or side shoots, with about six leaves on them. Remove all the leaves but four at the top, and cut smooth that part which is to be placed in the ground. Before doing so they should have time to form a slight crust over the cut part. When you have made your supply, dig up the ground in the border, and put some silver-sand and old manure, and then rake the surface over. The cuttings should be placed close together, and in six or seven weeks they will have good roots. They should then be placed either in small single pots, or six at least planted in a large one. A greenhouse next becomes their home, and with a little care during frosty weather, large numbers may be saved. Other cuttings, such as those of calceolarias, are taken off their stems and plunged close to each other in old and light soil or leaf-mould. When so done, a good watering should be given, and a close frame put over them; and no more attention will be required until the following spring. The great variety of cuttings embraces, however, too wide a field to be exhaustively dealt with in this work, and these general hints must therefore suffice. Different methods must of course be adopted, according to the nature of the different plants, but under all circumstances, if proper care be taken in the operation of removing the pieces from the stems or branches, cuttings will invariably be found to strike root. The best time for taking the majority of cuttings is the beginning of autumn, when the growth is free and the shoots are more abundant.

Cuttle-fish. — The common cuttle-fish whose shells are often thrown up on our coasts is well known. It is called by naturalists the *Sepia officinalis*, natural family *Sepiadæ*, a family of cephalopodous molluscs. The genera are defined as animals in the form of a sac or purse, with or without fins, with large head crowned with eight or ten arms, furnished



CUTTLE-FISH.

with hooks or suckers or both. The ink thrown out by the common cuttle-fish from a bag under its throat is ejected as a protection for the animal, which thus, in the presence of its enemy, surrounds itself with, as it were, a coat of darkness. The back of the cuttle-fish is protected by a strong calcareous shell. The animal also seems to possess the chameleon-like power of changing its colour at pleasure.

Cuttle-fish Bone, Uses of.—The bone of the cuttle-fish, that is, its shell, is ground down to mix with tooth-powder, being considered rather valuable as a dentifrice. The bone is also used as an ink-eraser. Powdered it is also used to polish silver and other metals, and at times the moulds for forming castings are made of it.

Cyanides.—The cyanides are compounds of cyanogen with various metals. Cyanogen itself, however, is a compound body, consisting of carbon and nitrogen, but it has the property of combining with the metals like one of the halogens, chlorine, bromine, iodine, or fluorine. Thus we have the cyanides of potassium and sodium; but they are of little practical use on account of their intensely poisonous character. There are, however, a number of double cyanides, the most important of which are the ferrocyanide and ferri-cyanide of potassium, and

the argento-cyanide and the auro-cyanide of potassium, solutions of which are used in electro-plating in silver and gold respectively.

Cyanosis.—This is a blueness of the skin generally resulting from congenital malformation of the heart, which permits the arterial and venous blood to become mixed. It may also result from imperfect oxygenation or purification of the blood, as well as from impediment to the flow of blood in the pulmonary artery. Persons born with this affection seldom live to adult age.

Cyclamen.—This is a very pretty and showy plant for the window or conservatory, but is rarely planted in the open garden, though its colour, being of a purple hue, makes a cheerful variety to the large proportion of red and yellow flower. It is rather difficult to propagate, as great care must be observed in dividing the roots, as they are of a solid form. Seeds can be procured when ripe, and should be sown in February in shallow pans, in a light sandy soil, very little mould being put over them. The pans of seeds do not require heat, but only shelter in a frame from cold. There are some sorts of cyclamen which require more care when the plants are ready for potting. This may be done in autumn in regular potting mould; and with tolerable care many will come to blossom in the spring, when a plentiful supply of water may be given. They can be grown in a warm, well-drained border, but as they bloom early in spring the frost is apt to injure them. If the roots are planted in the border in autumn, the place where they are put should be covered with spent tan or cocoa-fibre.

Cyder. (*See* CIDER.)

Cymophane.—The cymophane is the same as the cat's-eye, a variety of chrysoberyl. (*See* CAT'S-EYE; CHRYSOBERYL.)

Cyphering Books, or Ciphering Books. (*See* SCHOOL BOOKS.)

Cypress.—A genus of trees, several species of which grow well in this country, belonging to the natural order *Coniferæ*. The *Cupressus sempervirens*, or common upright cypress, is really a native of the warmer parts of Europe, but will grow in park or garden, imparting an air of gloomy grandeur thereto. In Southern Europe these trees used to be in ancient times, and are still, indeed, the chosen memorials of the departed, and may be seen in most of the burying-places of Greece and Turkey. It is not much of a favourite in England, however. Its timber is hard and of great durability. The *Cupressus lusitanica* grows much better in some of the southern parts of England. It is a tree of Indian origin, but grows to a great height in Portugal. But probably the most beautiful of all the cypress family is the *Cupressus horizontalis*, a very hardy, gracefully-spreading tree, loaded as a rule with large round cones. It is uncommon in this country.

Cyprus Wines.—These wines were valued in past ages much more than they now are, though it seems more than probable that they may yet be appreciated again in England as much as ever. They are sound, good, firm bottled wines. All the valuable kinds are white, the red being used only as Vin du Pays. Dr. Henderson tells us that throughout nearly the whole of Greece the soil is highly favourable to the vine. In these islands, where the best wine has been produced, the soil is mostly calcareous, similar to that on the Continent in the mountainous regions. The quality of the wines is greatly affected by the changes in the climate. In the island of Cyprus a range of mountains—the Stuoro Vuno and Santa Croce, the ancient Olympus—runs through the length of it; consequently the elevated ground has the effect of varying to a great degree the quality of the wine. Cyprus wine should not be kept in a cold place; and before drinking it is improved by being placed before the fire.

Cyprus Wines, Imitated.—Nearly all good wine is imitated, and as, of course, it is not within the means of every one to keep the best wine, these imitations act very well as substitutes. The process in making them is very similar to that used in the manufacture of foreign wines, and when well and carefully made, they may easily pass for something better. Indeed, there have been cases known when judges of wine have mistaken the imitation for the genuine article. White elderberries are the fruit used to imitate Cyprus, with the addition of sugar, cloves, and ginger. When racked, minced raisins and brandy are added. Care must be taken that the fruit is gathered in fine weather, and that it is perfectly ripe. If unripe, the wine will be inferior, and also more expensive, as more spirit and sugar will have to be used. Those who thoroughly understand wine-making are most particular to have good, sound, ripe fruit, because they know that otherwise it is impossible to secure the proper flavour.

Cyst.—This is a membrane sac containing solid, fluid, or semi-fluid matter. The most familiar example of a cyst is a wen, the unsightly protuberance so often seen on the head. Cysts are removable by an operation, but the sac must be taken away as well as the contained matter, else it will grow again.

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Dab.—The dab, or *Platessa limanda*, belongs to the natural family *Pleuronectidæ*, and is a very common small-sized flat fish, plentiful about our coasts and in the London markets. Its average size is from seven to ten inches long, and from five to eight broad; brownish on the body above, and a dirty white below. It is allied to the plaice and the flounder, and is in season for six or seven months, beginning with February. Dabs are sweetest and best if simply dried and toasted before the fire.

Dacca Silk.—From Dacca, which is an important city in the Bengal territory, very beautiful silken goods are exported. The silk is extremely fine and soft; the fabric into

which it is woven may be easily distinguished, by these characteristics, from the silks manufactured in European countries. But owing to its peculiar softness and absence of gloss, this material does not find much favour for dresses in this country. The silk is also used for needlework; it takes a place between purse-silk and filoselle. It is not so hardly twisted as the former, and softer than the latter, and yet its filaments are not so loosely assorted as those of floss silk.

Dace. — The *Cyprinus leusiscus*, or dace, belongs to the natural family *Cyprinidæ*. It is the *Leusiscus vulgaris* of Cuvier. It is a small fish, with bright silvery scales, and very active. It has a small head, with pointed snout, tail slightly forked, and back somewhat arched. Dace frequent the pools of clear streams, where in quiet spots they may be seen swimming in shoals. Their food consists of worms and various small animals. Dace afford the angler many a good day's sport, for they will rise freely to almost any kind of fly, natural or artificial; and if bottom fishing be preferred, dace will swallow paste, gentles, or wasp or caddis bait. They spawn in the latter end of March, and are best fished for in May and June; but as food they are in the greatest perfection in July, August, and September.

Dactylology.—This word has two meanings. 1. The art of talking or making intelligible signs with the fingers, in which sense it commonly denotes the principles of the Deaf and Dumb Alphabet (*which see*). 2. The study or knowledge of the history and peculiarities of finger-rings.

Dado.—In classic architecture, the pedestal or solid block between the base-mouldings and cornice is called the dado; and where a similar arrangement of panels and mouldings run round the walls of a room like a series of dado, united by a narrow cornice above and a plinth or base-moulding, this bears the same name. In this case its usual height is about four feet.

Daffodil.— This flower is a bulbous root,



DAFFODIL.

and allied to the *Narcissus* tribe, which propagates itself by off-sets, though it can also be raised from seed. It is a very common flower, but its early blossoming and colour make it always welcome in the garden. It looks well in the shady parts of small shrubberies or borders, and if planted in tolerably large numbers makes a great show. It is frequently grown also in pots for the conservatory or greenhouse. The soil for daffodils should be rich sandy loam, with a little leaf-mould intermixed. Should it be required to force any for early flowering, they should be moved out of the ground as soon as the leaves begin to decay, and be kept in a dry place until potting-time arrives.

Daffy's Elixir.—This is a purgative in some request by hard drinkers and others. It is composed chiefly of senna, jalap, aniseed, caraway-seed, liquorice, proof spirit, and sugar, raisins, or treacle. There are, however, many formulas for preparing it, one of which is given below. The dose for an adult is from one to four table-spoonfuls. It is almost identical in its composition with the compound tincture of senna of the Pharmacopœia. Formula (Dicey's, according to Gray): senna, five ounces; guiacum shavings, red sandal, dried elecampane root, seed of anise, coriander, and caraway, and root of liquorice, of each two ounces and a half; stoned raisins, eight ounces; and proof spirit, six pounds. Avoirdupois weight is meant.

Daguerreotype.— So named after Daguerre, the inventor. An early mode of taking photographic pictures, but now little used. The image of the object was thrown upon a plate of metal by means of a camera obscura, the surface of the plate consisting of iodide of silver, which is sensitive to light, and the picture was subsequently developed by exposing it to the vapour of mercury. The deadly, metallic appearance of the portraits was highly objectionable; and they had also the disadvantage of being visible only in favourable positions, on account of the light falling upon them being reflected from the metallic surface.

Dahlias.—There is such a great variety of this flower that no one particular sort need be described, as they all require the same treatment to produce good flowers. It is a tuberous root, and is propagated chiefly by division. To propagate the dahlia, the large mass of root should be plunged into a sandy loam, and soon after a number of eyes, or young shoots, will show themselves, all of which should be carefully separated, care being taken when dividing to take a portion of the old tube root, with one or two young shoots on it. Having done this, place the portions cut off in pots, with a light sandy soil, and put into a moderately-heated hot-bed or warm greenhouse. When the young shoots are about eight inches high, they may be put into the places where they are intended to remain, and either adorn a shrubbery, border, or beds. It is well to observe the different colours, and also height, as the former will, by judgment, form a great beauty in a bed, while the latter is most necessary, as a tall one put in front of a dwarf species would hide the latter and render it useless. There are many insects which are great enemies to this flower, such as the slug and earwig; the former attacks it in

its early growth, the latter when more matured. Lime-water from a syringe will cleanse the plants; and when they are of any height, or in flower, a small pot with moss or hay in it, and put on to the top of a stick firmly stuck in the pot or ground, will induce the earwigs, &c., to go into it. Each morning the latter should be removed, and the pot carefully examined.

Daily Duties. — A particular round of duties devolves upon each member of a household every day, and the object of this note is chiefly to call attention to the fact and the importance of it. It would require considerable space to define and enumerate the duties which are regularly incumbent upon the family circle and its domestics. The duties we owe to ourselves and to one another are pretty well known, and the regular and systematic discharge of them conduces greatly to the harmony and happiness, the order, and general well-being of a house. Words, tempers, and actions should alike be under law, and where every one strives to perform his or her allotted and appropriate tasks in the best and most orderly manner, there will be sunshine in the house. Daily duties should be done cheerfully, punctually, and thoroughly, or evil consequences will ensue. The slothful and dilatory, the impulsive and irregular, or imperfect discharge of daily duties should be avoided by all as fatal to peace and happiness.

Dairy, and Utensils for.—A dairy is a building made for the shelter and rearing of cows, and for making milk, butter, and cheese. A well-managed dairy can be made very profitable; a carelessly or ignorantly managed dairy may entail heavy loss. The size of the dairy depends entirely on the number of cows to be accommodated; it should be built in a shady place, with a northerly or easterly aspect, and in a pure atmosphere where no bad smell can reach it. In addition to the windows it is advisable to have two or three air-bricks inserted at the north side of the milk-room, about a foot from the ground, and the same number in the opposite wall, a foot from the top. By this means a current of cool air will be admitted through the low bricks, and the warm air will ascend and pass out at the top. A dairy usually consists of two or three rooms—one for the cheese, one for the wash-house, and the dairy or milk-room. The wash-house and dairy are on the ground floor, and the cheese-room is placed over the two. Wide shelves are placed round the milk-room, about thirty inches from the ground, to hold the number of cans required, as well as shelves for small articles. A great many utensils are necessary for a dairy in full working order. Formerly they were made mostly of wood, now they are nearly all made of tin. The *milk-tins* which hold the milk are both large and small, as larger ones are generally required in summer than in winter. A good-sized tin is six feet long by three broad, and five inches deep. It is a good plan to have a division made in the large tins. The *curd-breaker*, used to grind the curd, is an instrument about a foot square, being a framework of tin cutters with an inch mesh, the handle four feet long. The *churns* most commonly used now are the barrel churns; these are worked by one or two handles, according to the size. Then there are the *vats* of all sizes, which are usually made of elm, *the cheese-press, the milk-warmer, bowls, strainers, coolers, girth butter-boards, markers, cloths, brushes*, and various other pots and pans. It is very necessary that every article should be kept perfectly clean. All utensils that have held milk or butter should be scalded, scrubbed, and rinsed with cold water before being used a second time.

Dairymaid.—It is the dairymaid's duty to keep the dairy clean and in order. The shelves must be scrubbed regularly every day, a brush being kept especially for the purpose; the windows must be kept clean, and the walls whitewashed; the floor too must be free from any dirt, and spilt milk should be at once wiped away. Nowhere is cleanliness so necessary as in a dairy. The various utensils, pots, pans, &c., when not in use, should be placed where the air will have free access to them, as this will keep them sweet. Everything should be cleansed immediately after being used. The cloths used for wiping the pails must be washed daily and hung to dry, as unless kept scrupulously clean, they will spoil the butter. Soap should be used in the dairy as sparingly as possible, as it is apt to flavour the milk. Fuller's earth or wood ashes cleanse quite as well, and leave no taste in the dishes. For scrubbing purposes, a small tightly-girded bunch of mountain heath, where such can be had, is best adapted, and failing it, a wisp of strong straw. These should be changed frequently; indeed, the comparatively short period of their duration is a guarantee for that.

Daïs.—In the older houses of the nobility and gentry, the heads of families sat at tables arranged crosswise at the head of longer tables, and in chairs of state beneath canopies, the other tables being occupied by inferiors and servitors, placed according to their degrees. Each of these chief tables was ranged across the hall at its top end, the others being placed along the length of the hall, and it was also elevated above the others by what was called the *daïs*. The same term was applied to the canopy above the chair of state, and afterwards to that above the altar or throne; and in a monastery the chief upper table itself used to be called the daïs.

Daisy.—This flower has of late years attracted some attention from the size and pleasing character of its blossoms, and also from its utility in gardens. There are many double varieties of this flower, and from its hardy character it gives but little trouble when once planted, only requiring occasional dividing of the roots. Some are white, some crimson, and others speckled; a very pretty variety is called the "hen and chickens," from a number of small daisies surrounding the parent flower. They will flourish well in any moist situation, and look well planted in front of a border where there is no box edging, or round a bed of yellow or blue flower as a contrast. They will

keep double better by occasionally dividing the roots. Any little piece will grow.



DAISY.

Daisy, Michaelmas.—This plant is of a very hardy tribe, and when once planted lasts for years, increasing in size every year, so as to necessitate its division occasionally, and by this means it is propagated. It has a very useful and pretty appearance in shrubberies and as a background to borders, standing out well from the dark foliage by its white flowers, which form large masses rising about two feet from the ground. The flowers are small, similar to the common daisy, but their size is compensated for by the number or clusters. Its colour is white.

Dalby's Carminative.—There are two formulas for making this preparation. 1. Carbonate of magnesia, one ounce; syrup of poppies, five ounces; tincture of wood soot, one ounce; oil of caraway, twenty-five drops; oil of peppermint, sixteen drops; water and spirit of wine, each half an ounce. Mix. 2. Carbonate of magnesia, two scruples; oil of peppermint, one drop; oil of nutmeg, two drops; oil of aniseed, three drops; tincture of castor, thirty drops; tincture of assafœtida, fifteen drops; tincture of opium, five drops; spirit of pennyroyal, fifteen drops; compound tincture of cardamom, thirty drops; peppermint-water, two ounces. Mix.

Dalmatic (*Tunica Dalmatica*, from Dalmatia).—A tunic reaching down as far as the knees, with open sleeves, long and wide, and ornamented with two purple stripes — the *Angusticlavius* of the Roman knights. The dalmatic was the characteristic vestment of the deacons from the earliest times of the Church. The most ancient form of this garment was the *Colobium*, the sleeves of which were very short. The dalmatic being handsomer and more important-looking than the *colobium*, it was conceded to the deacons as soon as the chasuble was adopted by the priests. It is common upon all royal figures and effigies as late as the time of our Edward IV., and formed till then a peculiar feature in regal and imperial costumes.

Daltonism. — This is an incapacity for distinguishing one colour from another. It has received its name from a Mr. Dalton, a gentleman who suffered from this affection. (*See* COLOUR-BLINDNESS.)

Damages.—A pecuniary compensation recoverable by action for breach of contract or for tort. Damages are either liquidated or unliquidated: liquidated where the amount to be recovered is fixed and certain, as in an action for debt; unliquidated where the amount to be recovered is uncertain, as where an action is brought for an assault. In an action for liquidated damages, judgment by default is final; but for unliquidated damages, it is interlocutory only, and the amount of damages has to be assessed either on a writ of inquiry, or before a master of the Court, or in any other way in which a question arising in an action may be tried, as a Court or judge may direct.

Damascened Work, or Damasked Work.—This is an ancient art which was originally practised at Damascus, in which place workmanship in steel was brought to great perfection. Amongst various articles, sword-blades wrought in Damascus were highly prized; these were often ornamented by the addition of gold and silver. Lines were cut in the steel to form different figures and patterns, and in these gold or silver wire was inserted. This mode of ornamentation is adopted to enrich fenders, fire-irons, the locks of pistols, and other articles made of steel.

Damask Rose. (*See* ROSES.)

Damask Stitch.—This resembles satin-stitch, and is principally worked when marking table-linen; flourishing thread is used for the work. This style of marking and of thread is much better suited for the purpose than marking-ink or cotton, for as it agrees in character and material, it serves to enhance rather than to detract from the appearance of the napery.

Damasked Work. (*See* DAMASCENED WORK.)

Damasks.—These are made of silk, wool, and flax. The peculiar method by which the flowers or figures are wrought in the fabric was invented at Damascus, and thus the name they bear has arisen. The art of weaving silk damask was introduced into this country by the Flemings during the sixteenth century. The fabric was costly, owing to the large quantity of silk required, and it was used for dresses which were worn by ladies of rank on state occasions. This class of damask is now seldom made. Woollen damask is a serviceable material, used principally for window curtains and bed-furniture. Linen damask is manufactured chiefly in Ireland, at Belfast and Lisburne. Until within the last hundred years it was brought to England from Germany. The weaving of damask goods is accomplished by means of cards perforated to suit the pattern, together with cords and wires; the arrangement of the pattern and

cards requires considerable skill. It is only on the plain ground of the material that the weft lies alternate with the warp-yarn, and owing to this placement in one part only, the pattern shows when the eye glances along the cloth. Double damask is much superior to single damask in appearance, as well as in wear.

Dame.—This term, which originally meant the mistress of a house, or lady, is now seldom used in conversation, except as applied to aged married women of a humble rank. Schools kept by poor women are often called dame-schools (*which see*). The word is, however, still employed in formal documents as a title of honour, to denote the widows of baronets, knights, &c.

Dame-schools.—In olden times the children of the poorer classes throughout the country districts depended for their elementary education almost entirely on the village dame-schools. These were generally kept by those old women of the place who had no other means of livelihood, and it by no means followed that the dame was possessed of any of the requisite knowledge or capacity qualifying her for the position. Nevertheless, many of the great men of past generations acquired their knowledge of the three R's at the village school, and the records of some such dame-schools are replete with biographical interest. The tide of education has now, however, rolled through the length and breadth of the land, and School Boards and Education Acts have caused dame-schools to be numbered among the things of the past.

Damp Beds.—These are liable to cause serious illnesses to persons who have the misfortune to occupy them; cases of rheumatic fever and severe colds, which give rise to graver disorders, may be traced to damp beds; it is therefore of great importance that beds should be kept thoroughly dry. In winter, beds or upper mattresses belonging to unoccupied rooms should be placed underneath beds which are in constant use, or, if this is not practicable, they must be well aired on both sides before a fire, or put for a night in a warm room in which there has been a fire. In summer-time the sun and fresh air will keep beds dry if they are exposed to both. For method of ascertaining whether a bed is damp, *see* the article BEDS, DAMP, TO DETECT.

Damp Cellars.—A cellar to be good should always be vaulted, and should be situated to the north, as the temperature is much less variable there than in any other position. It should be deep, and the temperature kept as equable as possible. It should be slightly damp, but never in excess. The light should be moderate; total darkness is very injurious, as it contributes to decay. The cellar should be as much as possible in such a situation as not to be affected by street traffic, for if the cellar be used for keeping wine, the shocks occasioned by passing vehicles are likely to turn the wine. When a cellar is very damp, openings should be made to let in the air, and all casks should be placed on stands, great care being taken that the parts underneath them are constantly swept. In no part of the house is cleanliness so positive a necessity as in the cellar, as no impurity can be allowed to remain there without causing an offensive effluvia, and endangering the health of all the inmates of the house.

Damp Clothes.—These are dangerous to health, therefore all garments, whether under or outer, should be thoroughly dry before being worn. If it happens that they become wet while worn, the wearer should discard them as quickly as possible, and until they can be changed, bodily exercise should be taken, to ward off ill effects. These will not arise (unless the person is very delicate) if the body and limbs are kept in motion; but if the wearer remains still, or dries the clothes while wearing them, colds, rheumatism, and other evils will most probably follow. Wet clothes should be dried slowly, and never be put before a hot fire, for when in this state, cloth and other materials are liable to cockle and shrink; boots and shoes contract, become stiff, and are quite spoilt and useless if quickly dried.

Damp Floors.—Some of the remarks made about damp rooms and walls will apply to damp floors. The dampness must arise from neglect or ignorance when the house was built. In London, and elsewhere, houses are often built on unhealthy sites—the ground being valuable. The great point taken into consideration by the builders is to find space for a certain number of rooms. Consequently we find houses built in places that only a few years before were mere swamps, without drainage at all; no wonder, then, that the floors of such houses are damp. An elevated site should be selected before building. The soil, too, must be thought about. A clayey soil is almost sure to create damp, as clay is impervious to moisture; it will not even absorb the rain that falls upon it. Good gravel or sand is the most healthy foundation; the gravel, allowing a free passage of water, provides a natural system of drainage, and this is much more valuable than any artificial one. In new houses, damp is often seen both on the floors and walls, and this arises from the fact that the moisture of the brickwork and plastering has only partially evaporated. To remove this, good fires should be kept up, and the house should be well ventilated. If, however, damp is manifest in a house that has not been newly built, it is a sign that there is something wrong in the structure, and advice on the subject should be at once taken from a competent surveyor or architect. If the fault be a radical one in the building itself, it is very doubtful whether it can be effectually remedied, and removal, though troublesome, is the best step that can be taken.

Damp in Greenhouses.—Damp is a source of great anxiety to most gardeners and those who are desirous to save their young cuttings and plants during the winter, as there are more lost from it than from cold or frost. There are ways of keeping it off by careful watching, or at least reducing the malady, for it is one which will spread rapidly from plant to plant, and soon cause a great gap among the plants. It is advisable every day, or as often

as possible, to carefully examine the young plants, &c., and as soon as the damp or mould shows itself upon leaf or stem, to remove the part so attacked at once from the pot before it communicates to its neighbour. When it is possible to do so, it is desirable to increase the heat of the greenhouse up to 70° or 80° for some hours, and thus dry up what moisture hangs about the house or plants. One thing should be observed—not to give much water during either damp or frosty weather; and all decayed or mouldy leaves which fall should be speedily removed. When a branch or stem is diseased at the top, it must be cut off to the healthy part, or it will run down to the roots and perhaps kill the plant. In damp weather all windows of the greenhouse should be kept closed.

Damp Linen.—Linen of every description should be thoroughly dry before being taken into use, for being worn next the person, it is very liable to do harm if damp; it is therefore advisable to air all linen, particularly bed-linen, when sent back from the laundry, even although it should feel dry. The articles should be hung on a horse, and left all night in a warm room. Table-linen presents a much better appearance when thoroughly dry before brought into use, for otherwise it becomes crumpled and creased, however carefully spread.

Damp Rooms.—Damp rooms should not on any consideration be inhabited. If it be impossible to remove the damp, the house should without hesitation be abandoned, as nothing is more certain to cause ill health. Any one with a tendency to rheumatism will soon begin to suffer in a damp house. Sometimes dampness is caused by the water-spouts being out of order; birds have been known to build in water-spouts, and the rubbish they have collected has hindered the passage of the water. If, in the first instance, a house be well built, and care be exercised afterwards, no trouble will arise from dampness, exclusive, of course, of accident, caused by frost, &c.

Damp Walls.—No one with any regard to health will be content to stay long in a house with damp walls. When ordinary care fails to prevent the damp from appearing, the following suggestions may be followed with advantage:—Remove the whole of the damp plaster down to the surface of brick or stone walls, rake out the joints, clean and well wet the surface, lay on a coat of good Portland cement mixed with one-sixth sand; be careful to cover every part of the brick or stone; broom or otherwise roughen the surface of the cement while soft; let this stand a few days to get a hard skin on it, then re-plaster in the usual way. It is not well to finish the inside surface with Portland cement, as condensation will take place on the surface in damp weather. If speed in execution be desired, the surface may be finished with plaster of Paris, Keene's Parian or Martin's cement, with the usual proportion of sand. Over paint, a wash of boiling oil is good for keeping out damp.

Damp Weather.—This is productive of many diseases and disorders, as rheumatism, bronchitis, catarrh, &c. It has also a tendency, especially if warm at the same time, to develop the germs of fever; hence the so-called zymotic diseases are unusually prevalent in damp weather. Persons sensitive to affections of the chest, rheumatism, &c., must be very careful in such weather to keep the body, especially the feet, dry and warm. Woollen socks and underclothing should be worn constantly, and the boots should have thick soles, impervious to wet. Damp weather in large cities has one advantage, viz., it washes the streets and sewers, and in this way conduces to the public health. It may be remarked under this head, that very few people will suffer any bad results from being wet if they only take the precaution of walking briskly until they can change their clothes. The danger consists in either standing about, thus allowing the body to become chilled, or in drying before a fire, which, by evaporation, draws away an immense amount of heat from the body, thus probably engendering a cold.

Damper.—1. *In flues.* A movable iron plate sliding in grooves, by which the size of the flue can be reduced to any extent desired, so as to diminish the draught of air when a slower fire is wanted. Dampers are principally required in furnaces and close stoves, in which the draught is usually much stronger than where open fireplaces are used. 2. *In pianos.* Pieces of wood covered with a soft material, which, being connected with the keys, are raised when the notes are struck, and fall again upon the vibrating strings as soon as the fingers are removed, thus stopping the sound.

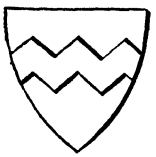
Damping Brushes are brushes used in connection with copying presses for damping the paper preparatory to its taking the impression of the letter to be copied. They are generally made of camel's hair, and are from three to four inches wide; but a more modern invention of this kind is a flat piece of india-rubber, tapering from about three-eighths of an inch in thickness at the base to about the sixteenth part of an inch at the point, enclosed in two pieces of cloth, which is an excellent substitute for camel's hair for damping purposes, and far more durable.

Damson Wine. (*See next paragraph.*)

Damsons, Uses of.—The damson is a favourite kind of plum much used in cookery. The name is an abbreviation of *damascene*, from Damascus. In Syria and Tartary the damson-tree grows wild, and it is found in abundance in many parts of England. The tree grows to a great height, and has a very full, bushy appearance. It yields a great quantity of fruit, which vary in colour, some of the plums being dark purple, others yellow, blue, and black. A very good, simple, wholesome wine is made from damsons; and a great deal of that known as British port consists of damson wine mixed with more or less brandy and other ingredients. Very good jam and jelly are made from damsons. Damson cheese, too, is a very good confection, usually served for dessert; when well made it will keep a long time. For these preparations, see "Cassell's Dictionary of Cookery."

Dances (Various).— Those which are usually danced in the present day are the Cotillon, the Country Dances (which may be said to include Sir Roger de Coverley, Reels, and such-like merry movements), the Galop, Lancers, Mazurka, Minuet, Polka, Quadrilles of various kinds, Valse, and Varsovienne. Many of these are referred to in this work under their respective headings.

Dancette (Heraldry).—When more than one metal or colour is required on the escutcheon, single lines are needed to divide the field. When the partition line is not straight or even, its peculiarity is specified in various recognised forms. There are eight of these crooked lines; one of them is termed dancette. This is an indented line which is limited to three indentations.



DANCETTE.

Dancing.—It is scarcely necessary to say that the practice of making certain movements with the feet corresponding to the time of music is a universal one, and one of olden date. The movements themselves vary considerably; each country has its own peculiar dances. The people who live in cold regions usually adopt quick and brisk dances, while those who inhabit warmer climes dance in a slow and stately manner. In the list of dances danced in England a variety will be found, which have been adopted from different countries, some of which require slow and some quick movements. The mode of dancing in England has undergone a great change during this century, brisk and jaunty steps having given place to those which exhibit more grace in their motions. With regard to the etiquette now observed, the rules are that a gentleman may not ask a lady to dance unless he has been previously introduced; that he may not put his name on her card, or ask her for more than one dance at a time, or dance with her for two successive dances, unless he is very well acquainted with her. It is considered an act of rudeness if the gentleman fails to come for his partner at the proper time; also if the lady ignores the engagement, by promising that dance to another. When the dance is over, the gentleman should offer refreshment to his partner, and before leaving her should conduct her back to her chaperon.

Dandelion Tea.—A familiar name for the decoction of dandelion, which is made by putting eight ounces of the fresh bruised roots into three pints of water, and boiling the mixture down to two pints. When strained it is mixed with about six drachms of cream of tartar, and taken in doses of a wine-glassful two or three times a day for obstructions of the liver. The simple infusion of the sliced root in boiling water is more properly called a tea, and is used as a tonic and stomachic.

Dandelion, Uses of.—Dandelion, called in medicine *Taraxacum*, natural order *Compositæ*, is the well-known yellow flowering plant common to the meadows, pastures, and waste places of this country. The fresh root only is used, the milky juice of which contains a bitter extractive called taraxicine, or dandelion bitter, caoutchouc, albumen, wax, sugar, &c. It should be gathered in the autumn. Dandelion has long been a popular remedy in various diseases, especially those of a dropsical



DANDELION.

character. Its efficacy is, however, very much doubted by those who have used it largely, and it is now generally employed as an adjunct to other medicines only, in certain cases of indigestion, characterised by torpidity of the liver and deficiency of bile. The preparations of dandelion are:—1. Decoction, the dose of which is from two to four ounces. It is made by boiling for ten minutes an ounce of dandelion root, sliced and dried, in a pint of distilled water, then straining, and adding as much water as will make a full pint. 2. Extract, dose from five to thirty grains. 3. Juice, dose from one to two tea-spoonfuls.

Dandriff, or Dandruff.—This is an obstinate non-contagious affection of the cuticle of the scalp, characterised by the desquamation, or throwing off of quantities of minute scales or scurf. It is attended with considerable itching, and is common to both young and old. The treatment consists in keeping the head perfectly clean, by the daily use of the tepid bath; by applying twice a day a weak head lotion, as Goulard water, or a solution of borax in rose-water (thirty grains of the borax to half a pint of water); and by taking a course of alterative medicine, as, for example, one or two grains of grey powder, or five grains of compound rhubarb pill, for an adult, every night for a week. Very obstinate cases require sulphurous baths, change of air, and the daily use of a lotion, containing ten grains of bichloride of mercury (corrosive sublimate) in half a pint of spirits of wine. Dandriff is called in medicine *Pityriasis*, not *Pityriasis versicolor*, which is a distinct disease of parasitic origin.

Dantzic Spruce. (*See* SPRUCE.)

Daphne.—A genus of plants of the natural order *Thymelaceæ*, many of which are both beautiful and fragrant, some of them being used in medicine and others in the arts. The *Daphne mezereum*, the well-known mezereon of our gardens, with its sweet-scented white or purple flowers and bright red berries, is a common specimen. It should be remembered that the berries of this plant are highly poisonous, while the juice of it is so acrid as to blister the skin. It is said, on good authority, that the very odour of the mezereon, if the plant be kept in a close room, is apt to induce headache and fainting. The evergreen called the spurge-laurel, which grows wild in our woods and hedges, and flourishes well in gardens under trees, is extremely ornamental, but its dark purple berries are very dangerous where children are about. There are many other beautiful plants of this order. From the *Daphne cannabina* they say that, in China, very good paper is prepared; and there is one species of daphne, a native of Jamaica, the inner bark of which, by macerating it in water, dividing it into layers, and pulling the fibres partially asunder, may be made to imitate lace work. It is consequently called the lace-bark tree.

Darjeeling Tea.—Darjeeling is the name of a district in the Sikkim Himalaya, and of a sanitary station within its boundaries. This territory came under the dominion of the British Government in the year 1835. The climate is exceedingly salubrious and favourable to the cultivation of rare plants; and of late years tea has been successfully grown there, and increased to such an extent, that whereas in 1862 the tea-plantations covered 8,762 acres, in 1872 they covered 52,000 acres, and 7,300 labourers were employed upon them. The tea is named after the district where it is grown.

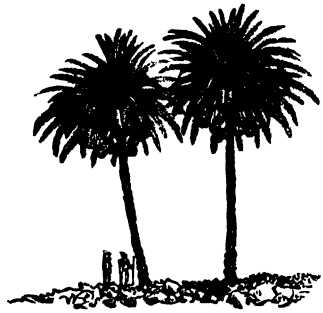
Darn, Darning.—The word darn is supposed to come from the Anglo-Saxon *dyrnan*, to hide. The object of mending materials by darning is to conceal as much as possible that they have needed repair. In order to accomplish this the edges of the fabric have to be drawn together evenly, and kept in this position. The same kind of threads should be used as those of which it has been woven. Thus if cotton is darned with cotton, worsted with worsted, merino with merino, linen with linen, &c., the darn will show less and last longer. The mending material should be soft and not tightly twisted, and the darning needles should never be very thick. Only clever needlewomen can darn neatly, for the task is a difficult one. Thick materials are more easily darned than thin, and rents are less difficult to repair than holes. The needle should be taken under and over the threads alternately, and its course should always be straight. A loop of the mending material should be left when turning backwards and forwards. This is more especially needful in stocking-mending, as the cotton shrinks and tightens its hold on the material. Some persons put a penny-piece under the hole, which keeps it in shape until the darn is finished. Darns when properly executed are rather ornamental than disfiguring, but few people exercise their patience sufficiently to darn well in these days of hurry.

Darned Netting, a sort of lace work of ancient origin, and revived in our day in the form of Guipure d'art (*which see*). The work was executed on drawn, knotted, or twisted net, and for the pattern, silk, flax, &c., were used, sometimes in combination with gold or silver. The flat pattern was done in real darning and not in cross-stitch.

Darnel.—This is a species of the genus *Lolium*, called by botanists the *Lolium temulentum*, and belongs to the natural order of Grasses. It is common enough all over England, and is found in most other parts of the globe. It is believed to be the only species of grass that contains poisonous or deleterious properties. The grains of it produce a species of intoxication. Christison tells us, that if darnel gets mixed up by accident with flour, and made into bread, those who partake thereof suffer from giddiness, sleepiness, and delirious intoxication, which may end in paralysis, or even death itself. The common rye-grass and the Italian rye-grass also belong to the genus *Lolium*.

Date.—That part of a deed, writing, or letter which indicates the day of the month and year wherein it was executed or written. Dates were first inserted in deeds in the reigns of Edward II. and III. A deed is valid, although no date be mentioned, or if it has a wrong or impossible date, provided the real day of its delivery can be shown.

Dates.—The date-palm is a native of Africa and parts of Asia, though it is now cultivated



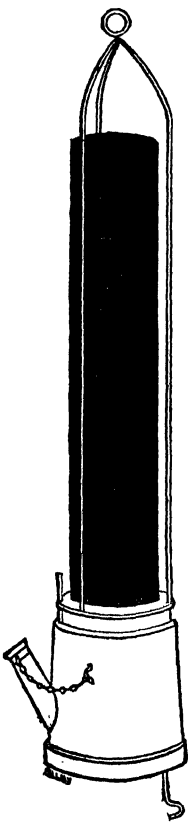
DATE-PALMS.

extensively in the south of Europe; it is known in Scripture as the palm tree. There are two or three species of this plant, some of which are valued more for their wood than for the fruit. The fruit of the common date-palm is, however, very luscious, and is generally used for dessert. From the Virginian date-palm, a native of North America, a kind of beer, or cider, and an ardent spirit are made. The Arab's chief food consists of dates, both fresh and dried. Date-cakes, made of dates pressed together, are used by the Africans as food in their journeys through the desert, and are called the bread of the desert. The date, owing to its sweet, gummy nature, contains a large amount of nourishment.

Datum.—This word is derived from the Latin, and means literally "a thing given." In geometry, *data* are the quantities or conditions allowed without proof, or assumed to be known in any geometrical problem. In ordinary parlance the word data is used to denote the known facts, &c., on which an opinion is formed.

Datura. (*See* THORN APPLE.)

Davenport, or Devonport.—A table-writing-desk, taking its name from the inventor. This table, formed as a desk at the top, contains a set of drawers in the lower portion, the whole article, desk and drawers combined, being of a uniform width and depth. The front portion underneath the desk is left open to accommodate the writer sitting before it, and is supported by a pillar on either side, while the other half of the table contains the drawers, which are opened from the right-hand side. Sometimes the front is sustained by brackets instead of pillars. There is either a leather-covered sloping desk for writing upon outside, which on being raised uncovers a receptacle for papers, or else a mere lid of wood over a leather-covered flat desk, which can be pulled out for writing upon, and having likewise a lid covering the receptacle for papers. On either side spaces are prepared for ink-bottles, pens, &c. There are two drawers at the back of the desk inside the outer lid, and within the raised back, forming an outside shelf for candlesticks and vases, there is a secret receptacle for money or for private documents, opened and re-closed by means of springs. Devonports are made on various models.



DAVY-LAMP.

Davy-lamp.—A safety-lamp invented by Sir Humphry Davy for use in coal-mines, in which the light will burn in the midst of an inflammable atmosphere without the air surrounding the lamp catching fire. For this purpose the sides are made of wire gauze, usually of the fineness of twenty-eight wires to the linear inch, giving 784 apertures to the square inch. The air necessary for maintaining combustion will pass through this gauze, though a flame cannot, and thus a light can be used in safety where the air contains so much gas or fire-damp as to explode if a naked light were introduced. It is very necessary that there should be no flaws in the wire-gauze, or any openings where it joins the other pieces of the lamp. Miners are often much too careless about the condition of their lamps, and will even unscrew the lamp for the sake of getting a stronger light. The most stringent regulations should be adopted by colliery managers to prevent such foolhardy acts being perpetrated by the miners.

Day.—In its primary signification as opposed to *night*, day is the time of light; that is, that period of time during which the sun is above the horizon. This space of time between the rising and setting of the sun is often termed the *artificial* day. In its more general sense the term day denotes the period of time in which the earth makes one complete revolution with respect to some one or other of the celestial bodies; as so understood, it expresses different intervals according to the fixed or movable nature of the body with which the earth's revolution is compared. Thus the *civil, natural,* or *mean solar* day is the time occupied by the earth in rotating on its own axis, as compared with the sun. The civil day is always of the same length, *i.e.*, twenty-four hours, and extends from midnight to midnight. There are 365·2425 civil days in a mean Gregorian year. (*See* CALENDAR.) The time occupied by the earth in making one *complete* revolution on its axis, irrespective of its position with regard to the sun, is called a *sidereal* day, from the fact that its length has been determined by the time that elapses between two successive culminations of the same star. The sidereal day, which is about four minutes shorter than the mean solar day, is almost universally used by astronomers in making their calculations.

Day Book. (*See* BOOK-KEEPING.)

Day Goblin.—This epithet has been applied to visitors who make their calls at unseasonable hours, and in a manner haunt the houses they frequent. Such persons have been described as those "who, having plenty of leisure, and a great desire to hear themselves talk, make frequent inroads into their friends' houses. Though perhaps well acquainted with the rules of etiquette, which prescribe the time when the doors of English houses freely admit all who have a right to pass the threshold, they call at the most unseasonable hours." In most families the early part of the day is devoted to domestic or favourite occupations, and "it is past endurance to have such pursuits broken in upon for the sake of a day goblin who, having gained access, inflicts his or her presence till nearly luncheon-time, and then goes off with saying, 'Well, I have paid you a long visit,' or, 'I hope that I have not stayed too long.'"

Days, Lawful.—All the days of a week are lawful days, with the exception of Sundays or any days set apart by Government as fast-days. Legal executions against persons and property can only take place on lawful days, but certain warrants can be granted and executed on any day.

Days of Grace.—Bills (*see* BANK BILLS; BILLS OF EXCHANGE) do not mature—that is to

say, are not actually and legally due—until three days after the date expressed in the body of the bill itself, and these three days are generally known as days of grace. Thus a bill at six months is not due by law until the expiry of six months and three days from the date thereof. Should the third day of grace fall on a Sunday or a day of general thanksgiving, &c., or in England on a Bank Holiday, Christmas Day, or Good Friday, the bill falls due the day previous.

De Facto.—Something actually existing in fact, in contradistinction to *de jure*, where a thing is only so in justice, but not in fact. For instance, a sovereign *de facto* is a person that is in actual possession of the crown, but has no legal right to the same; but a sovereign *de jure* is the person who has just right to the crown, though out of possession of it.

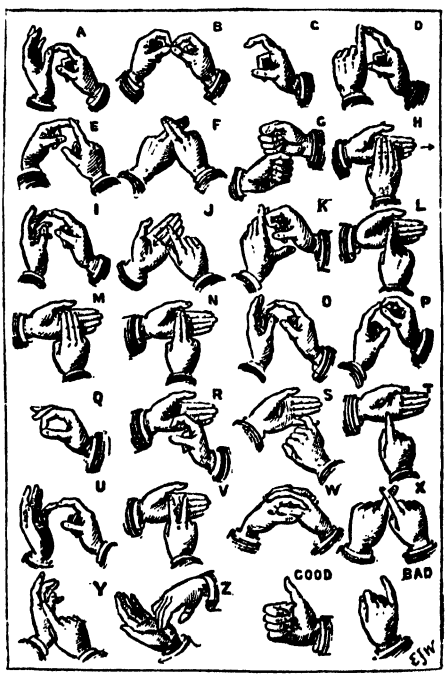
De Reprise.—A term sometimes applied to fancy work belonging to the lace class, more especially darned netting (*which see*).

Deacon.—An officer in the Christian Church. The office of a deacon in the Church of England, according to the form of ordination, is to baptise, preach, and assist in the administration of the Lord's Supper, and, in short, to perform all the other offices in the Liturgy which a priest can do, except that of consecrating the elements of the Lord's Supper and pronouncing the absolution. No person can be ordained a deacon under twenty-three years of age, unless by a faculty or dispensation obtained from the Archbishop of Canterbury; and in order to procure this he must be provided with a title to a cure, or be a fellow or chaplain in some college in Cambridge or Oxford, or a Master of Arts of five years' standing, living at his own charge in either of the Universities, or be admitted by the bishop who ordains him to some benefice or curacy then void. By Statute 14 Chas. II. c. 4, no person is capable of holding a benefice until he be ordained a priest. A deacon is only allowed to use his orders as a chaplain to some family, a curate to some priest, or a lecturer without a title.

Deaconess.—A female deacon; an order of women who had their distinct offices and services in the primitive Church. This office appears as ancient as the apostolical age, for St. Paul calls Phebe a servant of the Church of Cenchrea.

Deaf and Dumb.—Among the most pitiable of the human race are those who are at once deaf, dumb, and idiotic. In this note we confine ourselves to those who are deaf and dumb, but possess the use of reason. It was long supposed, and the notion still lingers, that the dumb were unable to speak in consequence of some fault in the vocal organs; but it is known that usually such is not the case, and that the dumb are so because they are deaf. When learning to speak, a child is of necessity dependent on the ear for the sounds which convey ideas and need to be imitated in vocal language. All through life speech is greatly influenced by the sense of hearing, which moderates the utterance and guides the intonation; hence it follows that one who has defective hearing cannot become a good singer, or continue such after deafness accrues. The case of deaf-mutes, or *sourds-muets*, as the French call them, is one of great interest, and the efforts of science and philanthropy have been largely enlisted in their favour; in fact, there are in Europe not fewer than 300 institutions for their benefit. The difficulties to be overcome are considerable, the foremost being to show the connection between words and ideas. Three separate systems of communication with the deaf and dumb have been devised—the mimetic, the graphic, and the phonetic. The mimetic comprises all endeavours to communicate by signs, of which there are various kinds, such as gestures and manual alphabets. The graphic includes writing and other modes of conveying ideas by marks. The phonetic system aims at teaching the dumb actually to speak, and in a manner to read what is spoken to them by observing the motions of the lips, &c. It is evident that the different methods can be combined, and in practice they are. Other names are given to these systems and their modifications. Thus the German system teaches by articulation and lip-reading; the French by signs, dactylology, and dumb show; and the combined seeks to unite the other two. Whatever the merits of other systems, there is at present a decided disposition to favour the one styled German.

Deaf and Dumb Alphabet.—This is often styled the manual alphabet, because it is



TWO-HANDED ALPHABET.

formed by means of the hands. It is of two kinds—the one-handed and the two-handed.

Both answer the same purpose of representing the letters by placing the hands and fingers in definite positions, each denoting one letter. When the pupil has mastered the written or printed characters and learned the sense of words, he will rapidly acquire facility in spelling out words and carrying on a conversation, for he will read what others wish to convey to him, as well as express his own thoughts. The speed with which the process can be carried on between practised persons is surprising; and, as is well known, sermons and other discourses are delivered and understood by means of the deaf and dumb alphabet. The articulation method is probably more excellent, but the manual system has been, and will continue to be, both popular and useful.

Deaf, Dumb, and Blind, Laws respecting.—A man born deaf, dumb, and blind is legally regarded in the same state as an idiot, he being supposed incapable of any understanding. A deaf and dumb person may, notwithstanding, be tried for felony, if he can be made to understand by means of signs. Deaf and dumb persons may lawfully intermarry, and if married women may make acknowledgments; but their wills are regarded with much suspicion.

Deafness.—This is an affection which usually results from the following causes:—1. It may be congenital; that is to say, the sufferer may be born with some deformity of the ear, as, for example, excessive contraction of the external opening. 2. It may result from a foreign body in the ear, as a pebble, or a small piece of wood or slate-pencil, or any other matter a child may place there, or from an undue accumulation of wax. 3. It may arise from various inflammations, from a tumour called polypus, from thickening of the Eustachian tube, from disease of the small bones of the ear, and destruction or extreme relaxation of the drum. 4. It may result from disease or injury of the auditory nerve, in which case there would probably be some paralysis of the face. 5. Deafness may be sympathetic and temporary only, caused by a sudden shock, as a loud noise; it is also frequently present in typhus fever and diphtheria. With regard to the treatment of such a delicate organ as the ear, it must be obvious that to advise when the causes are so numerous might only mislead. When a foreign body or an unusual amount of wax is present, it must be removed by syringing with tepid soap and water. If this fails to relieve, a little warm oil or glycerine may be dropped into the ear at bedtime for a few nights, and retained there by a plug of cotton-wool until the morning, when the syringing should be repeated, and continued every morning until relieved. When inflammation is present, leeches and a blister to the back of the ear, and poultices, often do good; but if there is anything beyond mere mechanical obstruction, or a slight cold, or shock, it is much better at once to obtain skilled advice.

Deal.—Deals, or deal boards, are kinds of thin planks cut from fir-trees. They are hardened by being thrown into salt-water as soon as they are sawed, kept there for some few days, and then dried in the open air. They are imported largely from Dantzic, St. Petersburg, Narva, and many other ports in the Baltic, as well as from North America, where trees of the fir kind are very abundant, grow with great rapidity, and give a wood which is straight, elastic, and easily worked, though liable at first to shrink. The chief qualities of deal wood are lightness and length, which have won for it the name of "the builder's timber," it being for houses what oak has been for ships. Pine timber, planted by nature in cold situations and on a light soil, yields the finest deals.

Dealing Cards.—The act of distributing the whole or part of a pack of cards amongst the players. This is done by giving to each player in succession, from the top of the pack, one, two, or three cards at a time (according to the game played), with the faces downwards, the dealer beginning with the person on his left hand, and going regularly round. In France, cards are dealt the reverse way, starting with the player on the right hand of the dealer.

Dean, Dean and Chapter.—A dean is an ecclesiastical dignitary, the president of the chapter of a cathedral church. The dean and chapter are the bishop's council, to assist him in the affairs of religion, and also in the temporal concerns of the diocese. The dean ranks next in dignity to the bishop. Nearly all the deaneries are practically in the gift of the Sovereign.

Death.—In legal estimation, death is of two kinds: (1) natural, *i.e.*, the extinction of life; (2) civil, where one is not actually dead, but is adjudged so by law, as when a person is banished, abjures the realm, or enters a monastery. Civil death also happens where a man, by Act of Parliament or judgment of law, is attainted of treason or felony, for immediately thereon he loses (subject to some exceptions) his civil rights and capacities, and becomes as it were *civiliter mortuus*. By 33 & 34 Vict. c. 23, forfeiture for treason or felony has been abolished, but the person convicted is disqualified for offices, &c. As to death by accident, neglect, &c., see 9 & 10 Vict. c. 93. (*See* BIRTHS, DEATHS, AND MARRIAGES, REGISTRY OF.)

Death, Signs of.—Tortured with the fear of being buried alive, men are ever trying to discover newer and more positive signs of death, the result, as a rule, being only valuable scientific curiosities; as, for example, the facility with which the conjunctiva or mucous membrane of the eye can be separated from the cornea. The usual and well-known signs of death are amply sufficient to satisfy all doubt, and are as follows:—1. There is complete cessation of breathing, and the heart no longer beats. In proof of this, a polished mirror placed over the mouth receives no impression, and on applying the ear over the region of the heart there is perfect stillness—no sound can be heard. 2. The eye is without lustre, has a peculiar dull stare, is insensible to light, and may be touched without producing any

impression. Some hours after death it loses its natural elasticity, and becomes flaccid, sodden, and eventually bursts from putrescence. 3. The whole body assumes a peculiar lividity, though in some cases persons particularly florid retain their complexion for some days after death. Wounds, tattoo and other marks, do not undergo this change of colour. 4. Though under special circumstances of warmth, corpulence, and mode of death, the body retains its heat for some time, as a rule it becomes cold in from eight to twelve hours. 5. Immediately after death there is complete muscular relaxation; on whichever side the body lies, the muscles of that side become peculiarly flattened. This condition lasts for some hours, and is succeeded by one exactly the reverse, viz., a statue-like stiffness or rigidity. This is the *rigor mortis*, which usually comes on from eight to twenty hours after death, and may continue from one to nine days, according to the cause of death. 6. Lastly, there are the signs of decomposition, which begin to form in from eight to twelve hours, and occur first on the depending or under surface of the body, as the back, hips, calves, &c., gradually extending to the face and chest. These are in themselves sufficient evidence of the reality of death.

Death Watches.—In former times the name given to certain ticking sounds, often heard in old bedsteads, was death-watch, because the noise was superstitiously regarded as an omen of death. The cause of these sounds is a beetle, of which two species are common—the *Anobium tesselatum* and the *Anobium striatum*. These small insects bore into wood, and produce a sort of rapping by striking their heads against it. The noise is said to be the signal given by one beetle to another, and is chiefly heard late in spring. The beats are given at intervals, in groups of from about seven to eleven, following close upon each other. The *Anobium tesselatum* is about a quarter of an inch long, and is of a dull greyish-brown colour. Its larva does much mischief to some kinds of wood, by boring small round holes in it.

Deaths, Certificates of. (*See* Births, Deaths, and Marriages, Registry of.)

Deaths, Registry of. (*See* Births, Deaths, and Marriages, Registry of.)

Debentures.—As commonly understood, these are mortgage deeds given by railway companies in acknowledgment of borrowed money. Debenture bonds give the holders the first claim for dividends on the receipts of the company, while the capital sum lent is generally assured on the security of the land itself. Debentures are a most convenient kind of mortgage, since they are at all times saleable through brokers. With the deed, coupons or warrants for the payment of interest at specified dates are usually issued. (*See* Coupons.)

Certificates of drawback, issued by the Custom House authorities, are also termed debentures.

Debility.—This is the term generally used to express a low condition of health, not necessarily accompanied by actual disease, though it may be the result of it, and if neglected frequently ends in it. The symptoms of this affection are a sense of weariness, both mental and bodily. The least exertion not only produces fatigue but even pain; the skin is either clammy and perspiring, or dry and hot, with a tendency to crack about the lips and finger-nails; the appetite, if not absolutely wanting, is capricious and dainty; the temper is either irritable to an unusual degree or completely apathetic; the tongue is generally white; and the pulse, as a rule, quick and weak. In fine, all the organs of the body act feebly. The most frequent cause of debility is over-work, either of brain or body, especially under unfavourable conditions of air and food. The treatment must consist in remedying this as far as possible. Good air, plain nutritious food, early hours, change to the country or sea-side when practicable, and a course of mineral or vegetable tonics, as iron, quinine, &c., with an occasional aperient, are all that is requisite in this affection.

Debit and Credit.—A term used in book-keeping to express the method of entry of items in the ledger. Those items which are entered on the Dr. side of an account (whether personal or impersonal) are *debited*, and *vice versâ* those entered on the Cr. side are *credited*. (*See* Book-keeping.)

Debt, Debtor, Debtor's Summons, Fraudulent Debtor.—A debt is a sum of money which one man, called the debtor, owes to another, called the creditor, under some certain and express agreement, where the amount is determinate, and for the non-payment whereof an action of debt lies. Debts are of various kinds, as judgment debts, specialty debts, simple contract debts. Formerly debts were not payable out of real estate, but only out of personalty; but now they are, under 3 & 4 Wm. IV. c. 104. Debts are now legally assignable; formerly they were not so. A debtor's summons is a special form of proceeding under the Bankruptcy Act, upon which a man may be adjudged bankrupt who fails to pay, secure, or compound for a debt amounting to £50 or upwards. Imprisonment for debt is, with some exceptions, now abolished. Fraudulent debtors are punishable, under 32 & 33 Vict. c. 62, s. 11—23, with imprisonment for not more than two years. (*See* Arrest; National Debt.)

Debt, National. (*See* National Debt.)

Début.—A French word denoting the first appearance of a person in some public capacity. It is applied to a first appearance as an orator, actor, singer, or musician, and to a formal introduction into what is called society.

Débutant and Débutante.—These are the masculine and feminine appellations of persons who make their *début* (*which see*).

Decade.—A group or aggregate of ten; thus a group of ten years is commonly spoken of as a decade of years. As more especially applied to time, the term decade was used in the decimal calendar appointed by the French Republic, and denoted their week of ten days, three such decades constituting a month of thirty days.

The year consisted of twelve equal months, with an overplus of five days (in leap-years six), which were reckoned as holidays at the termination of each year.

Decalcomanie.—A style of decoration which was at one time a very favourite occupation with ladies, and which consists in the application or transfer of pictures to various surfaces, such as china, glass, wood, silk, paper, papier-maché, and a host of others. The designs, which are on paper, are coated with transfer varnish, and laid face downwards upon the spot they are to occupy. The plain portions of the paper are cut off before the varnish is applied, and afterwards the designs are carefully rubbed over to make them adhere perfectly, taking the precaution to cover them evenly with a damp cloth before the rubbing. After removing the cloth, the paper must be wetted, and in a few minutes can be peeled off, leaving the design and the varnish upon the object to be decorated. The ground is next to be carefully cleared of all spots and dirt, and when it is dry it is to be varnished all over. This is the general method with china and other hard surfaces, but for paper, silk, &c., there are some modifications. Silk, for example, must be evenly laid down on clean paper upon a table or board, and the picture to be transferred must be pressed down before the paper is removed. Varnish carefully when dry.

Decalogue.—The Ten Commandments, which embody the fundamental principles of religion and morality. They are given in the Bible in Exod. xx. 3—17, and somewhat differently in Deut. v. 7—21. Jews and Christians alike regard them as binding, though the latter apply the fourth commandment to the Sunday, or Lord's Day, and interpret it with less strictness. In the Church of England the Ten Commandments are required to be set up in churches, where they are divided into two tables, one containing four and the other six commandments. The first table exhibits our duty to God, and the second our duty to our neighbour.

Decanters, Care of.—It is very important that decanters should be kept clean; indeed, the best wine may be entirely spoilt by neglect in this particular. Decanters should be cleaned the day before they are wanted, so that there may be no doubt about their being perfectly dry. It is a mistake to use shot when cleaning decanters; if even a small portion were accidentally left in the bottle, the acid in the wine would act upon it, and the liquor would be rendered unwholesome. Little pieces of potato, tea-leaves, brown paper or blotting-paper soaped and soaked in water, may all be used in cleaning decanters; and when the glass has been very much stained with port wine, a little pearlash and fresh-slaked lime will make it quite clean. As a general rule, however, silver sand or fine ashes are to be preferred to any other cleansing ingredient.

Decanting.—Great care must be exercised in decanting wine. The operation consists in pouring the clear liquid from the impure particles which have settled at the bottom of the bottle. A firm, steady hand is required to hold the bottle, and as this is not in the possession of every one, a machine for the purpose has been invented, which has helped to do the work very efficiently. It is often done, too, by means of a syphon or pump. Sherry and Greek white wines should be decanted two hours before they are wanted. The decanter for port wine should have the chill removed from it before the wine is poured into it. Greek and Hungarian red wines are better when used immediately after being decanted, as also are French red wines.

Deceit.—Fraud, or collusion put in force to mislead another. There was formerly a writ of deceit, but now an action on the case in the nature of a writ of deceit lies where the plaintiff has sustained injury or damage through the deceit of the defendant or his agent, the defendant being privy thereto. For instance, where a party in possession of a personal chattel sells it, affirming it to be his own when it really belongs to another, the purchaser may recover compensation in damages for such injury as he can show he has sustained in consequence of such misrepresentation. Where the assertion is, however, a mere matter of opinion upon which the misled person may exercise his own judgment, or make inquiry, &c., the case is of course different, and no action will lie.

Deciduous.—The literal meaning of this word is falling off or down (from Latin *de* and *cado*, to fall). The word is applied in the animal kingdom to that which has only a temporary existence. For example, the milk or deciduous teeth; the hair, again, of many young animals is deciduous; so likewise horns. In botany, leaves that fall in autumn are termed deciduous.

Decimal Systems.—Systems of weights, measures, money, &c., all the divisions of which have the number 10 for their base. The main object of decimal systems is to facilitate calculation, to bring about universality of measures, &c., and to introduce an element of convertibility between weights, measures, &c. All these objects are to a certain extent attained in the metrical system, now in use in France and some other countries. (*See* METRICAL SYSTEM.)

Decimals.—Fractions whose denominator is a decimal number; that is to say, 10, or some multiple of 10. Thus $\frac{1341}{1000}$ is a decimal fraction, and expresses—

$$\frac{1000}{1000}+\frac{300}{1000}+\frac{40}{1000}+\frac{1}{1000}=1+\frac{3}{10}+\frac{4}{100}+\frac{1}{1000}$$

Now carrying into practice the same principle which governs the decimal or common system of arithmetic, in which each digit has ten times the value of the like digit immediately succeeding it, the decimal fraction $\frac{1341}{1000}$ is written down more concisely as 1·341, the dot or decimal point after the 1 indicating which digit represents units, or in other words, where the whole number ends and the fraction begins. According to Colenso, a decimal is "a fraction whose denominator is 10, or some power of 10, as 100, 1000, &c., which denominator, however, is not set down, as in vulgar fractions, under the numerator, but expressed by marking off by a point, from the right of the numerator, as many figures as there are ciphers in the

denominator, prefixing ciphers to the former, if necessary, to make up the requisite number of figures after the point." Thus $\frac{7}{1000}$ must be written down as a decimal ·007. Ciphers added to the right hand of a decimal do not affect its value; thus ·2, ·20, and ·200 are one and the same, for $\frac{2}{10}$, $\frac{20}{100}$, and $\frac{200}{1000}$ each equal $\frac{1}{5}$.

Addition and *Subtraction* of decimals are performed as with common numbers, the only rule to be observed being that all the decimals must be set down with their decimal points in the same vertical line, so that all the tenths may fall in one row, the hundredths in another, and so on. *Multiplication*, again, follows the usual rule, the only distinction being that as many figures in the product must be marked off with the decimal point as there are decimal places in the multiplier and multiplicand together. *Division* of decimals requires that the divisor be a whole number; should this not be the case, it must be made so by multiplying both it and the dividend by such a power of 10 as may produce the desired result. Thus the decimal point disappears altogether in the divisor, and is shifted as many places to the right in the dividend as there were decimal figures in the divisor. Should there not be sufficient decimal figures in the dividend, ciphers may be added. This preliminary step having been completed, division is performed in the ordinary way, a decimal point being placed in the quotient directly the decimal point in the dividend is reached.

Decimals, now so universally employed in arithmetical calculations, seem to have been introduced about A.D. 1464, by Regiomontanus, and were brought into especial prominence by Stevinus, in a treatise published in 1582.

Declaration.—A proclamation or affirmation. Formerly this was the term for the plaintiff's first pleading in an action at common law, containing a statement of his cause of action put in legal form, and it was the next step after service of the writ of summons. But by the Judicature Acts, a statement of claim is now substituted, and declarations are no longer in use. (*See* STATEMENT OF CLAIM.)

Declaration of Insolvency.—A statement signed by a debtor unable to meet his pecuniary engagements, upon which bankruptcy proceedings supervene, such declaration being in law an act of bankruptcy, under 32 & 33 Vict. c. 71, s. 6. The petition for adjudication of bankruptcy must be presented within six months from the filing of the declaration. (See the general orders under the Act of 1869, s. 16.)

Declaration of Paris.—An important State document settled and signed, at the termination of the Crimean War in 1856, by the representatives of Great Britain, France, Austria, Russia, Sardinia, and Turkey, in which the following agreements respecting Maritime Law were come to:—1. Privateering was abolished. 2. The neutral flag covers enemy's goods, save contraband of war. 3. Neutral goods, save contraband of war, are not liable to capture under enemy's flag. 4. Blockades to be binding must be real.

Declaration of Rights. (*See* BILL OF RIGHTS.)

Declaration of Title.—The Act for obtaining a declaration of title (25 & 26 Vict. c. 67), after reciting that it is expedient that persons having interests in land should obtain a judicial declaration of their title, so as to enable them to make an indefeasible title to purchasers, enacts that every person claiming to be entitled or to have a power of disposing for his own benefit land (not of copyhold or customary tenure) for an estate in fee-simple in possession, absolutely or subject to incumbrances, estate, &c., or entitled to apply for the registration of an indefeasible title under the Transfer of Land Act (25 & 26 Vict. c. 53), may petition the Court of Chancery, now the Chancery Division of the High Court of Justice (*see* COURT AND COURTS OF JUSTICE), for a declaration of title. The Act then prescribes the necessary contents of such petition, and the manner in which the same is to proceed to hearing and completion.

Declaration of Trust.—To prevent the inconvenience caused by parol declarations and secret transfers of the uses, the Statute 29 Chas. II. c. 3, s. 7, requires that all declarations or creations of trusts or confidences of any lands, tenements, or hereditaments shall be in writing, signed by the party lawfully enabled to declare such trust, or by his last will in writing; and all grants and assignments of any trust or confidence shall likewise be in writing, signed by the party granting or assigning the same, or by last will.

Decline. (*See* CONSUMPTION.)

Decoctions.—These are the watery solutions of various vegetable substances, obtained by the process of boiling. The time occupied in this process must, of course, vary according to the solubility of the drug, but is generally from ten to twenty minutes. They should be strained immediately. As boiling causes the dissipation of volatile oils, it is not desirable to make decoctions where we wish to retain these. The decoctions most in use are those of aloes, bark, poppies, pareira, sarsaparilla, broom, and dandelion. The dose is generally two table-spoonfuls.

Decomposition.—This is a term used in chemistry to denote the breaking up of a compound into its original elements, generally to form new combinations. It is used in medicine to describe the change which takes place after death, when the body becomes discoloured and offensive. The term is also applied to all animal and vegetable matter rotting and emitting noxious gases.

Decorations, Christmas.—Decorations give a joyous character to a house, and as at this season it is the special aim so to do, our houses are usually ornamented with some special adornment. Paper flowers mixed with evergreens look cheerful; wreaths of crystallised leaves are also effective; strings of red berries hung in festoons, and holly-leaves strung together, enframe pictures with good effect; words of welcome in illuminated letters enliven the hall, in which place the "kissing bush," or mistletoe bough, used to hang in those

old-fashioned times when hearty welcomes were given in hearty style. (*See next paragraph.*)

Decorations, Church (Christmas).—Evergreens and berries seem the most suitable for Christmas-tide, and many different arrangements may be made with these. The wreaths for twining round pillars should be thick and handsome. The quickest plan is to measure a piece of thin rope the length required, and to fasten to this pieces of evergreens by twining string round them. Box and holly are the best. Flat wreaths to be laid on flat surfaces require to be made more carefully. The leaves of holly or laurel are stripped off their branches and used separately; each leaf is sewed on scarlet braid or strips of brown paper; the leaves should point outward, and overlap each other half-way. A bunch of red berries sewed on here and there, or if they are scarce a single berry only, will enliven the decoration. Crystallised leaves for these bands are very effective. There are various devices for making texts. As a rule, those with scarlet or crimson ground, with letters of green or white, look the best. For the former, the letters are cut out in stiff brown paper, and box-leaves sewed on. For white letters, two plans may be followed, one of which is to strew grains of rice on letters previously made adhesive with cement or paste; the other, to lay letters so prepared on a sheet of white wadding, and then to cut that to the form of the letters. Letters of red berries on white ground, bordered by bands of small leaves, are effective. Some people do not like the idea of anything artificial, such as wadding, rice, &c., being introduced into churches. Certainly nothing of a flimsy character, such as paper flowers, should be allowed to intrude. Christmas decorations should be profuse, and give the idea of joyousness.

Decorations, Church (Easter).—There is great scope for display of taste in the decorations at this season, as Nature bestows so many floral gifts which greatly enhance the beauty of the adornments. It is not usual to introduce great masses of evergreens as at Christmas. Now a lighter style is adopted. Tendrils of ivy can be turned round the pillars and arranged over arches. White flowers only should be allowed in the chancel or on the font. There is no prettier setting for these or any flowers than moss, which can cover the base and cover the font, and fill in the ledges of the windows. In the body of the church, bunches of primroses studding the moss look well on the window-sills. When Easter comes too early in the year to procure fresh flowers, recourse is had to dried ones—those known as "overlasting," or immortelles, great quantities of which come from abroad and may be obtained at the seed-shops. Temporary chancel screens of perforated zinc are sometimes put up and covered with small leaves, which are sewed on; or slight wooden screens having minute wreaths of evergreens twined round the woodwork are erected. Another device adopted is to line the chancel walls with white glazed calico about six feet in height, which has been diapered with laurel leaves. The texts should be made in white and green.

Decorations, Church (Harvest, &c.).—These should be prodigal in character; everywhere there should be an abundant display to signify the occasion of rejoicing. At this time the fruits of the earth are called into requisition, but judgment is required in the arrangement and choice, for sometimes the sacred building resembles the market-house by reason of the introduction of all kinds of vegetables. The decorations most in accordance are corn and flowers of all kinds, with a small display of fruit. Bands of chestnut and other leaves sewed on green braid, and having tufts of different kinds of corn, are effective. The flowers at this season are particularly pretty for the purpose; dahlias, asters, and hollyhocks all show to advantage when they stud green wreaths. One of the chief beauties obtainable at this season is pampas grass; these feathery plumes add grace and beauty wheresoever placed.

Decorations, Honorary.—There are many kinds of these, and they are conferred on a variety of accounts. Sometimes they consist of a badge, at others of a cross or a medal, and they are intended to denote the high estimation in which the recipient is held for his attainments or public services. Those bestowed by sovereign princes are in most esteem, and they may recognise excellence in a number of forms. Some are for naval and military service, some for political or diplomatic skill, some for eminence in art, science, or literature, and some for philanthropic and other useful efforts. The insignia of the orders of knighthood are honorary decorations, and to them, whether British or foreign, the term is most frequently applied, though by no means exclusively so.

Decorations, Table, &c.—Elaborate and costly ornaments are sold for decorating the table. These are usually made either of silver, glass, or alabaster, and some of them are exceedingly beautiful. Various designs in frosted silver, with glass vases and dishes attached, for the reception of fruit and flowers, are amongst the most elegant. Occasionally a plateau of looking-glass is annexed, which has a very good effect. Whatever the ornaments may consist of, it is usual for the largest one to be in the centre, and the smaller ones, of which there should be duplicates, at either side of it, with a greater or less distance between them. The small dessert dishes may be ranged round these. In the decoration of a table, flowers should on no account be omitted. Where there is even a small garden they may be easily grown, and where there is no garden a goodly quantity may be purchased at a trifling cost. It is certain that nothing imparts such a bright pleasant appearance to a table as plenty of fresh flowers. When flowers can be readily obtained, not only should the centre ornaments be filled with them, but a small bouquet should be placed before each guest; and when this is done, however inexpensively the table may be furnished, it cannot fail to look well. When purchasing table ornaments, it will be well to bear in mind that the guests should be able to communicate freely with each other, and

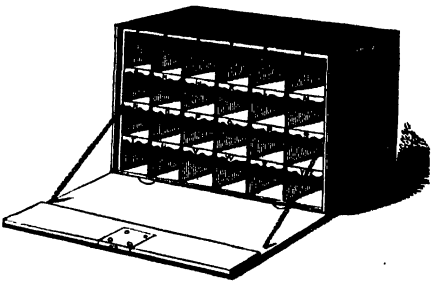
therefore it is not desirable that the decorations should be too massive in their character. Also it should be remembered that, however handsomely a table may be appointed, it will reflect only discredit upon the mistress if the damask is not clean and of a good colour, the silver brightly polished, and the glass clear and sparkling.

Decree.—This term designated the sentence or decision pronounced by the Lord Chancellor in suits in the Court of Chancery; but by the Judicature Acts of 1873 and 1875, the term judgment, which was formerly used only in the Courts of Common Law, is adopted in reference to the decisions of all divisions of the Supreme Court, including, of course, the Chancery Division.

Dedication, in *religion*, is the act of consecrating a temple, altar, statue, place, &c., to the honour of some deity. The use of dedications is very ancient, both among the worshippers of the true God and among the heathens. In the Scriptures we meet with dedications of the Tabernacle, of altars, of the first and second Temple, and even of the houses of private persons. There are also dedications of vessels, and garments of the Priests and Levites, and even of the men themselves. The heathens had also dedications of temples, altars, and images of their gods, &c. Nebuchadnezzar held a solemn dedication of his statue. Pilate dedicated gilt bucklers at Jerusalem to Tiberius. Tacitus mentions the dedication of the Capitol upon rebuilding it by Vespasian, &c. The Christians, finding themselves at liberty under Constantine, in lieu of their ruinous churches built new ones in every place, and dedicated them with much solemnity. The dedication was usually performed in a synod; at least they assembled a number of bishops to assist at the service. In *literature*, a dedication is an address prefixed to a book, soliciting patronage or testifying respect for the person to whom it is made.

Deed.—An instrument written on paper or parchment which relates principally to the conveyance or transferring of property. In every deed there should be—(1) Proper parties to contract with one another, and a proper subject-matter to be contracted for; (2) a good and sufficient consideration; (3) writing on parchment or paper duly stamped; (4) sufficient and legal words properly disposed; (5) reading, if it be desired, before execution; (6) signing, sealing, and delivery, duly attested. Deeds are generally of two kinds—deeds-poll or indentures. A deed-poll is a deed polled or shaven quite evenly, and is properly single or of one part, being intended for the use of the grantee or lessee. An indenture consists of two or more parts, and is *indented* or cut unevenly at one of its edges—the notches sometimes corresponding, to prevent fraud on either side, with those of a duplicate deed; and it is made by and between two or more parties. A deed should always be prepared and executed under legal advice. (*See* DELIVERY OF A DEED; DOCUMENTS, CARE OF.)

Deed Boxes are simply wooden or tin boxes, sometimes without shelves or divisions of any kind, and varying in size, from 12 in. by 8 in. and 6 in. deep, to 31 in. by 24 in. and 19 in. deep. There is no one particular class of deed box that can be said to be better than other, since it entirely depends upon the kind of deeds intended to be deposited. Consequently different firms



DEED BOX.

of lawyers (by whom they are principally used) have them made to order according to their own ideas. When the deeds will admit of alphabetical classification, the box is usually divided into twenty-four compartments or pigeon-holes, I and J taking up but one space, and Y and Z also having but one division between them.

Deer. (*See* VENISON.)

Defamation.—Calumny; reproach; censure; detraction. Where any person circulates any report injurious to the credit or character of another, the party injured may bring an action to recover damages proportioned to the injury he has sustained, but it is, in general, incumbent upon the party to prove he sustained an injury to entitle him to damages. There are, however, some cases of words spoken which are by law *in themselves actionable*—*as calling a* tradesman a bankrupt, cheat, or swindler, &c.—without the necessity of proving any particular damage, but the plaintiff must be particularly attentive to state words precisely as they were spoken, otherwise he will be nonsuited. The Ecclesiastical Courts formerly had jurisdiction in suits for defamation, but this was abolished by the Statute 18 & 19 Vict. c. 41. (*See* LIBEL.)

Default, Defaulter.—Default is the omission of that which a man ought to do. When he neglects to take certain steps in an action, as required by the Rules of Court, the Court may give judgment against him by default. The defendant suffers judgment by default, either intentionally, or through mistake or neglect. Intentionally, when he has no merits, or where he is acting according to previous agreement with the plaintiff; through mistake, when he delivers a pleading so defective that it is treated as a nullity; and through neglect, when perhaps he has no merits, but omits to appear, plead, &c., within the time limited by the Rules of the Court for that purpose. This is an implied confession of the plaintiff's right of action. (*See* APPEARANCE; JUDGMENT; PLEADING.)

Defecation.—This word is derived from the Latin *defæco—de*, from, and *fæx*, dregs. It simply means the act of purification or

separation from dregs, and is used in reference to the clarification of various liquors.

Defence, in law, signifies a plea or what the defendant ought to make after the plaintiff's statement, viz., that he defends all the wrong, force, and damages where and when he ought to. Socially, the defence of oneself, and the mutual and reciprocal defence of such as stand in the relations of husband and wife, parent and child, master and servant, constitute a right which belongs to every person. If a man, or one standing in any of these relations to him, be forcibly attacked in his person or property, it is lawful for him to repel force by force, and the breach of peace which may follow is chargeable upon him only who began the affray. Self-defence, therefore, is justly called the primary law of nature, and it is not, neither can it be, taken away by the law of society. In the English law it is held an excuse for breaches of the peace—nay, even for homicide itself; but care must be taken that the resistance does not exceed the bounds of mere defence and prevention, for then the defendant would himself become an aggressor.

Defendant.—In English law the defendant is the person against whom an action is brought, a claim made, or relief sought in any suit. In legal proceedings for breach of contract, the person by whom the contract was entered into must be made defendant; in criminal actions, the person or persons who actually committed the injury, the aiders and abettors, and the accessories before or after the committal of the offence may, any or all of them, be made defendants.

Defender of the Faith (*Fidei defensor*).—A peculiar title appertaining to the Sovereigns of England, as *Catholicus* does to the King of Spain. These titles were given by the Popes of Rome. That of *Fidei defensor* was first conferred by Leo X. on King Henry VIII. for writing against Martin Luther, and the bull for it bears date October, 1521. It was afterwards confirmed by Clement VII. But the Pope, on Henry's suppressing the houses of religion, not only deprived him of his title, but deposed him from his crown also, though in the thirty-fifth year of his reign his title, &c., was confirmed by Parliament, and has continued to be used by all succeeding Sovereigns to this day. Chamberlayne says the title belonged to the Kings of England before that time, and for proof of this appeals to several charters granted to the University of Oxford, so that Pope Leo's bull was only a restoration of an ancient right.

Deformities, Physical.—These when congenital, *i.e.*, from birth, are due to what is called arrest of development; in other words, the part affected does not grow proportionately or in harmony with the rest of the body. When due to disease, the most frequent cause is a soft condition of bone, as in rickets (*which see*). Deformities often result also from severe accidents, as fractures, dislocations complicated with fractures, and burns (*which see*) or scalds. Lastly, there are some deformities about the foot, as club-foot, &c., most of which can be very much improved, if not entirely removed, by surgical interference. It may here be remarked that certain deformities, which until late years have been considered as hopeless, are now marvellously relieved by what is called in surgery the plastic operation. This consists in dissecting a piece of adjoining sound skin, and ingrafting it on the deformed or disfigured part. This has been most successfully done in cases of burns, in deficient nose, and in deformity of the bladder.

Defrauding Creditors. (*See* DEBT.)

Deglutition.—This is the act of swallowing, and is thus performed:—The food having been masticated by the teeth and lubricated by the saliva into a sort of bolus, is ready to be swallowed. The mouth is closed to allow the muscles of the tongue to act from a fixed point, and enable it to carry the food to the back part of the mouth, where it is grasped by the pillars of the fauces, and prevented from returning. Certain muscles at the same time raise and widen the gullet, close the apertures to the nose and windpipe, force the food backward into the gullet, and from thence, by the contraction of the œsophagus, it passes into the stomach—the process taking much less time than is occupied in describing it.

Degrees, Collegiate.—Distinctions of rank conferred by universities (*see* UNIVERSITY), and denoting in the holder the possession of certain attainments. A degree may be:—1. A simple certificate of proficiency, as proved by public examination or by general estimation; of such are all degrees in arts (*see* ARTS DEGREES), and science, and the honorary degrees of LL.D., D.C.L., and D.D. 2. Licences qualifying the holder to teach those branches of knowledge in which his proficiency is certified; of such were the Doctor's and Master's degrees of the Middle Ages, and as such may probably be classed the degrees granted after examination by many of the Continental universities of the present day. 3. Licences to practise in certain professions, &c.; of such are the medical degrees of the present day (M.B. and M.D., Bachelor and Doctor of Medicine). Degrees are as a rule only conferred by the universities after examination, but honorary degrees (especially in Laws, Medicine, and Divinity) are also often granted to persons of distinguished merit by most of the qualified corporate bodies. In Great Britain, degrees are granted in the several faculties of Arts (Bachelor and Master), Science, Law, Music, Medicine, and Divinity (Bachelor and Doctor). In most of the Continental universities the degree of Doctor of Philosophy (Ph.D.) is that most usually conferred.

Degrees of Affinity, &c.—What are called degrees of affinity and consanguinity are commonly understood to be those relationships by birth or marriage which appear in our Prayer Books, &c. The tables referred to denote, however, merely the relationships between which marriages are prohibited. Beyond them relationships more distant exist, and it is difficult to decide where they should be regarded

as terminating. For ordinary purposes the limits have been laid down pretty accurately in the laws affecting marriage; but in some cases affecting succession, as to a peerage, a much wider range is taken, and one which may extend over several generations.

Degrees of Rank. (*See* RANK.)

Dei Gratia.—A Latin formula meaning "by the grace (or favour) of God." It is believed to have been first used by the bishops in setting forth their title at the Council of Ephesus, A.D. 431, and was intended by them to express their humble dependence on the Supreme Power. From that time until the Reformation it was almost universally used by the clergy. It also began to be used by the temporal powers, and kings and princes were stated to reign *dei gratia*, until at length the formula lost much of its original idea as an expression of humility, and was regarded rather as an assertion of the divine right of kings.

Déjeuner is the French word for breakfast, but the Frenchman's déjeuner is by no means the same thing as the Englishman's breakfast. The Englishman is accustomed to take breakfast as soon as he leaves his sleeping apartment; and after that follows either dinner in the middle of the day and tea, or luncheon and a late dinner. Frenchmen almost universally take merely a scrap of refreshment after rising, and in the middle of the day partake of a tolerably substantial repast, which they call déjeuner, on the strength of which they subsist until the dinner-hour brings with it the chief meal of the day. Both plans have their advantages and their admirers. Englishmen who find themselves unable to take an early breakfast might possibly discover that health was benefited and enjoyment increased by the adoption of the Frenchman's mode of living.

Delft-ware.—A kind of pottery of baked earth, covered with an enamel or white glazing, which gives it the appearance and neatness of porcelain. The difference of the various kinds of delft consists either in their sustaining sudden heat without breaking, or in the beauty of their forms and enamel, and of the painting with which they are ornamented. Usually the fine and beautifully-ornamented potteries, which approach the nearest to porcelain in external appearance, are at the same time those which least resist a brisk fire; while those which sustain a sudden heat are coarse, and resemble common pottery. The basis of delft-ware is clay, which when too fat is mixed with such a quantity of sand that the earth preserves enough of its ductility to be easily worked, moulded, and turned, and yet so that its fatness may be sufficiently counteracted, and that it may not crack or shrink too much in drying or in baking. Vessels formed of this earth must be dried very gently, to avoid cracking. They are then placed in a furnace to receive a slight baking, which is only meant to give them a certain consistence or hardness; and lastly, they are covered with an enamel, or glazing, which is done by putting upon the vessels thus prepared the enamel, which has been ground very fine and diluted with water. As vessels to which the enamel is applied are but slightly baked, they readily imbibe the water in which the enamel is suspended, and a layer of the enamel adheres to their surface. These vessels may then be painted with colours composed of metallic calces mixed and ground with a fusible glass. When they have become perfectly dry, they are placed in the furnace, included in cases of baked earth called *seggars*, and exposed to a heat capable of fusing uniformly the enamel which covers them. The heat applied to fuse the enamel, being much stronger than that which was applied at first to give some consistence to the ware, is also the heat necessary to complete the baking process. The furnace and colours used for delft are the same as those employed for porcelain. The glazing, which is nothing but white enamel, ought to be so opaque as not to show the ware under it.

Deliquescence.—A term derived from the Latin expressive of the act of becoming liquid. Certain salts, such as the chloride of magnesium, chloride of calcium, and carbonate of potash, are liable to absorb moisture from the air in sufficient quantity to dissolve them. It is the presence of chloride of magnesium in sea-water which makes articles that have been soaked in the sea so sensitive to a damp atmosphere and difficult to keep dry. All deliquescent salts should be kept in stoppered bottles.

Delirium.—This is a peculiar condition which accompanies such fevers as typhus, typhoid, scarlet fever, and small-pox. It is also present in inflammation of the brain and bowels, and usually follows the administration of certain poisons. There are two kinds of delirium—one quiet, hence called muttering delirium, from which the sufferer can be roused for a moment only, to fall back into the former state; the other full of excitement, loud talking and screaming, and requiring the efforts of several attendants to restrain. The former is generally associated with great prostration, such as occurs in the last stage of typhus, and is frequently the harbinger of a fatal termination. The latter has been sometimes mistaken for insanity, and persons suffering from it have been taken to an asylum, under the impression that they were insane; therefore great care is necessary to form a correct opinion in such cases. The treatment of delirium must be adapted to the disease with which it is associated. As a rule, cold to the head in the form of ice, or cloths wet with vinegar and cold water, and cooling drinks are indicated. It is sometimes necessary to shave the head, and in certain cases to apply a blister to the shaven part.

Delirium Tremens.—This is a condition produced by excessive use of alcoholic drinks, and is characterised by incoherent rambling talk, by certain disordered fancies, usually taking the form of horrible creeping things about the bed and room, by intense and protracted wakefulness, by a tremulous condition of the hands and legs, and of the tongue also, when it is protruded, and by a profuse and continuous perspiration. The treatment of this disease must be conducted with a due regard to the strength of the patient. As a

rule, the tippler makes alcohol take the place of food; and the first object must be to reverse this order of things. Milk and beef tea should be taken in large quantities, and, unless indicated by excessive debility, the usual stimulants should be withheld, their place being taken by ammonia, ether, and bitter vegetable tonics. The bowels should be well emptied by a calomel and podophyllin pill, followed by a saline draught made warm with peppermint water. If there is much sleeplessness, a morphia or chloral draught may be given at bedtime. The morphia may be injected beneath the skin in bad cases, and scruple doses of bromide of potassium in an aromatic bitter infusion may be taken two or three times a day, but always under medical advice. When there are symptoms of exhaustion, and the delirium is of a muttering character, it will be necessary to combine stimulants with the food given. It may be well to remark here, that persons suffering from delirium tremens are not so dangerous to others as they appear to be. The nature of the disorder tends to make them cowardly, and therefore a bold and determined manner on the part of the attendants is generally sufficient to restrain them. There is, in reality, more danger from self-inflicted injury, under a sudden impulse, by reason of the horrible dread which oppresses them.

Delivery of a Deed is a requisite to a good deed. Deeds take effect according to the time of their delivery, but in the register districts their precedence is regulated by the date of registration. The delivery of a deed may be effected either by acts or words, *i.e.*, by doing something and saying nothing, or merely handing it to the grantee or his agent; or by doing nothing and saying something, as "I deliver this writing as my act and deed," or language of a similar import; or by doing and saying something. Delivery of deeds is either absolute or conditional: the former when the execution perfects the deed, the latter when something still remains to be done, until which the instrument is called an escrow. (*See* DEED.)

Delphinium.—The name given to a genus of plants belonging to the natural order *Ranunculaceæ*. They are either annuals or perennials, and belong to the same order as monk's-hood, which the flowers somewhat nearly resemble. They are common in our gardens, under the name of larkspurs. What are called bee-larkspurs are exceedingly showy flowers, the petals of which are very like the dark body of a bee, covered with yellow hairs, sticking out from the cup of the flower. The rocket-larkspurs are found growing wild in many chalky and sandy regions in Britain. The *Delphinium Stavisacria*, or *Stavesacre*, is an herb, from one to two feet high, with broad palmated leaves and a greenish-purplish flower. Its active principle, delphinia, is used in medicine in some neuralgic and rheumatic affections.

Demand and Supply. (*See* SUPPLY AND DEMAND.)

Dementia.—This is an impaired mental condition, closely resembling idiocy and imbecility, and characterised by excessive feebleness of intellect, though occasionally varied by maniacal excitement. Dementia may come on suddenly, from great mental shock; or gradually, from disease, as inflammation of the brain, &c. It is also one of the results of old age, when it is called senile dementia. "The vacant look, the weak smile, the meaningless laugh, betray the demented person." The stages of the disease may be thus marked: first, confusion of intellect; second, loss of the sense of propriety; and third, a mental blank. Paralysis usually attacks the sufferer at one of these stages.

Demesne.—In law, this term originally denoted that portion of the lands of a manor in actual occupation by the lord of the manor himself. Hence the word is often used to distinguish those parts of a manor either in the occupation of the owner, or of his lessees at rack rent, from the other lands in the hands of freeholders and copyholders.

Demise.—A word used in leases for terms of years, synonymous with "lease" or "let," from which it differs only in this respect, that demise implies a covenant for title, and also a covenant for quiet enjoyment; whereas "lease" or "let" implies neither of these covenants. The word demise also signifies the decease or death: *e.g.*, the demise of the sovereign, more properly of the crown, which means, that in consequence of the sovereign's natural body having by reason of the death thereof become disunited from his body politic, the kingdom is transferred or demised to his successor.

Democracy (from the Greek *démos*, people, and *krateo*, I govern).—A form of government in which the sovereignty or supreme authority is lodged in the people, either directly or indirectly, by means of representatives chosen by themselves. The most flourishing of the ancient democracies were those of Rome and Athens, while in modern times the democracy pure and simple was perhaps best represented by the free cities of Germany, previous to their federal union in the German Empire. (*See* REPUBLIC.)

Demonstrative Legacy.—A legacy of quantity is ordinarily a general legacy, but there are legacies of quantity in the nature of specific legacies, as of so much money, with reference to a particular fund for payment. This kind of legacy is called a demonstrative legacy, and it is so far general, and differs so much in effect from one properly specific, that if the fund be called in or fail, the legatee will not lose his legacy, but be allowed to receive the same from the general assets. Yet the legacy is so far specific that it will not be liable to abate with general legacies upon a deficiency of assets.

Demulcents.—These are substances which, when mixed with water, form a bland fluid useful in inflammation or irritation of the mucous membrane of the respiratory organs, stomach, bowels, bladder, &c. They are generally combined with other medicine, both to assist them in their operation, and, in some cases, to mitigate their irritating tendency. The most important

are gum acacia, linseed, liquorice, marsh mallow, pearl barley, &c.

Demur, Demurrer.—To demur, in law pleading, is to formally dispute the sufficiency in law of the pleading on the other side. This procedure is called a demurrer.

Demurrage.—A sum fixed by the contract of carriage as a remuneration to the shipowner for the detention of his ship beyond the number of days allowed for loading or unloading. It is usual to calculate this sum at so much per day, and also to specify in the contract the allowed days of demurrage; in which case, if the ship be delayed beyond the agreed demurrage, the freighter becomes liable to pay damages for the excess, which damages are usually estimated at the demurrage rate per day. This term is also sometimes used to signify the delay or period of delay of a vessel in port.

Demy.—A particular size of paper between royal and crown. It is derived from the French *demi*, "half," and is a contraction of demi royal or small royal. In printing papers, demy varies in size from 22½ by 17½ inches to 23 by 18. In writing and drawing papers, demy is usually 20 by 15½.

Dendritic.—An adjective, having reference to what are called *dentrites;* these latter being stones, or other mineral substances, which contain the images of trees, and shrubs, and flowers. They are found in great plenty and perfection in the neighbourhood of Bristol; and some of them when cut and polished are of great beauty, showing as they do whole landscapes in miniature.

Denizen.—An alien born who has obtained letters patent making him an English subject. The sovereign can denizenise, but not naturalise, a man, the latter requiring an Act of Parliament. Until the "Naturalisation Act, 1870," a denizen occupied an intermediate position between an alien and a natural-born or naturalised subject. He could take lands by purchase or devise, which an alien was not permitted to do; but he could not take lands by descent, like a natural-born or naturalised subject. The above Act (33 and 34 Vict. c. 14), however, provides that real and personal property of every "description may be taken, acquired, held, and disposed of by an alien in the same manner in all respects, as by a natural-born British subject, and a title to real and personal property of every description may be derived through, from, or in succession to, an alien, in the same manner in all respects as a natural-born British subject." A denizen cannot be of the Privy Council, or either House of Parliament, or hold any office of trust, civil or military.

Denman's Act, Lord.—The Act of Parliament commonly known as "Lord Denman's Act" (the 6 and 7 Vict. c. 85) effected an important alteration in the Law of Evidence. It provides that no person offered as a witness shall thereafter be excluded from giving evidence by reason of incapacity from crime or interest.

Dentifrice (from Latin *dens*, a tooth, and *frico*, to use friction).—Tooth-powder may be compounded in various ways. One of the best may be produced from a mixture of Peruvian bark, prepared coral, prepared chalk, and myrrh, of each half an ounce, with one quarter of an ounce of orris-root, all well pounded together in a mortar. When there are decayed teeth, two ounces of finely-powdered charcoal should be added to the mixture above named. Camphor whitens the teeth, but is not to be recommended, as it renders them brittle. A charcoal powder to be employed as dentifrice may be procured by burning a thick slice of bread; when reduced to charcoal, bray in a mortar, and sift through muslin. Prepared chalk and powdered orris-root combined form a safe as well as agreeable mixture for cleaning the teeth. Castile soap should be used in turn with all powders.

Dentistry.—This is the art of extracting or otherwise treating the teeth. The term also includes everything that appertains to the profession of a dentist.

Dentition. (*See* TEETHING.)

Deodand.—Any personal chattel which had been the immediate or accidental occasion of the death of any rational creature—and which by reason thereof was formerly forfeited to the Crown, or given to God, as the term implies, to be applied to pious or charitable uses, being in Roman Catholic countries the expiation by masses, and otherwise, of the sins of the deceased, and in Protestant countries the relief of the deserving poor. Where the person killed was an infant under the age of discretion, no deodand arose, there being in his case no sins of commission to expiate. Deodands were abolished by the statute 9 & 10 Vict., c. 62.

Deodorising.—A term that is specially applied to the takng away of offensive odours. Charcoal possesses this property in a high degree (*see* CHARCOAL, PROPERTIES OF). Chlorine also answers the same purpose, by decomposing animal effluvia, and forming new compounds which are unobjectionable. Chloride of lime, or bleaching-powder, gives off chlorine when exposed to the air, and a little of this substance placed in a saucer will soon be perceptible all over a room; a solution of it in water is often used as a deodoriser and disinfectant. Carbolic acid (*which see*) and several other allied compounds have the same property; they are deservedly coming into very general use. Many highly-perfumed articles are often used for the purpose of deodorising sick-rooms, which are of no value whatever, and their use should be strongly discouraged. They merely hide the offensive odour by adding to it something which overpowers the objectionable smell without removing the cause of it, and actually do more harm than good, leaving the occupants of the apartments in fancied, but illusive, security.

Deponent. (*See* DEPOSITION, DEPONENT.)

Deposit, Banks of.—Banks whose business is principally, if not altogether, confined to receiving money on deposit, instead of on current account. (*See* BANKING.)

Deposition, Deponent.—A deposition is the act of giving public testimony; the testimony given in court by a witness on oath; or an affidavit on oath, or solemn affirmation in

lieu thereof; he who makes or gives this being the deponent. The word has another sense, in which it signifies the act of degrading one from dignity, office, or employment.

Deposits.—Money lodged at bankers on deposit account, that is to say, money deposited in a bank for a limited or unlimited period, on the understanding that a certain pre-arranged rate of interest is to be paid thereon. Almost all bankers will receive money on deposit, and if no specified period be fixed at the outset, they usually require a written notice previous to withdrawal. (*See* BANKING.)

Depôt.—In its original sense, a military term denoting (1) a place where military stores, &c., are concentrated, and where recruits are trained, and (2) that portion of a battalion remaining at home when the rest are ordered upon foreign service. Several such depôts sometimes combine, forming a depôt battalion. Any storehouse or depository is now often called a depôt.

Derby Chair.—This is a useful folding-chair, suitable for the breakfast-parlour or the sitting-room. It is commonly made of birch or beech, sometimes having arms, but not always; while the back and seat are usually in cane or



DERBY CHAIR.

wicker-work. The back and seat may be fitted with movable or fixed cushions, and the front may have a leg-rest affixed. It is sometimes found considerably modified, and is often called an American chair.

Derby China.—The manufactory of this porcelain was established in 1751 by a person named Deresbury; the pieces were at that time marked with a capital letter D, and the word Derby underneath it. Some eighteen years later, the manufactory at Chelsea was transported to Derby, and then the china assumed the name of Chelsea-Derby, and the mark was changed to that of a crown over an anchor, the latter being the Chelsea device. In 1780, the china was known as Crown-Derby, when a crown was placed over the letter D. Many varieties of marks were introduced from time to time, but either crown, anchor, or D was always imprinted in some form. The manufacture of this china lasted about a hundred years. The best specimens exhibit landscape medallions; another kind displays nondescript florist patterns in red, blue, and gold. Derby china is hard; it is not so fine nor so delicately painted as Chelsea china.

Derby Day.—The day on which the "Derby," the first of the great historic horse-races of England, is run. It is the second day—the Wednesday—of the Grand Spring Meeting at Epsom, which is usually held in the week succeeding Trinity Sunday. The "Derby" is a race for three-year-old horses only, and was first instituted by an Earl of Derby in 1780. It is usual for the House of Commons to adjourn over Derby Day.

Derbyshire Cheese. (*See* CHEESE.)

Derbyshire Neck. (*See* GOITRE.)

Derbyshire Spar. (*See* FLUOR SPAR.)

Derelict.—Goods wilfully thrown away or relinquished with the intention of resigning the ownership thereof. Goods thrown out of a vessel to lighten same in time of distress are not derelict, on account of the absence of the intention as explained.

Dermatology.—This is the science of the skin both in health and disease. It is a subject which has been made by many a special study, but embraces too wide a field to be discussed in this work.

Dermestes. (*See* BACON BEETLE.)

Descent. (*See* INHERITANCE.)

Desertion.—The crime of abandoning the naval or military service without licence, also an abandonment of one's wife or children, a matrimonial offence, provided for by the statute 20 & 21 Vict., c. 85, s. 16, under which a sentence of judicial separation is attainable by the husband or wife, on the ground of desertion without cause for two years and upwards. See also s. 21 of the same statute, respecting orders for the protection of the property of wives deserted by their husbands. See also 21 & 22 Vict., c. 108, s. 8.

Desiccation.—The process by which solid bodies are deprived of their watery elements. The desiccation or drying of plants, timber, and many other things, is often an important matter. The principal methods are, exposure to the sun, to hot or dry air, or the direct action of heat. It is apparent that no fixed rule can be laid down, because the mode which would be preferable in one case would be undesirable in another.

Design, Hints on.—The word design is used to indicate the arrangement of outlines, or light and shade, as the preliminary steps to a finished pictorial drawing, or composition of ornament, without reference to the material on which, or with which, either is to be finally executed. The word is, however, now so loosely used that it is almost impossible to clearly define its exact meaning.

Design, School of.—By a school of design, we should understand a school at which drawing is taught with a view to its application in the decorative section of the so-called useful,

as distinguished from the high or fine arts. But schools originally established to serve the end of supplying manufacturers with trained and skilful native designers, have departed so far from their original and most praiseworthy intention without changing their name, that this definition appears likely to lose its value, and a school of design may consequently be in purpose one with a school in which drawing is taught with a view to the production of pictures, although originally that name implied quite a different thing.

Designs, Copyright in.—Copyright in designs which may be classed as engravings exists for twenty-eight years. (*See* ENGRAVINGS, COPYRIGHT IN.) Copyright may also exist in the application of designs to articles of ornament or utility. The duration of the copyright in designs for purposes of utility is three years from the date of registration; the duration of copyright in designs for ornamental purposes varies from nine months to five years from the date of registration, according to the class of articles to which the designs are applicable. (*See also* COPYRIGHT.)

Designs, To Copy.—Designs are copied most readily by squares: that is, by placing over the original a piece of tracing-paper—supposing you do not wish to make the lines upon the original you are copying—and ruling a series of parallel lines crossing each other at right angles and regular measured distances, so as to form a given number of squares. On the paper you are going to put your copy upon, the same number of lines are ruled in the same way, giving an equal number of squares of the same size, or larger if you want the copy to be larger than the original, or smaller if you wish to decrease its size. By numbering each square, you will see at once in which this or that portion of the original is, and can the more easily and with increased certainty transfer it to the same square on your drawing-paper, in this way securing readily the proper proportions of the parts, and their relative positions.

Desk Covers.—Morocco leather, velvet, plush, and fine baize are the best materials for this purpose. American cloth is inexpensive, but it is smooth and hard, which qualities render it unfitted for covers of this kind.

Desks.—High desks are not used so much as formerly, the flat writing-table having taken their place; there are some writers, however, who prefer to stand or rest on a high stool and write on a high sloped desk. Portable writing-desks were formerly made of wood, which was often inlaid with brass, ivory, mother-of-pearl, and other ornamental substances; of late years, leather has been used, being less ponderous than wood. Russian leather is the most durable, for it is not so easily scratched as the inferior leathers. Dark green and purple are the best colours to choose; brown is not serviceable, for it is a colour which soon looks soiled.

Despatch Boxes are generally made of morocco or Russia leather, or japanned tin. They are principally used to hold despatches or letters, but many are fitted up with receptacles for stationery, and contain a blotting-pad, spring inkstand, and match-box. Those made of japanned tin are mostly used by Government officials and others proceeding to India or the colonies, as tin is infinitely superior to leather for the purpose of a sea-voyage. (*See* A B C. DESPATCH BOX.)

Despatch, or Dispatch.—A message which is despatched or sent off; the term being especially applied to an official letter or other communication forwarded without loss of time.

Despotism.—A form of government in which an unlimited authority resides in the sovereign, who is an absolute monarch, *i.e.*, a despot.

Desquamation.—This is the peeling off of the scarf-skin or epidermis which takes place after an attack of scarlet fever or some other febrile disorder. Whilst it continues, every care should be taken to avoid cold or chill, as the newly-formed skin is extremely sensitive. The patient should not leave his room, and this should be kept at a temperature of about 60°. As these scales contain the germs of infection, the patient's linen should be changed often, and both this and the clothes worn should be thoroughly disinfected. The room, bedclothes, &c., should be subjected to the same process.

Dessert.—The word dessert is derived from the French *desservir*, to clear the table, and, strictly speaking, it is that which comes after the cloth is removed. According to the old English mode of dining, the cloth was withdrawn after the cheese course, and the dessert was laid on the bare, shining black mahogany. The word is fast losing its significance, however, for the old fashion is becoming obsolete. According to the arrangement of the *dîner à la Russe*, which is now much favoured, the dessert is set on the table from the commencement of the repast, and remains there till the end. When the table is sufficiently large to accommodate the dishes, the advantage of this plan is obvious. The pretty sweets and bright fruits which are intended for dessert add greatly to the appearance of the table, and both trouble and disturbance are avoided in consequence; the necessity of removing the cloth and laying on the dessert being dispensed with.

Dessert may be regarded as the luxurious part of a dinner. It comes when the dinner is over, and is intended to delight the eye and please the palate rather than to appease hunger and satisfy the appetite. It is nevertheless exceedingly wholesome. The fresh and dried fruits which are almost invariably introduced assist digestion, and tend to purify the blood, while the diversified colours of the ingredients, and the taste displayed in their arrangement, increase considerably the elegance of the dinner. Very much of the success of a dessert depends upon the manner in which it is dished. The materials should be so arranged that the colours will contrast prettily. Good taste leads to the avoidance of an indiscriminate mixture of articles of an entirely different nature. For instance, cakes, macaroni, and finger-biscuits do not look well when mixed with candies or bonbons. When a dessert-stand consists of tiers

placed one above the other, it is best to let each tier be occupied with one variety only, and if the colours and sizes are tastefully disposed, the effect will be much more decided than if all kinds were mixed together. On the other hand, fresh fruits of various sorts may be placed together with advantage. A large pine in the centre of a dish, with dark-coloured plums, rosy-cheeked apples, and yellow pears arranged round it, and clusters of green and purple grapes hanging negligently around, is particularly effective. Fresh peach-leaves or vine-leaves may be used to garnish the dishes. When these cannot be procured, artificial leaves made for the purpose are to be purchased at a trifling cost. The articles best suited for dessert are fresh fruits, such as pineapples, grapes, cherries, plums, pears, peaches, apricots, apples, oranges, currants, strawberries, raspberries, mulberries, green figs, dried fruits, almonds and raisins, dates, French plums, medlars, delicate cakes and biscuits, chocolates, and sweetmeats, and many other articles, together with choice wines.

Dessert Knives, Forks, &c. — A special knife and fork, made either of silver or electro-plate, is usually provided for each guest at dessert. It is required because the steel, when acted upon by acid, is liable to impart an unpleasant flavour to the fruit. Dessert knives and forks are usually sold in mahogany cases, in which they may be preserved when not in use. When these are not provided (and sometimes the knives and forks can be purchased at a less cost without the case), green-baize cases may be made which will answer the purpose quite as well. A separate compartment should then be provided for each article, as otherwise the knives and forks would get scratched by being put together. The handles of the knives and forks should not be washed in hot water, as this will spoil their colour.

Dessert Service.—The beauty and elegance of the dessert-dishes and plates greatly add to the appearance of the table. Fashions change in dessert services as in all other things. At the present day, oval and round dishes of various patterns are favoured, and these may be in Sèvres, Dresden, Chelsea, Worcester, and Staffordshire china, or in cut or frosted glass. Artistically shaped baskets, tazzas, and compotières, are also usual. The colour and pattern of china dishes should be carefully chosen. Of late years, it has been customary to have a group of fruit or flowers painted upon each dish, and on Sèvres china lovely pictures have been burnt into the dishes. Connoisseurs, however, are to be found who prefer plain white Dresden or imitation of Dresden dessert services to any other, and declare that the absence of colour on the china affords a neutral ground upon which the diversity in colour of the fruit and sweetmeats may be displayed to great advantage. This is of course a matter of taste. The fruit placed in dishes which are hollow-shaped will be more easily arranged if the depth is partly filled up before the fruit is put in; and this can be best done with a piece of rolled paper, covered with a layer of dyed moss, half an inch thick, with curled moss resting on the edges of the dish. Moss may also be placed between the fruits in order to keep them firmly in their position.

Detainer.—The wrongful holding or keeping of another's goods and chattels, notwithstanding that the original taking of them may have been lawful. For instance, if a man's cattle be distrained, and before they are impounded sufficient amends are tendered—here, although the original taking was lawful, their subsequent detention after tender of amends is not lawful, and an action of replevin will lie to recover them, wherein damages for their detention will be given, but not for their caption, because the original taking was lawful. The word has another legal signification, viz., a form of process lodged with the sheriff against a person already in custody.

Detergents.—These are, properly speaking, cleansing or aperient agents, as their name implies. The term is seldom used now in this sense, but is frequently applied to certain substances which have a cleansing action upon the skin, as soap friction with a rough towel, &c.

Determinable Freeholds.—Estates for life which may determine upon the happening of contingencies before the life for which they are granted expires. Examples: if an estate be granted to a woman during widowhood, or to a man until promoted to a benefice; in these and similar instances, when the widow marries, or when the man obtains a benefice, their respective interests are absolutely determined and gone. Yet while they last they are considered estates for life, because they may possibly endure for life—*i.e.*, if the contingencies do not sooner happen.

Determination of Blood.—By this is meant an unusual flow of blood to a certain part, as, for example, the head. When this is affected, the face is flushed, and the feet, as a rule, cold. To remedy this condition, the mustard foot-bath should be used, as hot as it can be borne, and the head kept cool. A strong aperient is often of great service, as the digestion is generally at fault. Determination of blood may also result after an injury, and it is generally one of the first signs of inflammation. It may be emotional only, as in blushing.

Detinue.—The form of action formerly in use for recovery of goods improperly detained. The plaintiff could recover the goods in specie, or on failure hereof the value and also damages for their detention. By the Judicature Act, 1873, all distinctive forms of action are abolished, yet an action may still be brought for the return of goods detained, which may well be termed an action in the nature of an action of detinue.

Detonating Compounds.—Those compounds which explode with great violence are said to detonate—*detonare* being the Latin of "to thunder;" because the concussion of the air resulting from the explosion produces a loud report. Gunpowder, gun-cotton, the fulminates of silver and mercury, picric powder, nitroglycerine, dynamite, and other compounds, all detonate; though the two first-named can be made to burn without detonation, and gun-cotton can be made to detonate when so wet that it will not burn. The detonating compound

which is put inside percussion-caps is made of equal parts of fulminate of mercury and chlorate of potash, protected by a varnish; it explodes with the sharp blow of the hammer when the trigger is pulled, and causes the charge of gunpowder to explode also. It should be borne in mind that detonation is not only caused by the application of fire, but that with some substances a moderate blow, or even a sudden shake, is sufficient. Hence the great danger in removing nitroglycerine, as it is a liquid; and hence the common occurrence at powder-mills of one explosion being immediately succeeded by a second, and sometimes by a third, all in separate buildings. Picric powder is also a very dangerous compound. Very valuable experiments on the transmission of detonation have been made at Woolwich Arsenal.

Device. — This emblem is contemporary with coats of armour; it was borne on shields or embroidered on banners, and was intended to convey some personal signification. When first introduced devices were used by royalty only, but during the fourteenth century they were adopted by the nobility. The well-known emblems of the Red and White Roses are instances of this usage. The device worn by Louis XIV. of France was that of the sun in its glory, accompanied by the motto, *Nec pluribus impar*. During the Neapolitan wars, emblems descriptive of the bearers were borne by the Italians, who termed these devices "impresses."

Devices in Hair Work.—For bracelets, rings, and watch-guards, very fine plaits can be made of hair, and these can be of close or open work; narrow plaits can be finely twisted together, and thus form a coil. Flowers of many kinds can be imitated in hair. These are done by means of very fine knitting-needles and wire. Muslin and thin cambric can also be ornamented with hair.

Devices, Ornamental. — These should agree in character when employed for the ornamentation of any particular object. It is, therefore, advisable to study the different styles of designs, the peculiar characteristics of curves, lines, and figures, as adopted by different nations. Thus, those displayed by Grecians, Egyptians, and Italians differ considerably, and if a combination of these is introduced the effect will be confused and inartistic. Harmony of form is required as well as harmony of colour; analogy of size, relative positions, and agreement of ideas should be considered as well as the juxtaposition of colours. A general plan should be decided upon and carried out in every portion of the work; thus, border-patterns should agree in style with the pattern devised for the centre. When the device is transferred to the material, it is most easily accomplished in the following manner: coloured paper, which is sold for the purpose, is placed on the material, and on this the device is traced in pencil; the paper is then removed, and on the material the lines are easily distinguishable. Common chalk pencils are also useful for tracing on the material itself.

Devise. — The giving or bequeathing of lands or tenements to another by last will and testament. The person who so gives or bequeaths is termed the "deviser," and he in whose favour the act is made is termed the "devisee." This word formerly meant "to divide or distribute property," but it is now exclusively used in the above sense. It is properly applicable to real estate only, but the use of it is not absolutely essential any more than the word "bequeath" is to a gift of personal estate.

Devonport Desk. (*See* DAVENPORT DESK.)

Devonshire Butter. (*See* BUTTER.)

Devonshire Cream. — There are two kinds of Devonshire cream; the one known as clouted cream, which is made by scalding the milk, but not allowing it to boil. The other, Devonshire raw cream, which is a mixture of fresh and sour cream sweetened with sugar. (*See* CLOTTED OR CLOUTED CREAM.)

Dew.—The aqueous vapour of the atmosphere deposited on cold surfaces with which it comes in contact. Dew is most rapidly formed at night when the sky is clear, permitting ready radiation of heat from bodies on the earth warmed by the sun during the day. Every evening when the sun sets, the grass, leaves, &c., radiate their heat into space, and their surfaces, together with the layer of air next to them, become cooled; when cooled below the point of saturation or dew point, the moisture in the atmosphere condenses and collects upon them. Common examples of this same process may be observed in the case of the moisture which will collect on the outside of a pitcher of water placed in a warm room, and in the frosted figures which form on window-panes in cold weather. In this latter instance the temperature of the window-panes is below the freezing-point of water, and therefore the particles of water freeze in the act of condensation. All bodies do not radiate heat alike, and therefore dew is not deposited to the same extent upon all objects. Upon those which radiate—*i.e.*, cool—most rapidly, the greatest quantity of dew is deposited. For this reason grass and wood are often covered with dew, while metal and stone are free from it.

The following are some of the more important phenomena of dew. It is formed most abundantly during calm nights, though a very slight motion of the air does not appear unfavourable; it is, however, seldom deposited in very windy weather. Unlike the moisture deposited by fogs, dew forms on some bodies in preference to others. It collects more readily on surfaces not protected from exposure to the sky than on those protected. Poor conductors of heat but good radiators are the most heavily bedewed. It is deposited through the entire night, from before sunset till just after sunrise, but more particularly in the latter half of the night and about sunrise.

Dewberry.—This belongs to the wild bramble tribe, and is generally found in country lanes and on heaths and commons. It does not grow so high or so large as the blackberry, though it is closely allied to it. Its fruit is large, and of a better flavour than that of the latter, and ripens during the month of September. It grows near the ground, and seldom attains a

greater height than two feet. It is propagated by cuttings and suckers. The fruit



DEWBERRY.

makes a very good jam, and it is occasionally used for making puddings, pies, and also wine.

Dextrine. (*See* British Gum.)

Diabetes.—This is a constitutional disease, due to some derangement of the digestive process in the liver, and characterised by an excessive discharge of urine, containing a large quantity of sugar. This condition is accompanied by intense thirst, and, as the disease progresses, by great loss of flesh. The early symptoms of this formidable disease are very obscure, and it is probable that in most cases it has been progressing for some time without being noticed. The increasing quantity of the urine, its peculiar odour, and the accompanying thirst, soon, however, begin to attract attention, and on examining that fluid by certain well-known tests, an abnormal quantity of sugar is discovered. The treatment of diabetes must depend more upon food than medicine. Every article of diet containing sugar or starch to any extent, especially potatoes, should be studiously avoided. Alcoholic drinks of all kinds, with the exception of a little thin claret, or a tea-spoonful of brandy in a tumbler of water, are prohibited; milk diluted with water, or lime-water, may be taken with advantage. Bran-bread, carefully prepared, should be substituted for ordinary bread. Good soup thickened with finely-powdered bran, and flavoured with onions, to the exclusion of other vegetables, as carrots, peas, turnips, &c., may be taken daily. Eggs, cocoa (made from nibs, without sugar), pickles in moderation, fish, salt or fresh, fat meat as much as possible, are permissible: but it cannot be too strongly urged, that in self-denial to a degree almost intolerable lies the only hope of arresting the progress of the disease. Opium is sometimes given, but with doubtful effect. The best medicines would appear to be, cod-liver oil, and the citrate of ammonia, with citrate of iron in effervescence. One of the best tests for discovering sugar in the urine is what is known as Trommer's. It consists in putting a little urine into a test-tube, adding one or two drops of a solution of sulphate of copper, and then some potash in excess, which form a dark-blue solution. This is boiled for a minute over a spirit-lamp, when, if sugar is present, a yellowish brown precipitate of the oxide of copper is produced.

Diachylon. (*See* Plaster.)

Diadem. (Greek, *deō*, I bind.)—In its earliest form, a fillet worn round the temples, probably introduced into Greece from the Oriental nations, among which it was the symbol of royalty. The diadem was first used at Rome by Constantine the Great, and after his time it was generally set with rows of pearls and precious stones.

Diagnosis.—This is the term used by medical men to signify the act of distinguishing one disease from another. A correct diagnosis, *i.e.*, a thorough knowledge that the disease to be treated is one of a certain kind and no other, is of the utmost importance, and it is often owing to a failure to grasp this, that treatment does no good, and may even do harm. It is to their peculiar power of diagnosing disease, even more than to their skill in treating it, that many physicians have risen to great eminence.

Diagonal (Greek *dia*, through, and *gōnia*, an angle).—In geometry, a straight line drawn through a rectilineal figure, joining two opposite angles.

Dials.—Instruments for ascertaining the hour of the day, by means of the shadows of the sun and other heavenly bodies. Dials may be solar, lunar, or astral, but of these the first-named are the most important. The date of their invention and use appears to be buried in antiquity; it is certain that they were well known to the Chaldees, from whom, according to Herodotus, the Greeks learnt their use. Sun-dials may be either *horizontal*, *vertical*, or *inclined;* of these the horizontal is the most common construction at the present day. It consists of a horizontal plate (*i.e.*, one whose plane is parallel to the horizon), upon which the hours are marked, and which supports a *style* or *gnomon*, for the purpose of casting the sun's shadow. The style is the axis of the dial, and is usually a cylindrical rod, or thin plate of metal; in the horizontal dial its edge is always parallel with the axis of the earth. The dials so frequently seen affixed to old churches, houses, &c., are vertical. With these the position of the hour-lines alters with the latitude of the place and the aspect of the dial. In the usual way, the slight deviation of the sun's apparent from true time is not considered in the construction of dials, due allowance being made after the observation is taken.

Diamond.—This gem derives its name from *adamant*, of which it is a corruption, and is so called on account of its hardness, for which, combined with its brilliancy, it surpasses all other precious stones. It consists of

pure crystallised carbon, with an average specific gravity of 3·5. The primitive form of the crystal, and that into which it may be converted by cleavage, is the regular octahedron. The diamond is found of all colours—white, yellow, orange, red, pink, brown, green, blue, black, and opalescent—in Hindostan, Brazil, Sumatra, Borneo, the Ural Mountains, the Cape Colony, and occasionally in North America and Australia. It is not known in what geological formation it originated, but it is found in alluvial deposits which are worked for gold, sometimes attached to brown hæmatite, and sometimes in quartz conglomerates containing oxides of iron. Diamonds were originally discovered in Bengal and Borneo. Colourless and perfectly transparent diamonds are the most valuable, and are known as "diamonds of the first water," from their resemblance to drops of clear water; diamonds of a rose tint and of clear water are, too, highly valued. Decided tints of blue and green are also prized, while all shades of yellow are considered objectionable. Diamonds in the rough state require a great deal of cutting and polishing before they can be seen in all their beauty, and in this process they are often much reduced in size. From their excessive hardness they can only be cut and polished with other diamonds and diamond dust.

Diamond Cement is used for glass, china, and polished steel. It is composed of gum mastic dissolved in rectified spirit of wine, and an equal amount of isinglass dissolved in French brandy or rum, but previously softened in a little water, together with a comparatively small portion of gum galbanum or ammoniacum rubbed or ground till dissolved. The whole is mixed with sufficient heat, and the cement warmed to dissolve it when required for use. The phial should be closely stopped.

Diamond Pattern.—A pattern made up of rhomboidal or oblique-angled figures, similar to the diamonds on playing cards. It is formed by two series of parallel straight lines crossing one another.

Dianthus.—The name given to a genus of silenaceous dicotyledonous plants, of which no less than one hundred and thirteen species have been enumerated. These are found both in Europe and Asia in the temperate zone. Six species are natives of England, two of the United States of America, and two of the Cape of Good Hope. The most beautiful garden flowers of this genus common in England are the *Dianthus barbatus*, or bearded pink, or sweet-william; the *D. caryophyllus*, or carnation; and the common garden pink, all of which are well known to every amateur gardener.

Diaper.—The word diaper (French *diapré*), as explained in Wharton's "History of English Poetry," means "embroidered," or "diversified." According to Peacham, in his "Compleat Gentleman," we read: "Diapering is a term of drawing; it serveth chiefly to counterfeit cloth of gold, silver, damask, branch't velvet, camblet," &c. When applied to architectural decoration, it signifies ornamentation applied to a flat surface, whether carved or painted. When sculptured, the pattern is sunk below the surface, and usually formed in squares. In this country diapering was first introduced in the style called Early English, and was extensively used in the Decorated. In the Perpendicular it was confined to painting, as exemplified in the Lady-chapel of Gloucester Cathedral. It was executed in brilliant colours and gilding, and was used in all the three styles of architecture above named. In Japanese ornamentation it is very much adopted, and the distinguishing characteristic of its use in the art of that country is the variety of forms introduced and combined, with quaint and arbitrary freedom of design, into one subject. In the ornamentation of linen and cotton fabrics it takes the form or pattern of a lozenge, or a diamond pane of glass. (*See next paragraph.*)

Diaper.—A linen or cotton cloth, having a diamond-shaped pattern which is produced in the process of the weaving. In Anderson's "History of Commerce" it is conjectured that diaper linen cloth, being first manufactured in the city of Ypres, in Flanders, derived its name from that place, being originally called *d'ipre*. Rich embroidered cloths were manufactured in other Flemish towns, which were likewise termed diapers. Our own diapered fabrics show some variation in their several designs, but they are all small in size, and the lozenge form is rarely absent from the device. This material is chiefly employed for table-linen, towels, and nursery use.

Diaphanie.—A process for the decoration of glass, by means of transferring coloured designs from the paper on which they were originally painted or printed to glass, leaving the latter sufficiently transparent to admit light through the colouring matter. It is an inexpensive as well as a beautiful art, and bold effects of colour may be produced by it. The back of the paper on which the design is painted should be sponged with cold water, and a coating of prepared transferring varnish applied to the coloured side, with a broad flat camel's-hair brush. The coloured surface thus cemented should be laid upon the glass, and pressed down with a roller. It would be wise to lay two or three sheets of paper upon the back of the design before using the roller, and the rolling should be commenced from the centre to the outer edge. In two days the varnish will be dry, and during this period the work should not be touched. To remove the paper from the now painted glass, the paper should be damped and gently rubbed with a soft sponge. As soon as the complete removal of the latter has been effected, a thin coat of what is called "clearing liquid" must be applied to the design, which, when dry, must be succeeded by one or more coatings of the "washable varnish," and then the painting of the glass will be completed. It should be remembered that the designs must be transferred before the glass be fitted to the window-sash, and that the painted side be turned inwards, although it may be cleaned in the usual way, as the "washable varnish" will preserve the painting. This style of window decoration is

particularly to be recommended for staircase or back windows, where the view from them is such that to shut it out would be desirable. The materials required for diaphanie may be procured from any artists' colourman.

Diaphanous.—A term derived from the Greek. All substances which allow light to pass through them are said to be diaphanous, though they need not necessarily be as transparent as glass.

Diaphoretics.—Diaphoretics, or sudorifics, are medicines or medicinal agents which act upon the skin, causing increased perspiration. Water is thus eliminated from the system, as well as certain organic and inorganic matters. Diaphoretics are most useful—(1) when the action of the skin has been checked by cold and other causes; (2) in certain fevers, when the skin is hot and dry; (3) when it is desirable, from disease or derangement, to relieve the kidneys, liver, and other eliminative organs. The most important diaphoretics are the different preparations of ammonia (especially the acetate), opium (especially Dover's powder), ether, alcohol, camphor, antimony, and ipecacuanha. The warm, hot-air, and vapour baths, as well as certain warm drinks, act as diaphoretics.

Diaphragm.—This is the fan-shaped muscular septum which separates the chest from the abdomen, forming the floor of the former and the roof of the latter. It arises from the extremity of the breastbone from the under surface of six or seven lower ribs, and by two pillars from the second, third, and fourth lumbar vertebræ. After expanding in one direction and converging in another, the fibres of this muscle are finally inserted into what is called the central tendon. The diaphragm plays an important part in the function of respiration, and in this way. In its ordinary posture of rest the convexity of the muscle is towards the chest, but when a deep inspiration is taken, the muscle descends, becomes concave towards the chest, the cavity of which is thus enlarged to the extent of at least two inches, thus allowing considerable expansion of the lungs and greater breathing power. Of course the cavity of the abdomen is diminished to an equal extent by this act, and its various organs being thus pressed down, certain expulsive efforts are thus facilitated. The diaphragm is called into action in crying, laughing, sneezing, vomiting, and coughing. After death the convex surface of the muscle is towards the chest, because the last act of life is one of expiration. There are three large openings in the diaphragm—one for the aorta, another for the œsophagus, and a third for the vena cava. There are also several smaller openings.

Diaries.—These are literally (Latin *diarium*) daily records; only, however, of those matters and occurrences personally affecting the writer. They are commonly used merely as registers of engagements and commercial transactions, but are sometimes more directly personal, the owners inscribing therein not only the events of the day, but also accounts of all those matters more directly affecting themselves. Diaries of this latter description (notably those of Evelyn and Pepys) have often proved in after years of valuable service to the historian and biographer.

Diarrhœa.—This is a disorder of the intestinal canal, characterised by copious discharges of a semi-solid or fluid character, and generally accompanied by a feeling of nausea and faintness, with pain or cramp more or less severe. The chief causes of diarrhœa are—(1) disorder of the liver, causing an increased flow of bile—this is called bilious diarrhœa; (2) irritant matter in the bowels, occurring most frequently during the fruit seasons and hot weather, and hence sometimes called summer diarrhœa; (3) catarrh (*which see*). When the liver is at fault, the stools are dark and offensive, and in these cases small doses of grey powder and rhubarb, one or two grains of each, should be given night and morning, and the diet strictly attended to. If irritant matter is the cause, a dose of castor oil should be administered, and, after this has acted, the aromatic confection mixture (*see* CHALK MIXTURE) may be given as directed, or the following draught—diluted sulphuric acid ten drops, tincture of laudanum from two to ten drops or more, in an ounce of peppermint water. The castor oil may be repeated in a few hours if the pain continues. Cramps are best relieved by vigorous rubbing, and by the application of flannels wrung out of hot water and sprinkled with turpentine. From ten to twenty drops of chlorodyne in a little water, or dropped on a piece of sugar, frequently act most beneficially, but should be either preceded or followed by castor oil. Diarrhœa generally precedes Asiatic cholera (*which see*), and must be immediately attended to if that disease is epidemic. The diarrhœa of children is a very troublesome complaint, and frequently proves fatal. It is generally due to irritant matter in the bowels, teething, or worms. When due to the two former causes, an alterative powder, containing one grain each of grey powder, rhubarb, Dover's powder (half a grain for infants), and soda, should be taken night and morning. If the diarrhœa is obstinate, castor oil, followed by aromatic confection mixture, is necessary. Worms must be got rid of by suitable remedies. (*See* BOWEL COMPLAINTS; WORMS.)

Diastole.—This is the dilatation of the ventricles or cavities of the heart, and is synchronous with what is called the second sound of that organ.

Diathesis.—This a peculiar constitutional tendency which renders some people more liable than others to take certain diseases. Thus we say of certain persons that they have the gouty diathesis; of others that they have the tubercular or consumptive diathesis; and we mean by this that these people, from hereditary taint, habit of body, or some other cause, are more likely to take these diseases than others who have not a special tendency to them, but who may at the same time have some other diathesis equally well marked.

Dibber.—An implement used in agriculture and horticulture for the purpose of boring holes to receive plants and seeds. It consists of a cylindrical piece of wood, from one to two

inches in diameter, and from one to two and a half feet in length, pointed and tipped with iron at one end, and provided with a handle at the other.



DIBBER.

Dice (plural form of *die*).—Small cubes of bone or ivory, numbered on each of their faces with small dots, from one to six. Dice are used in a great number of games of chance, by being shaken up and thrown from a box. They are of very ancient origin, and are generally believed to have been an early invention of the Egyptians. Dice have been discovered among the ruins of Thebes, very similar in structure and material to those in present use.

Dicker.—This word, connected with the Latin *decem*, and meaning the number ten, sometimes occurs in commercial accounts. A dicker of leather, *i.e.*, ten hides or skins; a dicker of gloves, and a dicker of necklaces, are also spoken of—the latter denoting ten bundles of ten necklaces each. In the American States, dicker, both as noun and verb, means barter or exchange.

Dicotyledons.—A class of plants so called from their having, as a rule, two seed leaves, or cotyledons, on the embryo, or the rudimentary plant, the first leaves being in fact opposite. The stems are branched, and there is a distinct separation betwixt the wood, the pith, and the bark, while the leaves articulate with the stem and are net-veined; the wood is in continuous rings, and the flowers part in fours and fives, *i.e.*, four or five sepals, the same number of stamens and petals. They form an exceedingly large class, and are distributed freely all over the world.

Dies Non.—A day on which the courts, on religious grounds, do not sit, *e.g.*, Good Friday, Sunday, and the like. In Roman Law it is termed *dies nefastus*. Vacations are non-court days for a different reason. The term is commonly used to express a day on which business generally cannot be transacted.

Diet.—It would be impossible in a work of this kind to treat fully so important a subject as diet; we shall, therefore, only attempt to lay down a few general principles. It is a well-established fact that in every effort we make, however slight, whether it be muscular, respiratory, or mental, there is a corresponding loss of tissue. Now this waste, as it passes out of the body by the various excretions, is found to contain certain constituents, as nitrogen, carbon, various salts, &c., which are exactly similar to those which enter into the composition of the blood and tissues of the body; and therefore it follows, that in order to repair the waste which is continually going on, these constituents must enter into the food taken. Some articles of food are rich in nitrogen, as, for example, meat and peas; some are rich in carbon, as suet, sugar, &c.; whilst others contain both these elements in various proportions, and are called mixed, of which the best examples are milk, rice, potatoes, and the various meals, as oatmeal, wheat-meal, barley-meal, &c. Nitrogenous food builds up and repairs tissue, as flesh, muscle, &c.; whilst carbonaceous food, by a process of combustion, serves to assist respiration, and is called the respiratory food. Certain salts are also necessary, to form and sustain the solid framework and nerve tissue, and these are found in common salt and various vegetables. Diet, therefore, to be wholesome and nourishing, must contain these three elements, as well as some fat and water. But there are some other points about diet as well as its chemical composition which require some notice. First, it should be regular and not hurried; second, it should be sufficient in quantity; third, it should be adapted to age. Regularity of diet is most important, as nothing contributes so much to produce indigestion as irregular meals, and too much haste in taking them. For an adult, three meals in the day are sufficient, and the hours should be so arranged as to have as far as possible an equal interval between each meal. Children require food more frequently. With regard to quantity, much will depend upon the nature of the work done: the greater the work the greater the waste, and, therefore, the greater the quantity of food requisite to repair it. The quality of the food must also be good, and be of a mixed character, to fulfil those conditions already mentioned. Children require a different diet to adults. In infancy, milk contains all that is necessary for their nurture; as they grow older, other matters have to be added, to give it a more mixed character. Finally, a healthy diet should be free from excess generally, and should not consist of one class of food only to the exclusion of others. Those who live chiefly on rice or potatoes, as well as those who are great beer drinkers, become very much bloated, owing to the formation of fat at the expense of muscle, and a consequent loss of vital strength. (*See* Food.)

Dietetics.—This is the term used to express all that pertains to diet or food, not only with regard to its composition and classification, but also to its application and distribution in the form of dietaries, &c.

Dieu et mon droit.—A French phrase, meaning "God and my right," now the motto of the royal family of England. It was first assumed by Richard I., to intimate that he held his sovereignty in no vassalage to man. After his reign, the motto seems to have fallen into desuetude until the time of Edward III., who took it up again when he first claimed the crown of France. From that time its use as the royal motto has continued, without interruption, until the present day, except in the reigns of Elizabeth, Anne, and William III., the first two of whom assumed the motto "Semper eadem," and the last "Je maintiendray." Even in the reign of William III., however, "Dieu et mon droit" was retained on the Great Seal.

Differences (Heraldic).—These are special marks, so called from being brought into requisition to distinguish persons of the same family from one another. Ancient differences were Bordures of all kinds; those recognised in modern days are restricted

in number, and have been specified under the heading CADENCY.

Digby Chick.—This name is given to a small kind of herring, which is highly cured, sold in bundles in the London market about Michaelmas, and brought from Yarmouth.

Digesters, Cooking.—Iron stock pots, used for cooking meat and vegetables. The lid fits so closely into a groove at the top that no steam can escape from it, but can only pass through a valve at the top. In filling the



COOKING DIGESTER.

digester, plenty of room must be left to allow of this escape: in fact, the pot must only be three-parts filled. The contents of the pan must not be allowed to boil, but must be kept gently simmering; a boiling heat injures the flavour of the food. Digesters are made in all sizes.

Digestion.—This is the process by which the food is converted into a state in which it can be absorbed by the blood, and can thus fulfil its function of nourishing the body. The process of digestion may be thus briefly described. When the food enters the mouth, it is masticated, *i.e.*, bruised and torn by the teeth, being at the same time thoroughly mixed with a secretion from the salivary glands of the mouth called saliva. It is then, by the action of the tongue and certain muscles, formed into a sort of bolus, which can be easily swallowed. In this bolus the first chemical change takes place, the saliva converting most of the starchy matter present into sugar, a substance which is very much more soluble than starch. The food does not undergo any further change until it reaches the stomach, where it is at once acted upon by the gastric juice. This fluid, which is of a clear, transparent, and acid character, containing a peculiar and important principle called pepsine, is poured out in considerable quantities. By its action, as well as by certain wave-like muscular movements of the stomach, the food, with the exception of the fatty and oily matter, is, after a variable time, thoroughly dissolved, and passes out of the stomach a pultaceous mass into the duodenum or small intestine, receiving the name of chyme. There it soon meets with the bile and pancreatic juice, which form an emulsion with the fatty matter, act upon particles which have escaped the salivary and gastric juices, and fit all for absorption. The whole mass is then acted upon by the lacteals, a series of absorbent vessels situated in the mucous membrane of the intestines. These absorb the greater portion of it, convert the chyme into a milky fluid called chyle, which, passing through the mesenteric glands, reaches the receptaculum chyli, and from thence, by the thoracic duct, passes into the circulation. The portion of chyme which is not absorbed passes out of the body in the form of fæces. The time occupied in digestion varies according to the nature of the food taken, the condition in which it reaches the stomach, and the health of the recipient. It is well known that certain articles of food digest more quickly than others: as, for example, milk digests more easily than mutton, mutton than beef, beef than veal, veal than pork, and so on. Again, if the food has not been thoroughly masticated, or if sufficient time has not been given to permit of the saliva acting upon it, it will take longer to digest. The stomach, pancreatic juice, and bile must, in consequence, do the work of the teeth and saliva. Again, if too much fluid is taken with the food, digestion is impeded, because the former has first to be absorbed. Again, if food is taken in excess, the gastric juice may be incapable of dissolving the whole of it, the result being that the portion not acted upon decomposes, giving off carbonic acid and other gases, and producing a certain form of indigestion. Lastly, a cheerful frame of mind aids digestion, whilst anxiety, as well as strong bodily exercise taken immediately after a meal, impedes it. (*See* INDIGESTION.)

Digging, Garden.—The process of digging is a very important one, as earth dug improperly loses its effect, and failure of both flowers and crops generally ensues. To dig ground, a small trench—the width and depth of the spade—is first made, which should extend quite across the piece of ground intended to be dug. After making the trench, the digger should work backwards, and throw the earth he now digs into the space before him; each time filling up the trench which remains, and so on, till the whole is dug. To manure the ground, a good plan is to cover that portion allotted to be dug with old stable refuse, and at each process of digging either put some of this into the trench or allow it to fall during the act of digging. Care should be taken to remove all weeds, especially couch-grass. It is a good plan to dig after a fall of rain, but not when too much has fallen.

Digitalis.—This is the *Digitalis purpurea*, or purple foxglove, natural order *Scrophulariaceæ*, found growing in our hedges and waste places where the soil is sandy. The dried leaves are used medicinally, in the forms of infusion, tincture, and in a preparation called digitaline, which is the active principle of the drug. Digitalis is largely used as a sedative in almost every case where the heart is unduly excited. Under its action, both the pulse and the temperature fall. This is due partly to the contraction of the minute capillaries raising the pressure of the

blood in the larger vessels, and partly to the sedative action of the medicine upon the nerves which control the heart. In all dropsies, except that which arises from Bright's disease of the kidneys, digitalis is a most valuable medicine; and when combined with a decoction of broom and acetate of potash, its diuretic properties are most marked and beneficial. It has also been given in certain inflammations, as erysipelas and pneumonia, but its efficacy in these cases, except in lowering the action of the heart, is doubtful. Digitalis has also been used in delirium tremens and in acute mania. In these cases very large doses have been given, and with considerable success. The strength of the infusion is as follows:—Dried digitalis leaves, thirty grains, boiling distilled water, ten ounces; the dose is from two to four teaspoonfuls and more. The tincture is prepared from the dried leaves, macerated in proof spirit, and strained through a percolator; the dose is from five to thirty drops and upwards. Digitaline, the active principle, is obtained from the leaves by an elaborate process which produces masses of small scales, of a white inodorous character, intensely bitter to the taste, and powerfully irritating to the nostrils. The dose of this is from one sixtieth to one thirtieth of a grain. Digitalis, in all its forms, being a very powerful medicine, must be given with great caution. If it is taken too frequently, and the system cannot throw it off to the same degree, it is said to accumulate in the blood, and as its action is mainly upon the heart, the consequences may be serious. It must, then, be carefully remembered that when digitalis is being taken, no matter what the dose may be, all sudden movement or effort must be strictly avoided, even when assuming the sitting position in bed or getting on the feet, as persons, through a hurried attempt to get out of bed when under the influence of this medicine, have died suddenly from syncope.

Dignity. (*See* RANK.)

Dilapidations are of various kinds, which differ according to the nature of the tenure under which the property dilapidated is held, according to the covenants of the leases, and according to other incidental circumstances, which should all be taken into consideration before the survey and valuation be commenced. In most instances, dilapidations are to be considered rather as a compensation, to be paid as dilapidation costs for damage done to a tenement in lieu of reparation, when the expenses of a complete reparation would, according to the custom of landlord and tenant, be excessive. Dilapidations, therefore, are, whatever state of repair a tenement may be in worse than it ought to be. They are either commissive or permissive, of which the former is the greater offence, as it implies an active and wilful perpetration of damage upon another's property, and is a direct infringement of the rights of persons; while permissive dilapidation is an offence of a more passive quality, and may sometimes arise from negligence. Penal laws against dilapidations are of very ancient date, being traceable as far back as the Emperor Justinian.

Dilettante.—An Italian word, naturalised in this country, and signifying an amateur or admirer of the fine arts; also a promoter of the fine arts.

Dill.—This is the *Anethum Graveolens*, or common garden dill, natural order *Umbelliferæ*, cultivated in England, and indigenous to the South of Europe, Cape of Good Hope, and Egypt. Dill owes its aromatic and stimulant properties to a volatile oil, called "oil of dill." This is of a pale yellow colour, peculiarly penetrating odour, and hot, sweetish taste. One, two, or three drops of this oil, dropped on a piece of sugar, are given to children suffering from flatulence, and frequently with good effect. Dill-water may be prepared from either the oil or the fruit. It is used for the same purpose as the oil, the dose being from one to three teaspoonfuls or more, according to age. In the case of infants, it is generally given with the food.

Diluents.—This is the name given to certain cooling drinks which may be taken copiously without hurt in a feverish state of the body. The most important are—toast and water, lemonade, barley water, and, in suitable cases, cream of tartar.

Dime.—A silver coin of the United States, of the value of ten cents, or $\frac{1}{10}$th of a dollar. The word is of French origin, being in fact the French *dîme*, a contraction of *dixième*, a tenth.

Dimities.—Dimity is a thick material, made of cotton, mostly used for bed-hangings and window-curtains. It is generally white, though dimities are frequently made variegated, with a coloured stripe or figure. This figure is raised on one side and lowered on the other, so that the two sides of the fabric present reversed patterns. Dimity has been, to a great extent, superseded by cretonne and chintz.

Dining.—There has been much controversy as to the best time for dining. It is universally acknowledged that nothing is more conducive to the maintenance of health than that the food should be taken regularly and at proper intervals. Some people are in the habit of taking food every now and then between meals, but this practice is not a good one, for it gives the stomach no opportunity to rest. Custom and experience appear to have decided that three meals are required daily for a healthy person, and that these shall be taken at intervals of from four to six hours. The dinner, or principal meal, is sometimes taken in the middle of the day, and sometimes in the evening, according to personal choice or domestic arrangement. Many people find it inconvenient to give up in the middle of the day the time that is necessary for a comfortable meal. Under these circumstances, it is much the best that the lighter and less ceremonious repast denominated luncheon should be taken at the earlier hour, and that dinner should be postponed until the day's work is over, when it may be discussed and enjoyed in a leisurely manner. One argument that is often urged against dining in the middle of the day is that a hearty substantial meal is apt to be followed by inactivity and to impair energy, and therefore that it is better deferred until the

necessity for exertion is over. This is very reasonable. At the same time, it is important that the prospect of a late dinner should not be made an excuse for omitting food altogether, or of allowing a biscuit, or something equally insignificant, to be deemed sufficient for the mid-day repast. If this is done, the system will most certainly become exhausted, and it will not be very long before evil consequences arise. It must be remembered that the size of a meal is generally regulated by the time that has elapsed since the last one. A certain amount of food must be taken daily to compensate for the wear and tear of the system; and if too large a proportion is introduced into the stomach at one time, the digestive powers will not be found equal to the amount of work which is thrown upor them, and evidences of disordered action will soon begin to show themselves. The patient will become dyspeptic, and the heart and brain may sympathise with the derange-ment. On the other hand, health requires that, although no one should go to bed with the stomach in an empty condition, the hour of dining should not be deferred too late, because digestion ought to have approached completion before the night's sleep is begun. Dr. Pavy says:—"During sleep there is a diminished activity of all the bodily functions, and the condition is not favourable for the due per-formance of digestion."

Dining-room.—This should be plain and substantial in character. The principal items usually are—the sideboard, waggon, dining-table, and set of chairs, to which are often added a couple of armchairs, a sofa, and some-times a writing-table. Mahogany and oak, either light or dark, are the woods generally chosen. Morocco leather is the most satisfac-tory covering for the chairs and sofa. A plain, unpretending sideboard looks better than one which is more elaborate, unless the carving be very well executed. This is the most expensive piece of furniture; some people content them-selves with a waggon only, but where the two can be had it is more convenient. The table should be broad and firm: the legs should be at the corners, so as to be out of the way. Pedestal tables are seldom firm. High-backed chairs look well, but are always inconvenient for the waiters. The carpet and paper should have a warm and comfortable appearance, but not be too sombre in colour. There should be but few ornaments on the mantel-piece, and those should be plain.

Dining Tables.—"A round dinner-table," says Anthony Trollope's Archdeacon Grantly, "is the most abominable article of furniture that ever was invented"; and we are told that, in his eyes, there was something peculiarly democratic and vulgar in such a table. He was accustomed to a goodly board, which com-fortably elongated itself according to the number of the guests, was nearly black with perpetual rubbing, and as bright as a mirror.

The best dining-tables are undoubtedly the telescopic ones, made of mahogany. It is de-sirable that they should not be French polished, because the hot dishes leave marks on the var-nish. They should be kept bright with oil and hard rubbing. The legs of a dining-table should, if possible, be at its four corners. If they are elsewhere, they are sure to be in some-body's way. Wherever they are they should be without castors, as a table that is always slipping about is a great inconvenience.

Dinner.—The word "dinner" is supposed to be a contraction of *dixième heure* (ten o'clock), which was the ancient time of dining. Dinner is the principal meal of the day. In England it is a highly social meal, and is made an occa-sion of meeting one's friends and of celebrating private or public events. Douglas Jerrold said that the British humour for dining and giving dinners is such, that if London were to be de-stroyed by an earthquake, Londoners would meet at a dinner to celebrate the event. The hour of dinner has been made a subject of continual change. Down to the time of Queen Elizabeth, twelve o'clock was the dinner hour for all classes, and supper, which was really a lighter dinner, was taken in the evening. Then two o'clock became the ordinary dinner hour in good society; and at the beginning of the seven-teenth century very fashionable people had already adopted five o'clock as the time for dining. According to present usage, from six to eight is the hour chosen among the higher classes, although amongst the middle and lower classes dinner is still taken from twelve to two o'clock. Dinner, in the olden times, must have been rather a rough affair, very different to the elegant and luxurious meal of modern days. In the tenth century the dining-table was made of bare wood. It was brought into the dining-hall when it was wanted, and removed immediately afterwards. The food was brought in on spits, and these spits were held out to the guests, who helped themselves with their fingers. The liquor was served in a bucket, and was poured from this into a tumbler, which was passed round from one guest to another. Plates were not used until the sixteenth century, and then the supply was limited: one plate being made to serve for two people. Table knives were not introduced until the reign of Queen Elizabeth, and forks were not used until the seventeenth century. During the eighteenth century gold and silver utensils were used; at the present time these have, to a great extent, given place to china and glass.

Dinner, Arrangements of.—The style and arrangements of a dinner must, of course, be regulated by the means, position, and taste of the master and mistress of the household. In the majority of households, it is necessary to arrange for the luncheon, for the nursery and kitchen dinner, and for the family dinner. With a little contrivance and forethought, these may be made to work together, and thus a good deal of expense and waste will be avoided. The methodical and clever housekeeper will find it much pleasanter, and in proportion more economical, to arrange for a large family than for a small one, that is, if the means are sufficient for the requirements of the household. For instance, when eggs are required, the yolks may be used for one dish and the whites for another. Then it is more profitable to buy a large joint than a small one. When a small

joint is cooked, unless very strict supervision is exercised, there is almost sure to be waste, because there is so much danger of the joint being dried up, and having hard, shrivelled, uneatable little bits belonging to it. But a large joint carefully cooked will be juicy and succulent to the last; besides which, it may be served in different ways, and thus variety be ensured. A large sirloin of beef may have the end stewed, then be served with turnips and carrots; the under-cut may be cut into slices and fried in collops; and the main piece roasted, and served hot on one day and cold on another. The remains may be made into croquettes, kromeskies, or rissoles; or simply minced and served with sippets; or made into potato-pie for the kitchen dinner. The bones may be stewed for soup, the fat rendered for frying purposes. Thus not a particle need be wasted. If, however, things are to be managed in this way, the dinner arrangements must be made at least two days beforehand; and many housekeepers find it to their advantage to arrange fully a week beforehand. Whatever is decided should be written down for the cook to refer to. This will prevent mistakes, and will do away with all fear of neglect sheltering itself behind forgetfulness. In arranging for family dinners, puddings may occasionally be dispensed with, and dessert take its place. Especially may this be done when soup or fish has been provided. Puddings add materially to the expense of a dinner, and their loss is not so much felt as would be supposed. This remark does not apply to the nursery dinners, for children generally care more about the pudding than anything else. A mistress should not be so careful about the principal dishes of a dinner as to forget their accompaniments. Well made and suitable sauces are a great addition to a dish, and make it much more enjoyable. The French have a proverb, which says: "A delicious sauce will cause you to eat an elephant." Certainly, good sauce will cause many a dish to be highly esteemed that would otherwise be little valued. When laying down her plans, the mistress will do well to remember that there are two essentials to success in her department of the dinner: they are good cookery and good waiting. Therefore, she should arrange that the dishes are of a nature suited to the capabilities of her cook, and also that the number of her guests is not more than her servants can wait upon satisfactorily.

Dinners *à la Russe* have been much favoured of late years. When a dinner is served in this way, flowers and the dessert occupy the entire space which is not taken up with the plates of the guests. They remain there till the end of the dinner. The various meats, poultry, game, &c., are placed on the sideboard, and carved there, and handed to the guests. If this mode is not adopted, the various dishes are placed and replaced on the table according to the courses. Whatever style is adopted, the table appointments are the same. A damask cloth is spread evenly on the table, and along the ends and down the sides are spread narrow damask slips, which can be drawn off when dinner is over and before dessert is served. Before each guest should be placed a napkin prettily folded, a roll of bread, a tiny salt-cellar, a water carafe, and a knife, fork, and spoon, ready for use. On the right hand of each person should be put a sherry, claret, and champagne glass. Small ménu stands, each of which contains a brightly illuminated card, with a list of the dishes which are to be served, are now usual, and are not only convenient, but add to the appearance of the table. In order to prevent confusion, a card should be laid before each seat, on which should be written the name of the guest who is to be seated opposite to it.

Dinner, Bills of Fare for. (*See* Bill of Fare.)

Dinner, Courses at. (*See* Courses at Table.)

Dinner Decorations. (*See* Table Decorations.)

Dinner, Etiquette of.—The invitations for a dinner of any pretension should be sent out, in the name of the gentleman and lady, two or three weeks before the day fixed for it. They should be answered immediately, and the guests should be careful to be at the house *punctually*. Want of punctuality at an evening party is, to a certain extent, expected; but at a dinner, where the arrangements have been made, and the dishes are supposed to be ready for serving at a fixed time, no latitude ought to be taken. And if it is important on the guests to be punctual, it is absolutely imperative upon the mistress and master of the house to be so. The mistress especially should be in the drawing-room some minutes before the guests are expected, and she should place herself in such a position that she may receive and welcome her friends, who will be careful to pay their respects to her first. If it should happen that the cook is unpunctual, or any guest should keep the company waiting, or any little *contretemps* should occur, the lady should still preserve a quiet and equable demeanour. Equanimity is one of the signs of good breeding. Any manifestation of excitement or annoyance in the hostess is sure to communicate itself to the guests, and general discomfort will be the result. The host gives to each gentleman the name of the lady whom he is to take in to dinner, and if they are strangers, he introduces them to each other. He himself leads the procession, with the lady he most delights to honour. This should either be the lady of the highest rank in the room, the oldest lady, or the greatest stranger. If a bride be present, the position should be given to her. The lady chooses a gentleman for her escort for similar reasons. She signifies to him that he is to take the place of honour next to herself, and with him closes the procession to the dining-room. In order to prevent confusion, it is best that the master and mistress should arrange together in what order their guests are to be marshalled before they arrive. On reaching the dining-room, the hostess takes her seat at the top of the table, with her escort on her right hand; and the host seats himself opposite her, and places his lady on his right hand. Every dish that is brought round is offered first to this lady, and the rest of the guests follow in

succession. If the dinner is to be served *à la Russe*, the dishes are handed. Of the meats, small pieces are put upon the plates, and handed by the servants. Soup is first brought, and sherry is offered after it. Fish follows soup. The entrées—jellies, creams, &c.—are handed on electro-silver dishes, and the guests help themselves to as much as they may require. It is etiquette to begin as soon as the plate is set before one, and to eat quickly. Wine should not be put on the table, but should be handed round, the proper kind at the proper time. Sherry is offered after soup. With the fish, light wines, such as hock or sauterne, are given. Champagne is drunk with the joint. Port does not come in until dessert, when it is brought with sherry, claret, and Madeira. It is no longer customary for the guests to take wine with each other: that formality is now obsolete. When dinner is over, the table is cleared of everything but the flowers and decorations and the dessert dishes, which are brought into a prominent position. A dessert-plate, on which is a finger-glass containing a little water, together with a dessert knife and fork and three wine-glasses, should be placed before each guest. The wine is put on the table, and handed round once. The dessert-dishes are passed round by the servants, who then leave the room. As soon as the hostess thinks the ladies have finished their dessert, she rises, bows to the lady on her husband's right hand, and all leave the room, the hostess walking last. The ladies betake themselves to the drawing-room, where coffee is handed to them. It is also taken to the gentlemen in the dining-room. After a short interval, the gentlemen join the ladies, and the business of the dinner is concluded.

In less formal dinners, the soup and fish are placed on the table, and sent round to the guests. The soup is put before the lady, and the fish before the gentleman. If there are two soups, a tureen is put at each end. These are followed by two kinds of fish. The vegetables and sauces are placed on the sideboard, and are always handed round; and the courses are put on the table and removed in their proper order. The plates should all be removed before the dishes are taken off, and no dish should be put on the table while anything belonging to the former course remains. Side-dishes and entrées are not put upon the table, but are handed round by the servant. Until within the last few years, it was etiquette for the host to invite his guests to partake of this or that dish, and to urge him to do so if he declined. This is no longer required. What there is, is offered freely, and the guest can take it or leave it, according to his wish. Certainly, this is much the pleasanter practice of the two. All through the dinner, courtesy and kindly attention are expected from the host and hostess to their guests. Pleasant manners at table can be easily acquired by a well-educated person, but they need to be daily practised: they cannot be put on and off like a garment. If this is attempted, the fraud is soon discovered. As Emerson says—"To say what good of fashion we can—it rests on reality, and hates nothing so much as pretenders; and a man should not go where he could not carry his whole sphere with him."

Dinner-giving.—We are told, on high authority, to "use hospitality one to another, without grudging," and most people agree that to ask a friend to dinner is a very agreeable form of hospitality, and a very pleasant way of showing kindly feeling. It is one that is extensively approved, and it would be difficult to discover an easier and a better one. A good dinner, well managed in every way, generally results in a fair amount of honest lawful enjoyment, and is a means of diffusing that goodwill towards our immediate friends which adds so much to the enjoyment of life. Dinners become objectionable only when they are given from a love of show rather than from a love of one's friends, and when display gives place to comfort. Then they take their place among the great crowd of shams, and are to be condemned accordingly. Elaborate and luxurious dinners are exceedingly expensive, and people of limited means would find it better to avoid them, and to content themselves with plainer and less pretentious affairs. When large dinners are attempted with insufficient help and with inadequate means, they are seldom a success, and instead of reflecting credit on the host and hostess, they are very likely to call forth a scornful smile or a sneering remark from the less charitable of the guests.

Dinner Parties.—Two of the requisites for a successful dinner party are good cookery and good waiting. These require to be treated from the domestic point of view, and are referred to in this work under the headings DINNER, ARRANGEMENTS OF, and DINNER, ETIQUETTE OF. But there is still another element of success which must not be forgotten, and that is the company. Unless the guests are sympathetic, no amount of care in the selection of the viands, no superlative degree of excellence in the wines, and no elaboration of elegance in the arrangements, can make things pass off pleasantly. It is very desirable that those who meet should be of the same standing in society. They need not necessarily be friends: indeed, the presence of strangers often imparts a pleasant sense of freshness to an entertainment; but those between whom there is a decided disparity in position are not likely to have many points of sympathy. If forced into close contact, there will be a danger either of subservience on the one hand, or of condescension or resentment on the other, which is sure to cause annoyance. The character of the guests should also be considered. At least one or two of them should be able to talk well and brightly, otherwise, notwithstanding all the well-meant efforts of the host and hostess, there will be at intervals a recurrence of those terrible pauses which are enough to throw a damper over any company. A merry guest, rich in conversational powers, confers a favour upon his host by accepting his invitation. "Laughter," says Hufeland, in his "Art of Prolonging Human Life," "is one of the greatest helps to digestion with which I am acquainted; and the custom prevalent among our forefathers of exciting it at table by jesters and buffoons was founded on true medical principles. Endeavour to have cheerful, merry

companions at your meals; what nourishment one receives amidst mirth and jollity will certainly produce good and light blood." The number of the guests is another important point. When a large number of persons are present, the dinner becomes a banquet, and anything approaching friendly intercourse between the host and hostess and their friends is impossible. It has been wittily said that the numbers at a dinner should never exceed that of the muses or fall below that of the graces; and one whose authority must be acknowledged, when giving advice upon the management of a dinner says, "Let the number of your guests never exceed twelve, so that the conversation may be general. Let the temperature of the dining-room be about 68°. Let the dishes be few in number in the first course, but proportionately good. The order of food is from the most substantial to the lightest. The order of drinking wine is from the mildest to the most foaming and most perfumed. To invite a person to your house is to take charge of his happiness as long as he is beneath your roof."

Dinner Waggon.—The place of the dinner waggon is near the sideboard. It is



DINNER WAGGON.

used to hold various things at meal times for which there is not room upon the sideboard and the butler's tray. It is a very useful addition to the dining-room.

Diocese.—The circuit or extent of a bishop's jurisdiction. In England there are two provinces, viz., Canterbury and York; whereof Canterbury comprises twenty-one dioceses, or sees of suffragan bishops, and York seven. These dioceses are again divided into archdeaconries, each archdeaconry into rural deaneries, and rural deaneries into parishes. The statute 37 & 38 Vict., c. 63, contains provisions for re-adjusting the boundaries of archdeaconries and rural deaneries.

Diocesan Courts.—The consistorial courts of each diocese, exercising general jurisdiction in their respective limits in all local matters of spiritual discipline: suspending or depriving clergymen, and administering other branches of ecclesiastical law.

Diphtheria.—This is a contagious and infectious disease, characterised, as its name implies, by the formation of a pellicle or skin, commonly called false membrane, on the affected part. Diphtheria usually begins in the throat or windpipe, and has a tendency to spread downwards into the respiratory passages, and, in some cases, even into the stomach. The symptoms are: a dusky redness of the throat, with difficulty and pain in swallowing, sympathetic swelling of the lymphatic glands of the neck, considerable fever, and the presence of a large quantity of albumen in the urine. If, with the above symptoms, a white membrane, or pellicle, appears on the red surface of the throat, or is expectorated, there is no doubt that the disease is diphtheria. One great danger from the malady is its tendency to spread downwards, and produce death by suffocation. If this does not happen, there is another danger, and that is, death from exhaustion. It is the province of the medical attendant to obviate, as far as possible, these tendencies. If the disease manifests a tendency to run a definite course, does not spread, and the strength remains good, there is fair hope of a favourable issue; but even during convalescence, certain alarming symptoms appear which must be mentioned: these are paralysis of the neighbouring parts, as, for example, the lips, sight, hearing, &c. As a rule, however, these pass off in time, leaving no permanent injury. The treatment of diphtheria consists, in mild cases, of saline and other cooling medicines, preceded by a full aperient, and no stimulants. Inhalation of vinegar and hot water (a wine-glassful of vinegar to a pint of water), by means of an inhaler, is of great service, and a gargle of carbolic acid and water is also useful. A lump of ice in the mouth affords intense relief, and iced drinks may also be given with advantage. In more severe cases, the above treatment may be supplemented by a liberal use of stimulants, wine, or brandy, and by the application of a strong solution of lunar caustic (a scruple to the ounce of water) to the throat; or, as recommended by some, by painting the throat with tincture of iron or a strong solution of hydrochloric acid and water. When there is danger from suffocation, the operation of opening the windpipe may be performed. When the great danger has passed, and the period of convalescence has begun, then certain medicines will do good. Of these, perhaps the best are, the syrup of the phosphate of iron, quinine, and strychnine, and the simple tincture of iron. If paralysis supervenes, small doses of strychnine are most useful; but this is a disease the treatment of which requires the highest professional skill. Diphtheria is thought by many persons to be a new disease; but this is not so, as under different names it has existed for centuries, both in Europe and America. It is said to have caused the death of Washington and of the Empress Josephine. Some doubts exist as to the true origin of the disease, but it is probably parasitic.

Diploma.—This term (derived from the Greek *diploos*, double) originally denoted any

charter, bull, or other writing, inscribed on parchment or paper, and folded. The word owes its origin to the earliest charters of the Roman Emperors, which were traced on two tablets of copper, and folded together like a book. In modern usage, a diploma is a duly-signed instrument or letter, conferring some honour, privilege, or authority. As instances of these may be mentioned the diplomas given to graduates of universities as authority for their degrees; the licences granted by the Royal Colleges of Physicians and Surgeons to physicians and surgeons, authorising them to practise in their professions; and those granted to clergymen as authorities for exercising their ministerial functions.

Dips. (*See* CANDLES.)

Dipsomania.—This is the term used to express a condition of continual drunkenness, in which self-control appears to be completely lost. There is no doubt that with a large number of people the craving for alcoholic drink is so strong as to be almost, if not quite, irresistible. It is, in fact, a mania; and in recognition of this fact, certain asylums, or retreats, have been established in America to deal with such cases, and it is believed that they have been productive of much good. Similar institutions exist in this country, but they are at present available only for the well-to-do classes. It would unquestionably be a great boon if free asylums were provided for those needing them who are unable to pay. It is even doubtful whether compulsory removal should not be resorted to as the kindest and best course in these deplorable cases. At any rate, whatever infringement of the liberty of the subject such action would imply, there is no doubt that, taking it for granted that drunkenness is the great evil of the day, the gain to society, both public and domestic, would be enormous.

Diptych.—Originally a tablet of two leaves, derived from the Greek *diptuchos* (two-fold). Among the Greeks and Romans it consisted of two tablets of wood, metal, ivory, &c., united by a hinge, and looking like a book of two leaves. Such a book, of more leaves than two, though properly *poluptuchos* (or manifold), was also often termed a diptych. The ancient diptyches were used both for civil and ecclesiastical purposes, as public registers, and as ecclesiastical lists of the dead and living members of the churches. In art, the term diptych is commonly applied to two painted panels united by a hinge. Similarly, a triptych consists of a large central compartment, with two outer panels folding over it.

Directors.—Persons appointed or legally chosen to manage and superintend the transactions of a company. The whole of such persons collectively form the "board of directors." They are generally invested with certain statutary authorities and powers. As to the punishment of fraudulent directors, see 24 & 25 Victoria, c. 96, sec. 81, *et seq.*

Dirt.—This has been described as "matter in the wrong place;" it is, therefore, something which should be removed. More strictly, the word denotes whatever is contrary to purity and cleanliness. The term is, consequently, of very extensive application, and everything which is not clean is properly styled dirty. (*See* CLEANLINESS, ADVICE ON.)

Discharge.—To discharge is to relieve of an obligation or duty; it means, also, the release of a prisoner from custody, or the discharge of a bankrupt.

Discharge of Jury.—A jury is discharged either by the act of God, as the death of one of them, or on the termination of the trial by verdict, or when they are unable to agree, or from some sufficient cause.

Discharging of Colours.—For discharging the colour from silk, one pound of white soap should be dissolved in a copper, the material boiled in it, taken out, and rinsed in warm water. Then a fresh solution of soap should be added to the copper; proceeding as before till all the colour be gone. When this process with soap is found insufficient—such as for grey and cinnamon—tartar must be used; for slate colours, and olive, and greenish-drabs, oil of vitriol is necessary, in warm water. When other colours appear obstinately tenacious, roche-alum must be boiled in the copper, then cooled down, and the silk immersed and boiled in it. Cloths should be rinsed before being re-dyed. For some fast colours a small quantity of muriatic acid, diluted in warm water, will be required in the process of discharging them; and in this case a good rinsing in warm and then in cold water will be requisite, to prevent injury to the material.

Discharging Servants.—When it is decided to dismiss a servant, the master (or mistress) gives a clear month's warning, or, if it is wished that the connection should be severed immediately, pays or forfeits a month's wages. So long as this warning is given, it does not signify whether it is for a month from the pay-day or not. Generally it is a month from the time when the decision was made to discharge the servant. At the end of the month the servant is bound to go. There are circumstances, however, under which the master may lawfully exercise the right of instant dismissal, without payment of any wages. This may be done when a servant wilfully refuses to obey orders, gets intoxicated, stays out all night without being able to give a satisfactory reason for doing so, commits a theft, or is guilty of immoral conduct. When a theft has been committed, the servant is generally given at once into the charge of the police. If after a servant had been committed to prison it were found that there was no cause for suspicion of dishonesty, the master would be liable to have an action brought against him for false imprisonment and defamation of character.

Discipline of Children.—The end which wise parents and teachers have in view is to prepare the young for the duties of life, and to teach them to govern themselves. If children could always have their parents near them, ready to guide and direct them, or if they were to be slaves, always dependent upon the will of another, it might be sufficient simply to tell

them what to do, and to see that they did it. But parents will pass away, and in a few years the children will have to face life unaided and uncontrolled by their wisdom and their authority; and it is to prepare them for this condition of freedom that the discipline of their childhood and their youth should be directed. With quite young children, absolute authority is called for. An infant is unable to reason, and if allowed to please himself would only injure himself and hurt others. Therefore, he must be forcibly but gently *made* to do what is right, and anything which is likely to hurt him or which he would spoil must be taken out of his reach. But as the child grows older, and his reasoning powers develop themselves, this is not enough. What is wanted is that he should be so trained that he will *choose* the right course: and thus discipline will have effected its object. Mr. Herbert Spencer gives it as his opinion that the best way to teach a child self-control is to let him suffer the natural consequences of his own actions. For instance, if a child do an injury to any one, he should be required to make what restitution is possible for him. If he make a litter, or be untidy in his habits, he should be made to make everything tidy again; if he soil or tear his clothes, he should be made to brush and mend them; or if he carelessly spoil them, so that they cannot be worn again, he should be made to stay at home on some occasion when required that he should be tidily dressed, and when he would otherwise have gone out and enjoyed himself; if he be dilatory in his habits, he should lose any pleasure or advantage that he would have gained if he had been punctual. This is Nature's plan, and this is the condition of things which will hold through adult life as well as in childhood. "It is by an experimentally-gained knowledge of natural consequences that men and women are checked when they go wrong," and this discipline is of the most efficient kind. It will have far more effect than punishment. The nature of a punishment is too often determined by the annoyance of the parent rather than by the fault of the child, and then it only excites resentment on the one hand, while displaying it on the other. Corporal punishment has not proved a success. "Savageness begets savageness, and gentleness begets gentleness." Children who are treated with sympathy become sympathetic. But this kind of treatment must be uniform if it is to be of any use. It is very evident that it will be a discipline for the parent as well as for the child. And so much the better. It will tend to establish a sympathetic relation between the two, which will be of incalculable advantage to both; and though it will call for labour and self-sacrifice, it will in return be productive of happiness both in the present and in the future.

Disclaimer, in law, is a denial by a tenant of his landlord's title, which may be either by refusing to pay rent or by setting up some other title. A devisee in fee may disclaim the estate devised, and after such disclaimer his interest in the estate ceases. An executor may before probate disclaim. A trustee who has not accepted the trust may disclaim. Disclaimer was also a defence in equity, where the defendant renounced all claim to the subject-matter of the suit. A patent may also be disclaimed, as to which see 5 & 6 William IV., c. 83; 7 & 8 Vict., c. 69; 15 & 16 Vict., c. 83.

Discount.—An allowance, at some fixed rate per cent., made in consideration of the payment of money before it becomes due. True discount on a sum of money due in six months' time should be the difference between that sum and its *present value*, the present value being that amount which, at the ordinary rate of interest, would yield the same sum in six months' time. Thus, if money be worth three per cent., the discount on a bill of £203 due in six months should be £3. Bankers and others, however, calculate discount as they would simple interest, thus making the discount on the bill in question £3 0s. 11d. As applied to shares, stocks, and other investments, by discount is understood the depreciation of such investments below the price at which they were first issued.

Discovery.—The revealing or disclosing of any document or matter. Formerly, neither party to an action could be compelled to make discovery, and a Bill of Discovery had to be filed in Chancery for the purpose. But now discovery of documents may be obtained under the Judicature Acts, and a judge has authority, on application made to him, to grant the same.

Discretion (in Law).—Such matters as in the course of a trial the judge has authority to decide summarily, and which cannot be disputed afterwards, are said to be within his discretion. Various matters incident to the course of an action before trial are also by Statute left in the discretion of the Court or a judge at chambers. Discretion is thus defined by Coke:—"A science or understanding, to discern between falsity and truth, between wrong and right, between shadows and substance, between equity and colourable glosses and pretences, and not to do according to their wills and private affections, for, as one saith, *Talis discretio discretionem confundit.*"

Discutients (Medical).—These are certain medicinal agents, of which iodine is perhaps the best example, which are intended to disperse tumours, &c., when applied to the surrounding skin. The term is now almost obsolete.

Diseases.—Any deviation of the body from its natural state of health, any disorganisation of function or structure, is termed a disease. Any disturbance of the natural functions of the organs of the body by disruption or violence, is, however, termed a *wound*, and not a disease. Slight indispositions, such as headaches and colds, are often called *ailments*, to distinguish them from acute diseases. For particulars as to different diseases and ailments, see under their respective headings.

Dish-covers.—Dish-covers are both useful and ornamental. They are of great service in keeping joints of meat, vegetables, &c., hot; and when bright and clean they certainly add to the attractiveness of the dinner-table. Different metals are used in their manufacture; those made of solid, plated, or nickel silver have the best appearance. The most effective mode

of cleaning them is to wash them thoroughly with soap and water, dry them with a soft cloth, and then polish them. Every time they are used they should be made quite dry, both inside and outside, before they are put away. If this is done, they will retain their new appearance a long time. Dish-covers made of Britannia metal, which are more fitted for rough usage, may be cleaned in the same way.

Dish-tub.—A dish-tub is placed in the scullery, and is used in washing the dishes and plates. Dish-tubs are made in metal, wood, and earthenware. The latter are the most easily kept clean, though those made of metal and wood are more durable.

Dishes.—The word "dish" is derived from the Saxon *disc*, and the Latin *discus*, and signifies something which is flat and extended. It denotes either a broad open vessel used for serving food, or a deep vessel for cooking food. A number of flat dishes of various kinds usually form a part of every dinner-service; and in addition to these, metal dishes are found in many houses, which have a handsome appearance, and retain the heat longer than those can do which are made of china or earthenware. *Hot-water dishes* are made with a double bottom, which can be filled with boiling water, and which are useful for keeping the meat hot which is placed upon them. Dishes in which meat is to be baked are made either of earthenware, or of tin or iron enamelled on the inside. The latter are much more durable than the former. M. Soyer invented a baking-dish to which a movable false wire grating was attached, and in the centre of this was a trivet. The pudding was put in the bottom of the dish, the meat on the trivet over it, and the potatoes on the grating round the meat. By means of this ingenious contrivance, all three could be cooked together in the oven, and the pudding and potatoes were pleasantly flavoured with the fat and gravy from the meat.

Dishes in Courses at Table. (*See* COURSES AT TABLE.)

Dishonouring a Bill.—The refusal to accept or pay a bill by the drawee, or person on whom it is drawn. When a person endorses a bill, he takes the position of a new drawer, and is liable to every succeeding holder, should the drawee fail either to accept or pay. For this reason, notice of non-acceptance or dishonour should at once be given to the drawer and endorsers. Any unnecessary delay in giving notice of dishonour will endanger the bill-holder's claim against prior parties, and in the usual way such notice must be sent within twenty-four hours.

Disinfectants. (*See* DISINFECTION AND DISINFECTANTS.)

Disinfecting, Means of. (*See next paragraph.*)

Disinfection and Disinfectants.—By disinfection is meant the use of certain agents called disinfectants to destroy the germs of such contagious and infectious diseases as small-pox, scarlet fever, typhus and typhoid fevers, &c. The term is also applied to the employment of these same agents, in removing disagreeable and unwholesome odours by decomposing them. It is well known that the contagious and infectious fevers just alluded to, as well as a great many others, impart their contagion or infection in three ways—viz., by the skin, by the breath, and by the secretions from the body. It is, therefore, of the utmost importance that the bed and other clothing of the patient, as well as the curtains, carpets, &c., should be subjected to a thorough disinfection. Of course, this cannot be done effectually by such disinfectants as chlorine or sulphurous acid gas whilst the room is occupied; but during the course of the fever a few saucers containing chlorinated lime, or a solution of carbolic acid, should be placed in the room, or close to the bed, as well as outside in the landing and passages. Cloths wet with one of these may be also hung in lines across the room, and a large sheet, similarly dealt with, should be nailed across the door. The secretions from the body must, before removal from the room, be disinfected, as well as the closet which receives them. When practicable in a country place, it is the safest plan to bury them outside, covering well with mould. When the patient is able to leave his room, then thorough disinfection with chlorine or sulphurous gas must be carried out with proper precaution, as directed under the heading of CHLORINE. There should be no disposal of the infected clothing in cupboards, presses, &c., where the germ poison may lurk for months, and even years, only to break out as vigorously as at the first. Everything that has been in contact with the patient, directly or indirectly, should be disinfected. The nurses in attendance should adopt similar precautions, and their clothing should be of linen or calico, which can be washed, avoiding woollen articles, which readily convey infection. Hot air is a valuable disinfectant, and is much used for public purposes. Infected bedding, clothing, &c., are put in an oven heated to nearly 300° (a little sulphur being sometimes placed in the oven at the same time), and kept there for some hours. The most important disinfectants are chlorine, Condy's fluid (permanganate of potash), carbolic acid, sulphurous acid, chloride of zinc (Sir William Burnett's solution), and iodine.

Dislocations.—These are displacements of the bones which enter into the formation of a joint. They may be either partial or complete, and are usually the result of external violence and muscular action, though they may occur before birth, and as a consequence of disease. Simple dislocations are, as a rule, readily recognised by a manifest alteration in the shape of the joint, and by a lengthening or shortening of the limb affected; there will also be generally some pain, and more or less immobility. When complicated, as they sometimes are, with fracture, the diagnosis is not so easy. By far the greater proportion of these accidents occur in the shoulder-joint; after it, the hip, then the collar-bone, then the elbow, then the foot, and lastly the lower jaw, thumb, fingers, toes, &c. Dislocations should, if possible, be reduced at once, as every hour delayed renders the operation more difficult and painful, necessitating the use of chloroform. If two or three weeks

have passed without the reduction being effected, it becomes as a rule impracticable. In that case, the bones adapt themselves to their new position, and a fresh joint is formed, sometimes of a marvellously perfect kind, but generally with more or less distortion or impairment of motion. The most important dislocations taken from above downwards are:—1. *Dislocation of the jaw.* This is recognised by a very unsightly distortion of the face, in which the lower jaw protrudes, the mouth is open, and cannot be closed; there is dribbling of the saliva, and inability to articulate. This accident may occur on one side only, or on both sides, and is generally the result of opening the mouth very wide, as in yawning or laughing. This dislocation may be reduced by the operator placing his thumbs, well protected by a soft towel, one on either side over the last teeth of the lower jaw, and forcibly depressing this until a snap is heard, which, if successful, signifies the return of the joint to its normal condition. Unless the thumbs are protected as just described, the snap may inflict an unpleasant bite upon the operator. A bandage or handkerchief, passed under the chin and fastened on the top of the head, should be worn for some days. Great caution also with regard to swallowing should always be observed, as the accident, having once happened, is likely to recur if this is not done. 2. *Dislocation of the collar-bone.* This sometimes takes place at the shoulder articulation of the bone. It is easily reduced by drawing the shoulder back, and thrusting the bone into its proper position with the thumb. A pad and bandage should be worn for some time. 3. *Dislocation of the arm at the shoulder.* This occurs most frequently into the axilla, or armpit, though the head of the bone is sometimes driven forward under the collar-bone, or backward upon the shoulder-blade. The symptoms of the dislocation at the armpit are as follows:—Pain and loss of motion in the joint, numbness in the fingers; the elbow is turned outwards, and cannot be brought to the side; the shoulder-joint is flattened externally, and a round hard mass can be felt in the armpit, which is the head of the bone. There are two modes of reducing this dislocation. One is to place the patient in a sitting position. The operator must next, standing by his side, pass his knee into the armpit, resting his foot on the chair; the arm must then be forcibly bent over his knee. The other plan is to place the patient on his back. The operator in this case, taking off his boot, introduces his heel into the armpit, which should be protected with a folded towel; then, having taken firm hold of the arm, should steadily pull it, until the bone slips into its place. The arm should be bandaged to the side for some days after the accident, and any stiffness which may result will be relieved by a stimulating liniment, and by friction with a rough towel. 4. *Dislocation of the elbow.* This generally occurs backwards, and is readily recognised by the deformity. The arm appears shortened; the lower arm is bent, and cannot be straightened, any attempt to do so causing great pain; and a considerable hard projection can be felt at the back of the elbow. This dislocation can be reduced by the operator placing his knee (resting his foot on a chair) in the bend of the patient's elbow, and by using his knee as a fulcrum, he can bend the arm round it until the reduction is effected. This accident generally occurs to young children. 5. *Dislocation of the wrist.* This is of rare occurrence, and can be easily reduced. Splints both back and front, and which should include the hand, must be worn for some time in this, as well as in the previous dislocation. 6. *Dislocation of the hip.* This takes place first, backwards and upwards on the pelvis. This is recognised by shortening of the leg to the extent of about two inches, the foot is turned inwards, and the head of the bone can usually be felt as an unnatural projection on the hip. Second, downwards and forwards. In this dislocation, the leg is lengthened nearly two inches, the foot is pointed forwards and downwards, and the legs are widely separated. Thirdly and lastly, dislocation of this joint may take place forwards and upwards on the pubes. In this accident the leg, as in the dislocation backwards, is shortened by about two inches; but the foot is turned outwards, instead of inwards, and the head of the bone can be felt in the groin. Dislocations of the hip may be reduced by the operator placing his heel in the groin, in the same way as previously described for dislocation of the arm, and forcibly extending the leg. If this does not succeed, a jack-towel may be passed round the groin of the affected side, and firmly secured above the patient's head: this fixes the pelvis. Counter-extension may then be employed by means of pulleys and cords, which are fastened to a point in the wall in front of him, and are attached to the lower part of the thigh by a towel or a padded belt. Dislocations forwards on the pubes are usually reduced by what is called manipulation—*i.e.*, a steady and forcible rotation of the limb in such a way as to cause the head of the bone to slip into the socket. 7. *Dislocations of the ankle-joint.* These are generally complicated with fracture of the leg. When this is not the case, they are best reduced by bending the leg as much as possible backwards upon the thigh, which relaxes the muscles of the calf, and then using the necessary traction from the foot. There are other dislocations, as those of thumb, great toe, fingers, &c., which, as a rule, require only simple extension by means of a tape or narrow bandage, fastened to the extremity of the part affected by what is called a clove hitch knot, and by means of which sufficient traction can be used to reduce the dislocation. It may again be mentioned that all dislocations, after their reduction, require a period of rest, and in most cases support by splints, bandages, &c.

Dismissal of Servants. (*See* Discharging Servants.)

Dispatch. (*See* Despatch.)

Dispensary.—A place where medicines are dispensed and medical prescriptions made up, &c. The word commonly denotes institutions of a charitable character founded for the purpose of relieving the sick poor. They have no beds for patients, who may either be visited by a medical officer, or may attend at the house, for which a letter from a subscriber or

governor is required. What are called provident dispensaries exist, and in them patients are not treated gratis, but pay a small sum for medical advice, &c.

Disposal.—1. The act of disposing or regulating anything; regulation; distribution. 2. The power of distribution; the right of bestowing. 3. Government; management. 4. Establishment in a new state.

Disputes.—When disputes as to wages and work arise between employers and employed, different courses may be adopted. Mutual conference is sometimes sufficient to adjust a difference. Failing this, resort may be had to arbitration, when each party must agree to abide by the decision of a competent and impartial person or persons, whom both sides are willing to accept. Sometimes the law is appealed to for the non-fulfilment of a contract, or the non-payment of wages. Artisans who seek for higher pay, or refuse to comply with a reduction of wages, sometimes leave their work, and go out on "strike," as it is called. The same may result from disputes about the hours of labour, and other arrangements. In like manner, masters who fail to persuade men to conform to their proposals may close their establishments, and a "lock-out" ensues. Both strikes and lock-outs are among the greatest evils which can befall the industrial classes, and should be discouraged to the utmost. They are calamitous in their operation both to masters and men; they reduce many poor families to destitution; they are an affliction to small tradesmen; they tend to drive away and destroy the trade of the localities affected; they give rise to bad feeling, and by enforcing idleness often allow the formation of evil habits. The law courts are undesirable places to appeal to in such cases, and ought to be avoided if arbitration, conference, or mutual concession offer any prospect of a settlement. (*See* Master and Servant, Law of.)

Disqualification.—That which disqualifies; that which makes unfit. It is particularly applicable to appointments and offices.

Dissenters.—In England, all persons who do not conform to the State Church are Dissenters. Before the Acts of Toleration were passed, Dissenters had no legal recognition, and were subject to various civil disabilities and judicial sentences. The process of modern legislation has gradually removed the burdens which were imposed upon nonconformity, and at present what are called the grievances of Dissenters are comparatively few and light. Every man is now allowed to be of any religion he chooses, or of none if he determines to renounce all the forms of faith. The principal communities of Dissenters are few in number, but their members constitute a very large section of the population.

Dissolution of Partnership, &c. (*See* Partnership.)

Dissolving Views.—Pictorial representations produced by means of two magic lanterns (*see* Magic Lanterns) provided with strong lenses, and a powerful light—the lime, oxy-hydrogen, or electric, if possible. One picture or painted slide having been represented on the screen or wall, it is made to gradually disappear and dissolve in haze, while another picture, appearing as gradually, takes its place.

Distaff.—This was an important implement in the days when linen and cloth were spun by hand. In form it resembled a headed staff, round the body of which the flax or wool was wound with which the spinners fabricated the material. In early pictures the distaff is depicted as being held under the arm when in use; in later times it is represented as placed upright in a stock in front of the spinner. It is said that an Italian introduced the distaff into England during the fifteenth century.

Distemper in Dogs. (*See* Dogs, Diseases of.)

Distemper, Painting in.—Colours are said to be in distemper when they are mixed with size or gum and not with oil. Painting in distemper is sometimes identified with fresco-painting, because the colours are compounded in much the same manner; there is, however, a difference: fresco-painting is executed upon a damp surface, and distemper on a dry one. Distemper is resorted to by scene-painters and the like, and it is also used for house decoration. It is a very ancient art, and was practised by painters before the discovery of mixing colours with oil. Since colours prepared with size soon dry or set, the work requires somewhat rapid execution; and since they may be seriously injured by damp and other causes, it is necessary to varnish the work if its durability is important. Distemper colours are commonly applied to plaster, but also, and to a large extent, to wood and other materials. It is cheaper than oil, looks well, and, if properly protected, lasts long. The process for a wall or ceiling coated with plaster is this:—Put some whiting into water, and when well saturated pour the clear water off. Grind separately in water a little indigo or ivory-black, and mix it with the whiting. Then stir in some strong warm size; strain the composition while warm, and put it into a cool place; when it becomes a weak, trembling jelly it will be fit for use. If too much size is employed, the colour may crack and fall off, but for a first coat the mixture must be moderately strong. Of course the plaster must be clean before it is covered. A second coat must be applied, and this completes the operation. A blue colour is prepared by the addition of blue verditer. For other colours also appropriate pigments may be procured. When distemper is applied to wood, it will bear almost any of the common varnishes, and it has been found that when quite dry a coat of linseed oil will render it almost equal to ordinary oil-paint.

Distillation.—A process by which a volatile liquid may be separated from substances which it holds in solution, or by which two or more liquids of different boiling-points may be separated. The operation depends on the transformation of liquids into vapours by the action

of heat, and on the subsequent condensation of these vapours by cooling. The apparatus used is called a still. This may vary greatly in its size, form, &c., according to the nature of the work required of it; but all stills consist essentially of three parts. These are—the body, which contains the article to be distilled, and which is in close connection with the furnace or other source of heat; the head, immediately above the body, which receives the vapours given off by the substance that is being distilled; and the worm, a long tube descending from the head, in which the vapour is cooled and condensed, and from the lower end of which the distilled liquid runs into a receiver. A chemist's glass retort is a still of the simplest form, in which small quantities of any articles that are readily condensible can be distilled over a gas flame. For more volatile substances, however, the worm must be made longer, and must pass through a vessel containing cold water, so that it may always present a cold surface to the vapour which passes into it from the head. The stills in large distilleries are commonly made of copper, the body resting upon a furnace; and the worm, twisted in a long spiral, encased in a vat containing cold water. In some cases stills are made of silver; and those used for distilling sulphuric acid are made of platinum soldered with gold, the only available metals that will withstand the corroding action of the acid. A great variety of substances are subjected to distillation—water, spirits, acids, oils, fats, resins, and many others. Distillation has often to be repeated over and over again when the article that is being treated consists of a mixture of two or more substances having boiling-points not very widely dissimilar, because in such cases it is impossible to separate at once the more volatile liquid without some of the other coming over with it. Each time the process is repeated, the more perfect will be the result. Thus, if we take a mixture of alcohol and water, the respective boiling-points of which are 174° and 212° Fahr., the mixture will boil at an intermediate temperature proportionate to the quantity of each liquid present—say, for example, the mean 193°—the alcohol passing over into the worm in greatest quantity at first, but carrying some aqueous vapour with it. On stopping the process by the time that two-thirds or so of the liquid had been distilled over, the resulting mixture would boil at a temperature intermediate between 174° and 193° Fahr., and being thus further removed from the boiling-point of water, the proportion of aqueous vapour passing over would be less than in the first instance. It is evident that absolute alcohol could not be obtained by this means, even were it not for its strong affinity for water; but with many substances a close approximation to purity can thus be attained, sufficient, indeed, for most practical purposes.

Distilled Waters.—Water, from whatever source it is derived, contains some impurities dissolved up in it. The commonest of these are carbonic acid, carbonate of lime, sulphate of lime, and common salt. For ordinary purposes these are not objectionable, but such water is unsuitable for the druggist or the scientific chemist; for their purposes all water should be distilled. The term distilled waters, however, includes a number of preparations employed in pharmacy and in perfumery, such as water of dill, caraway, fennel, orange-flower, cinnamon, peppermint, penny-royal, spearmint, pimento, rose, elder-flower, &c. These various plants all contain some essential oil to which their odour or pungency is due, and this is extracted by the action of boiling water, to which a little alcohol is added, and a sufficient quantity of the oil comes over with the water in the course of distillation to impart to each its peculiar property. The product contains about 5 per cent. of spirit, which enables such distilled waters to be kept for a length of time without deterioration.

Distilling.—In common conversation this term is applied to the whole process of spirit manufacture, and the establishment where the work is carried on is called a distillery. Distillation, strictly speaking, only forms one step in the process. From whatever ingredient the ardent spirit is to be derived, the processes through which it must pass before being distilled are virtually the same. The saccharine juices or infusions, whether derived from the grape, sugar-cane, date, barley or other grains, or from the potato, beet, or other roots, must first be fermented in order to change the sugar into alcohol. Then comes the operation which has given its name to the whole.

British spirits are principally made from grains, sugar, and molasses. The first step in the process is the mashing. The barley, rye, oats, or other grains to be used are reduced to a fine meal, and mixed with the proper proportion of malt which has been previously bruised. The quantities of the ingredients vary according the fancy of the distiller. They are then put in the mash-tun, which is filled with warm water, and kept agitated by stirrers generally worked by machinery. The mash is then allowed to stand until the liquor has become sweet by the conversion of the starch of the grains into grape sugar. The wort, as it is then called, is drawn off and cooled down as rapidly as possible, by exposing it in shallow vessels to the influence of a powerful draught, or by passing it through metal pipes surrounded by cold water. The fermentation of the wort is the next and most important of all the processes, as on its perfection depends the quantity of spirit which can be extracted. The wort is poured into the fermenting-tun at a temperature of from 65° to 76° Fahr. Good yeast from any brewery is added, in the proportion of one gallon or one gallon and a half for every hundred gallons of wort, according to the season; and a little more is often added next day, if the fermentation does not seem to be going on with sufficient vigour. Active fermentation is thus excited in six or seven hours, and the whole process is finished by the second, and never later than the third, day thereafter. When the wort is thus fermented it is called the wash. The wash has then to be distilled. Great improvements in the arrangement of the stills have been made of late years, tending

both to the acceleration of the process, and to the avoidance of re-distilling, which was formerly necessary in order to raise the spirit to the desired strength. The principle of the still will be found described under the heading of DISTILLATION.

Distortions.—These are certain bony and muscular twistings or deformities, which may be either congenital—that is, they may exist before birth—or they may result from a soft condition of the bones, as in rickets; also from severe burns or scalds, from injuries, especially in the neighbourhood of joints, or from some poisons, as strychnia, and in the case of distortion of the face, from violent and painful death. Clowns and others distort their facial muscles to cause laughter, whilst begging impostors simulate all kinds of distortions to excite pity, and thereby to obtain money from the benevolent.

Distraint. (*See* RENT, DISTRESS FOR.)

Distress for Rent. (*See* RENT, DISTRESS FOR.)

Distress, Relief of. (*See* CHARITIES, ORGANISED; CHARITY.)

Disturbance.—Annoyance; the wrongful hindrance of the owner of any hereditament in its exercise or enjoyment. There are five sorts of this injury—viz., disturbance of (1) franchise (2) common, (3) ways, (4) tenure, and (5) patronage.

Diuresis.—This is the term used to signify an excessive flow of urine. It occurs in certain forms of hysteria, is a well-known accompaniment of a state of nervousness, and is the direct result of excessive use of fluids, especially those of an alcoholic nature.

Diuretics.—These are medicines which either directly or indirectly increase the secretion of urine. Diuretics are said to act directly when they exercise a specific influence upon the kidneys, exciting these organs to increased action. The most important of this class are, squill, broom, juniper, turpentine, copaiba, cantharides, alcohol, acetate and bicarbonate of potash, nitrate of potash (saltpetre), the salts of soda, and water. Indirect diuretics are those which influence the circulation first, the subsequent effect being a copious secretion of urine. Of these the most important are digitalis, elaterium, cream of tartar, counter-irritation to loins, &c. Diuretics are useful in dropsy, in certain forms of gravel, and in causing elimination of poisons from the blood.

Dividends.—The interest payable to the shareholders of a company at each periodical division of profits. Also the annual payment of interest upon the National Debt and other public funds. The dividends on some railway stocks &c., are paid by means of coupons. (*See* COUPONS.) The distribution among the creditors of the estate of a bankrupt is also called a dividend.

Diving. (*See* SWIMMING.)

Divorce.—The determination of the marriage contract, either complete, by dissolution of the marriage, or partial, by judicial separation. The Statutes regulating this subject are the 20 & 21 Vict., c. 85, amended by the 21 & 22 Vict., c. 108, which established the Court for Divorce and Matrimonial Causes. Previously the Ecclesiastical Courts had jurisdiction in these matters. The above-named Court is now a division of the High Court of Justice, called "The Probate, Divorce, and Admiralty Division," but the former rules of practice and procedure are retained. This Court has jurisdiction to dissolve marriages, and to deal with the property of persons whose marriages are dissolved, and with the custody of the children. Divorces *à mensâ et thoro* are abolished by the Act, and judicial separations are substituted. A sentence of judicial separation has the same force and effect as a divorce *à mensâ et thoro* formerly had. It places the wife in the position of a *feme sole* as to property from the date of the sentence, so long as the separation continues, and if she dies intestate her property is dealt with as if her husband were dead. She is also considered a *feme sole* for the purposes of contracts, wrongs, and injuries, and sueing and being sued in civil proceedings. Her husband is in no way liable for her contracts or torts, except where he has neglected to obey an order for the payment of alimony to her, when he becomes liable for necessaries. The parties to proceedings in this Court are competent witnesses, 32 & 33 Vict., c. 68, s. 3. In suits for dissolution by a husband the Court must be satisfied that he has a *bonâ fide* domicile in England at the commencement of the suit. The Court has jurisdiction to try the validity or invalidity of any marriage solemnised in England. As to the validity or invalidity of marriage contracts between subjects of another country, or between subjects of our own country who have been married abroad, and the jurisdiction to dissolve such marriages, the law is very uncertain and unsettled.

Docket, or Doquet.—A small piece of paper or parchment on which is inscribed an abridgement or summary of any deed or other document; also a ticket or direction attached to parcels.

Doctor.—The term doctor originally denoted, as the derivation of the word (Latin, *docēre*, to teach) signifies, a teacher, and was only adopted as a title of learned distinction in the twelfth century. The university degree of *doctor*, superior to that of *master* (*see* DEGREES, COLLEGIATE), was first conferred at Bologna, and was introduced into the English universities in the reign of King John. The degree of doctor is now conferred in the British universities in the faculties of divinity, law, and medicine, but not in arts (*see* ARTS DEGREES); also in the science of music, and at London University in the faculty of science. The initial letters indicating the possession of doctors' degrees in divinity, law, medicine, music, and science, are respectively as follows:—D.D.; D.C.L. and LL.D.; M.D. or D.M.; Mus.D. or D.Mus.; D.Sc. The Continental universities have a doctorate in philosophy, abbreviated Ph.D.

Doctors' Commons.—This was originally a college for professors of the civil law, and was founded as such in 1568. Doctors of civil law

continued to be located here until quite recently when practising in London. Within it were seated the Court of Arches and the Admiralty Court, whose judges had their residences there. The place was most known to the public for the Prerogative Will Office, at which wills were proved and administration granted under the "prerogative" of the Archbishop of Canterbury, and where a vast collection of original wills was deposited. Later legislation and metropolitan improvements have broken up this famous group of establishments, which was situate between St. Paul's and the present line of Queen Victoria Street. The name was given from the circumstance that the resident doctors lived in common, or at a common table.

Doctors' Fees.—A doctor who is called in in the regular practice of his profession charges a fee for every visit made to his patient. These fees for advice do not, of course, include medicine, the charges for which form separate items in his bill. In special cases the fees are special, and their payment is expected at the time they are incurred; and this is true not only of physicians and others who may be called in or waited upon, but of the family doctor. No rule can be laid down as to the amounts which are demanded for professional assistance, but most practitioners have a fixed scale. The medical attendant of a household sends in his accounts at stated times; and, considering the value and importance of his services, it is desirable that he should be well and promptly paid. No unsettled bills are less creditable than those of the doctor.

Documents, Care of.—All deeds and other documents of value should be kept under lock and key and in an iron safe, if possible, so that loss by fire as well as by theft may be guarded against. Title-deeds, &c., are often entrusted to the family lawyer for security; bankers, too, will always take charge of bonds, stock certificates, and other property, for their customers. Receipted accounts should be carefully preserved for six years; at the expiration of that time they may be destroyed, for by the Statute of Limitations no demand for repayment can then hold good.

Doe.—A name signifying really the female of the fallow-deer (*Cervus dama*), a small brown white-spotted animal, with spreading palmated horns. There is also a dark-brown species, said to have been brought to England from Norway in the reign of James I. The term doe, however, is used to designate the female of many domestic animals, such as rabbits, pet rats, hedgehogs, &c. Where the female is called the doe, the male gets the name of buck.

Doehair.—This is brought into use by the makers of artificial flies for salmon-fishers. "Deer's-hair" is a kind of grass of which a rough sort of cloth is made for the use of deer-stalkers: it is of a yellow-brown colour, somewhat resembling the skin of the deer, and thus it does not attract the observation of the animals.

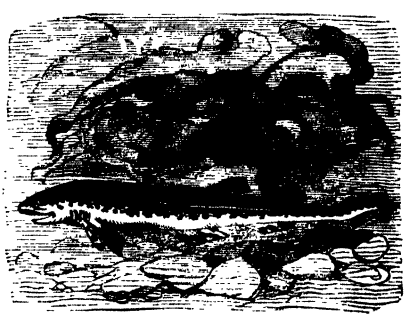
Doeskin.—This is much softer and more pliant than buckskin. The gloves made of this skin are worn by ladies when riding or driving; they are very serviceable, for they not only wear well, but they can be washed with impunity. These gloves are made chiefly at Woodstock, near Oxford; the best are white in colour, and usually have gauntlets. The softest kind of wash-leather is doeskin dressed in a particular manner.

Doeskin (Textile).—Cloths which have a smooth dressing on the upper surface are known by this name. They are of varying thickness and colour, and bear no resemblance to the skin of the doe except in their smoothness; they are principally used for clerical habiliments, and also for riding-trousers.

Dog-cart.—This carriage, now extensively in use where rapidity of transit rather than the conveyance of goods is the main object, derives its name from the fact that it was originally adopted as a lightly-made sporting vehicle with a box for carrying pointers.

Dog-days, less expressively called Canicular-days, are about forty in number, commencing on July 3rd and ending on August 11th. They are named after the dog-star, or Canicula, otherwise styled Sirius, which in ancient times rose just before the sun, at the time of year we have indicated. This star was fancied to cause the great heat which usually prevails in July and part of August, and, among other evils, to give dogs a tendency to become mad at that season; all of which was a delusion. The rising of the dog-star now takes place heliacally, as it is termed, later in the year and at a cooler season, but the dog-days retain the same position in the calendar, and with much the same bad character.

Dog-fish.—A name given to a species of fish belonging to the *Squalidæ* or shark family. Three species of dog-fish are plentiful around our coasts; they belong to the group *Scyllium* (Cuvier). We have the small spotted dog-fish, (*S. canicula*), the large spotted dog-fish (*S. catulus*), and the black-mouthed dog-fish (*S. melanastomum*). The dog-fish is elongated and tapering, with a flattish head, and a conical snout. The tail-fin is longer than it is wide,



DOG-FISH.

and the mouth armed with sharp cutting-teeth. Before the two dorsal fins is a sharp spine, which the creature uses for offence or defence. Although very repulsive in appearance, the dog-fish is most excellent and highly nourishing as

an article of diet. They are great enemies to fishermen. When caught in large quantities, as they often are, oil is obtained from their livers. Their skins are found useful in some branches of trade.

Dog-skin. — This is not very serviceable, owing to the leather being hard, although thin. Gloves made of this skin are used principally by men when riding or driving. They are usually of a yellow colour: they are the least expensive kind of leather gloves, but they quickly soil and look shabby.

Dogs, Bites from.—It is the comparative rarity of cases of hydrophobia which causes many people to treat a dog-bite as a mere trifle, to be dismissed from the mind after washing and sucking the wound. Such treatment, although not sufficient protection against bites received from actually rabid animals, has one advantage in the case of an ordinary bite—the wound soon heals naturally, and does not, as when cauterised, leave a nasty scar, on which the mind is apt to dwell, to the danger of the production of mental or nervous hydrophobia. On receiving a wound, however, from a strange dog, a suspected dog, or one that is known to be mad, almost instant action should be taken in order to avert the dread of evil consequences. This action is simple enough: you must wash the wound, *suck it well*, and as soon as possible afterwards have it well and properly cauterised. This latter should be done to the depth of the wound, by a red-hot knitting-needle or nail, or by nitrate of silver. Strong ammonia is thought by some to be better than anything else. Excision of the bitten part is perhaps as effectual a preventive as any. A piece of wood or skewer is quickly formed, as like to the shape of the dog's tooth as possible; this is inserted deeply into the wound, and two incisions carried round it in the form of an ellipse, and the skewer cleanly cut out without the knife coming in contact with the wood. Then it is allowed to bleed for a little, touched with nitrate of silver or ammonia, washed well, and afterwards treated as a simple wound.

Dogs, Diseases of.—If dogs are well fed, kept clean and dry, have abundance of water supplied them, and get plenty of exercise, they will rarely take disease, unless, indeed, they catch infection. Some of the more common diseases are here enumerated. *Distemper:* A fever of a catarrhal nature, commencing with dulness, shivering, loss of appetite, hot nose, and sunken eyes, and soon followed by running at nose and eyes of purulent matter. Give an emetic, and, soon after, castor oil. If much coughing, put a seton in front of the chest, and give a little Dover's powder at night. If weakness, quinine and wine, and cod liver oil to complete the cure. Good nursing in distemper is half the battle. *Blain:* An unhealthy swelling under the tongue. Open, and afterwards treat with alum lotion, a tea-spoonful to six ounces of water. *Bruises:* Foment well, and afterwards use arnica lotion. *Burns:* Dress with a liniment composed of equal parts of olive oil and lime water. *Canker of the ear:* The dog shakes his head frequently, and there is a fœtid discharge from the ear. Wash twice a day carefully with warm water, and pour a little alum water in, or use lead lotion, one part to three of water. *Canker of the mouth:* A foul state of the mouth, with ulceration of the gums, and tartar on the teeth. Scale the teeth and use the alum lotion twice a day, with a few drachms of tincture of myrrh in it. *Catarrh* or *Cold:* Give a few grains of Dover's powder at night, some opening medicine in the morning, and any cough-mixture containing opium and squill. *Colic:* The dog is uneasy, and moans or howls suddenly with pain. Give at once from ten to twenty drops each of laudanum, spirits of chloroform, and tincture of ginger, and repeat at intervals. Give also brandy, as well as a dose of castor oil. *Constipation* or *Costiveness:* This must not be attempted to be cured by aperients, which, however, may be given for temporary relief. Change the diet, give plenty of green food and plenty of exercise. *Diarrhœa:* Give rice and milk or good wheaten bread, and chalk mixture, with a little laudanum, thrice a day. *Indigestion:* The dog has bad dreams, his coat and nose look unhealthy, and his breath is offensive. Give more exercise, regular, healthy food, and an ante-dinner pill of a grain or two of rhubarb, a little quinine, and a few grains of extract of taraxacum. *Mange:* Wash frequently with soap sold for the purpose, and use sparingly the green iodide of mercury ointment, or compound sulphur. *Parasites:* Fleas are kept down by insect powder and frequent washing, or by bathing the coat in a solution of quassia chips. Lice are most safely got rid of by soaking the dog's coat in oil, and washing twelve hours after. *Worms:* Santonine for round worms, dose from one to six grains; and areca-nut powdered, a grain for every pound the dog weighs, for tape worms. No food must be given for twelve hours previously, and a dose of oil is to be administered two hours after the medicine.

Dogs, Laws concerning, and Licences for Keeping.—The statute 2 & 3 Vict., c. 47, explained by 17 & 18 Vict., c. 60, s. 2, prohibits under a penalty the use of any dog for the purposes of draught. The statute 28 & 29 Vict., c. 60, provides that the owner of every dog shall be liable in damages for injuries done to any cattle and sheep by his dog, and that it shall not be necessary for the party seeking such damages to show a previous mischievous propensity in such dog, or the owner's knowledge of such propensity, or that the injury was attributable to neglect on the owner's part. Dog-stealing is punishable, on summary conviction for the first offence, by six months imprisonment and hard labour, or fine not exceeding £20 beyond the value of the dog; a second offence is an indictable misdemeanour, punishable by fine or imprisonment, and hard labour not exceeding eighteen months, or by both. Similar punishment is provided for persons found in possession of dogs or their skins, knowing them to have been stolen, and a justice may order the restoration of the stolen property to the owner. Corruptly taking money

or reward to aid in the recovery of a stolen dog is punishable by imprisonment and hard labour for eighteen months. See 8 & 9 Vict., c. 47, and 24 & 25 Vict., c. 96, s. 18, 19, 20, and 21. The statute 34 & 35 Vict., c. 56, provides for the detention of stray dogs and for the slaughter of such as are dangerous. An Excise tax on dogs, of 5s. each, in the shape of a licence to be taken out annually in the month of January, is imposed by statute 30 & 31 Vict., c. 5. Penalty for default, not exceeding £5.

Dogs, Mad.—Some of the symptoms of madness in dogs are as follow:—(1) They do not go mad suddenly; they are at first quiet and somewhat gloomy, over-affectionate to their owners, and there is danger in their caresses. (2) The dog becomes fidgety, and seeks out dark corners, where, however, he does not lie still any length of time, but prowls about, sniffing and scratching. (3) He makes sudden rushes, and snaps at imaginary foes, or barks at nothing. (4) The desire to bite then comes on, and he first attacks and swallows stones, cinders, straw, &c. (5) The mouth is seldom humid, and in the end the tongue hangs out dry and darkish. (A mad dog does not foam at the mouth.) (6) The voice is changed, the bark is husky and jerking, at times ending in a prolonged howl, while the look is haggard; and, though still obeying his master's voice, he is furious at the sight of another dog. Add to these symptoms general nervousness and terror, and a disposition to escape and roam, attacking whatsoever comes in its way. Any dog showing even a few of these signs of rabies ought to be shut carefully up and watched.

Dogs, Pet.—By pet dogs we generally mean those that are suited for indoor dogs. It must be premised that every one of those to be mentioned has had some little care bestowed upon it in being reared to habits of cleanliness, for each will repay in after-life all the trouble and care bestowed upon it in puppydom. First on the list, then, come the Newfoundland and St. Bernard; then the Scottish deerhound, so prized and petted by Sir Walter Scott. Next come the Scottish collie and the setter; while among smaller breeds we have the Dandie Dinmont and the Skye. These bring us down to toy or lap dogs, nearly all of which are lively, funny, and quite suited either to drawing-room or landau. Among them we have the Blenheim and King Charles', the pug, the Yorkshire, the Pomeranian, and the Italian greyhound. Separate notices of some of these dogs will be found under their respective headings.

Dogs, To Clean.—In order to keep dogs in good health, proper cleaning or grooming is of the very highest importance. The parasitic animals which infest the coats of our canine favourites are of three different kinds—namely, ticks, lice, and fleas. The first of these are most commonly found upon spaniels, or such dogs as go frequently through grass or undergrowth, where the ticks hang. These ought to be searched for, especially if one be found accidentally, and picked off, or rather out. This is the safest plan; or white precipitate powder may be dusted into the coat, the dog being muzzled, and afterwards—in two hours—well brushed out again. The dog louse (*Trichodectes Latus*) is much commoner, especially among large long-haired dogs which are allowed to inhabit dirty kennels. The distress these parasites cause the animal so infested is at times quite painful to witness. The symptoms are—constant scratching and distress, the animal sometimes crying out and gnawing the very stones in its misery. The skin, too, gets sadly disfigured, so much so as to resemble the effects of some dire skin complaint. There are several remedies used, but few of them are safe. We can, therefore, only venture to recommend one, which, persisted in for some time, is really effectual. The dog's coat is drenched—thoroughly wetted—with olive oil, which ten hours afterwards is washed off with lukewarm water and soap sold for the purpose; and this is repeated after twenty-four hours, and again, if necessary, until no more of the parasites are alive. The flea (*Pulex irritans*) is often a source of very great annoyance both to the dog and his owner. To cure fleas, two things are indicated—first, to get rid of them; and, secondly, to prevent their recurrence. First, then, make a strong infusion of quassia chips, two or three ounces to a bucket of water. With this the dog must be well wetted, after he has been thoroughly washed with the soap as above mentioned. When dry, he is to be oiled, and this treatment is to be repeated twice or thrice. In order to prevent their recurrence, the utmost cleanliness is necessary, not only as regards the dog himself, but the place where he sleeps. The kennel must be well washed out with boiling water and soap, and disinfected with carbolic acid lotion; then a bed of pine shavings may be given and frequently changed, twice a week at least. It is not every one who *knows how properly to wash and groom a dog*. We will try to give the reader a hint or two. First, then, let the water be abundant, whether in a tub or not. *It must not be very warm.* If a large dog, he stands beside the pail of water, and you take it up jugful by jugful, pouring it gradually over the hand that holds the soap, and with which you rub him well, until the lather foams up pure and white. If a small dog, let him stand in the tub. Soap him all over, taking care no soap gets into ears or eyes, then rinse him out, first with warm then with cold water; then give him a cold douche with a bucket or pannikin, roughly dry, and turn him out at once for a dance and a run. Never let him lie before the fire after washing, and always choose a sunny day for the operation. Once a week or fortnight is often enough to wash any dog. Before he is completely dry, you must comb his coat out, and brush with a nice hard hair-brush. Only dog-fanciers know how beautiful this grooming makes the coat become.

Doily or Doyley.—This word is an instance of the way in which the original meaning of words is sometimes entirely changed. "Doily" was a woollen fabric at one time in use, and it was so called because the name of its first maker was such. At one period small squares of doily stuff were used

for a species of napkin. These squares were folded into smaller squares, and placed on dessert-plates. At the period when these were introduced it was the custom to withdraw the dinner-cloth and exhibit a brightly-polished table: the doily when removed from the plate was placed on the table, and on it were put the wine-glasses and finger-bowls. Doilys are still in fashion, although no longer required for the same purpose; they are now mere ornaments, and, as such, are made of dainty and delicate materials. Some are of lace-work, some of fine linen, with sketches etched in the centre, some of fine jean, with ferns impressed or flowers painted; and there are those with flowers or fruit worked in crewels, but unfortunately these, which look exceedingly pretty by daylight, lose their beauty at night, the colours being too subdued to be effective. The common form of doilys is now round.

Dole.—Properly, a portion dealt out to somebody. The name is locally applied to certain charitable bequests, as of bread, which are distributed at stated times to the poor. A collection of loaves, renewed every week, and given away by the churchwardens in a parish church every Sunday, very well illustrates the nature of a dole. The word is also used of any petty charitable gift; and the verb "to dole" is employed to denote giving on a meagre scale, or in an ungenerous spirit.

Dollar.—A coin in use in several countries, and the unit of the monetary system of the United States. The value of the American dollar, as usually estimated, is 4s. 2d. sterling; the price varies, however, greatly, according to the current rate of exchange between Great Britain and the United States.

Dolls are well-known toys, made in imitation of the figure of an infant, and especially dear to little girls, whose love for their dolls is without doubt the sign of that maternal instinct which has been implanted in their breasts. The word doll is of doubtful derivation, but it is probable that it is a contraction of idol. Dolls have been in use from the most remote period, and they are common to all countries. They were among the playthings of the Romans and Persians; and the children of savage tribes possess them as well as do those of civilised nations. Like other toys, they were at one time imported into England from the Netherlands, and on this account were usually named Flanders babies. These Dutch dolls were made of wood, and were very gaudily dressed. They had pretty, well-made faces and thin legs. Now dolls are largely made in England, although they are still imported from abroad. The superior wax dolls are made in England, and some of these, with moulded wax faces, arms, and legs, glass eyes, and flaxen tresses, are very beautiful. The best ones are modelled with delicate care; they have each hair of the wig, the eyelids, and the eyelashes inserted separately in the wax, and no one who had not seen them could believe that they could be made so like life. Some of them sell for from three to five guineas, undressed. The cheaper varieties of dolls are mostly made on the Continent; many hundreds of women and children being employed in their manufacture. Besides being made of wax, dolls are made of composition, of gutta percha, of india-rubber, and of china. Rag dolls are also very usual. Heads, arms, and legs are sold separately, and can be sewn on when misfortune has been experienced. There is in London a doll's hospital where wounded dolls undergo a thorough repair.

Dolly-shop.—A colloquial appellation for a marine store, or a shop where rags, bones, and other refuse are purchased. The name is due to the fact that before such a shop a black doll was, and still is, occasionally suspended.

Dolly Varden.—This designation is used to describe patterns which contain groups of flowers scattered over the surface of the material, more or less distinctly. The origin of the designation arose in this way. Dolly Varden is a prominent character in Charles Dickens's story of "Barnaby Rudge." In the original edition of this work there is a picture of Dolly Varden, attired in a dress of this flowery style, which possibly was meant to represent brocaded silk.

Dolomite.—A limestone rock, containing carbonate of magnesia as well as carbonate of lime, and hence often called magnesian limestone. It is common in many parts of England, especially in the county of Durham; and forms great mountain masses in the Eastern Alps, which are remarkable for their picturesqueness. The proportion of carbonate of magnesia varies considerably, ranging generally between twenty and forty per cent. Large quantities of this stone are used in the manufacture of Epsom salts and carbonate of magnesia. The stone is extensively used for building, being generally of a fine even grain, easily worked, and of an agreeable warm colour. York Minster, as well as those of Beverley and Southwell, are built of magnesian limestone. The stone-work of Southwell Minster, obtained from the quarries of Bolsover, in Derbyshire, is still in such fine preservation, though the building is 800 years old, that the Bolsover stone was selected for building our Houses of Parliament; but the choice was an unfortunate one, for the sulphurous acid which is so abundant in the coal smoke of London attacks the magnesia in the dolomite, causing an efflorescence of salt, and a crumbling away of the stone. Many other of our London buildings constructed of mountain limestone have suffered in a like manner.

Domesday or Doomsday-Book.—An ancient record of the time of William the Conqueror, and now in the Exchequer, consisting of two volumes. The greater one is a large folio, written on 382 double pages of vellum, comprising a survey of all the lands in England, excepting the counties of Northumberland, Cumberland, Westmoreland, Durham, and part of Lancashire, which were never surveyed; and the lesser volume comprises the lands of Essex, Suffolk, Norfolk, part of the county of Rutland, and part of Lancashire. There is also a third volume, differing from the others more in form than in matter, made by command of the same king.

And there is a fourth book, also kept in the Exchequer, called Domesday, which is an abridgement of the others. Also a fifth book, kept in the Remembrancer's office of the Exchequer, which has the name of Domesday, and is the same as the fourth above-mentioned. Our ancestors had many dome-books. The question of ancient demesne in lands is decided by the Domesday of William I., from which there is no appeal. The origin of the name of Domesday-Book is uncertain. The designation seems, however, to indicate the supreme authority of the record as a book of dooming justice and judgment.

Domestic Animals. (*See* ANIMALS, DOMESTIC; DOMESTIC BIRDS.)

Domestic Architecture.—With the attainment of security for private property by law and order, we entered upon a new phase of architecture, which has become known as the domestic. Before that happy time had arrived, the wealthy lived in castles and the poor in cottages, and consequently, as the inconvenient and gloomy castles, becoming unnecessary, disappeared, the cottage form of building took precedence; but by duplication, extension, and enlargement, with the gradual addition of carving and other adornments, pinnacles, parapets, and so on, this assumed a different aspect, such as we still find in old English manor houses, and claim as examples of English domestic architecture.

Domestic Arrangements.—Much of the comfort and well-being of the family depends upon the routine of household work and duty being clearly defined and thoroughly understood by those who have to carry it out. In some houses things appear to go on *in a happy-go-lucky sort of style, which is* seldom happy in its results. In others the work goes on regularly and smoothly, and order prevails in every department. The secret of the difference is to be found, as a rule, in the character of the mistress of the house, and in the arrangements which she makes. If she possesses an innate idea of order and method, she will unconsciously influence both the servants and the members of the family, and the arrangements she thinks best will be carried out in their integrity. If she does not possess these qualities, there will need to be a strong counteracting influence at work, or confusion and disorder will prevail. In ordering a household, it is a great assistance to have the plan of the week's work plainly drawn out, and, if possible, *put down in writing*, with the understanding that there is to be free latitude for occasional variations. A copy of this can be given to each servant, and there will be then no excuse for neglect or forgetfulness. Where there is more than one servant, the work may be divided between them fairly, and then one servant must not be called upon to supply another's deficiencies: for that would be putting a premium upon incompetency and idleness. Much the better way is to allow an industrious servant to enjoy the rest and recreation which she has fairly earned, and to let the blame of the unfinished work fall on the right shoulders. By this means a sense of responsibility will be diffused through the household, which is sure to have a good result. It is impossible to lay down a hard and fast line which shall suit all circumstances, but it will be acknowledged that domestic arrangements must have order for their foundation if they are to be complete and harmonious in their results.

Domestic Birds, &c.—It is now a well-recognised fact that there are few four-footed animals, and very few birds, that cannot be tamed. The great secret is to be gentle and kind to them, and, at the same time, firm and fearless, while we endeavour to study their nature and habits, and provide for them the food and drink to which they have been accustomed in the wild state. The most common domestic birds that may be made pets of are owls, hawks, canaries, thrushes, starlings, larks, linnets, and blackbirds, and any of the many varieties of foreign birds that are brought to our shores, more celebrated, however, for their beauty than for their song. Among pet animals we have the dog, the cat, the rabbit, the guinea-pig, hedgehog, white rats, white mice, dormice, &c., and most amusing of all, perhaps, the monkey or ape.

Domestic Chest. (*See* CHEST FOR LINEN.)

Domestic Economy may be defined as the art of making a given income go as far as possible in providing for domestic wants. It is a most important study, and one that has been so much neglected in this country, that until the last few years the waste which was permitted in English homes was a national disgrace. Now we may reasonably congratulate ourselves that people have become a little more enlightened on the subject. Lectures have been delivered, books have been written, and various means have been tried, with the object of spreading a knowledge of the first principles of domestic economy. These have been successful to a certain extent, but much yet remains to be done. Unfortunately, it is amongst the poorer classes, who would benefit most by the comprehension and the practice of economy, that the greatest ignorance about it prevails. The English poor spend far more over their personal wants than those of any other nation, and they are not, on the average, any better fed or clothed. Whoever, therefore, can do even a little to rouse the conscience of any one person, and especially of any woman, as to his or her duty in this respect, will do a good work.

Domestic Fowls. (*See* POULTRY.)

Domestic Medicines. (*See* MEDICINES, DOMESTIC.)

Domestic Pets. (*See* DOMESTIC BIRDS.)

Domestic Surgery. (*See* SURGERY, DOMESTIC.)

Domets.—These are made in black and white; the material resembles thin flannel; it is loosely woven; the weft is of wool, and the warp of cotton. Domets are used as extra linings to add warmth to cloaks, jackets, &c.; they

are placed between the material and the ordinary silk or stuff lining. Domots, being thin, light, and warm, are useful additions to winter garments.

Domicile.—A residence within the meaning of the law. Hence, domicile is residence such as the law recognises in reference to the validity of certain acts and documents. A man's domicile is his usual place of residence, and it is that of his wife and his children under age. In a wider sense, a man may be said to be domiciled in a particular country. Questions of importance sometimes arise in connection with the subject, owing to the difficulty of deciding where a person's legal domicile is, or to incorrect descriptions of it.

Dominical Letter.—One of the seven letters, A, B, C, D, E, F, G, used in ecclesiastical calendars to denote the Sundays in any given year. The first seven days of each year are marked by the letters and in the order given above, and so on for every seven days throughout the year; it follows, therefore, that the same letter stands for every Sunday in that year. As in every year there are fifty-two weeks and one day (in leap-year two days) over, the place of the Sunday in the first seven days, and consequently the dominical letter, changes annually. A table, showing how to find the dominical or Sunday letter for any year, is given in most prayer-books, &c. Dominical letters, though now fallen greatly into desuetude, are still of some service as a means of discovering on what day of the week any day of the month may fall in a given year.

Dominion (from Latin, *dominium*).—(1) Sovereign authority; unlimited power. (2) Power; right of possession or use without being accountable. (3) Territory; region; district. (4) Predominance; ascendency. (5) An order of angels (Colossians).

Domino.—Originally this word was descriptive of a particular kind of hood which was worn by the canons of a cathedral church. In later times it was adopted by persons of both sexes who wished to disguise themselves when attending masquerades. This domino is made of black silk, in the form of a long loose cloak, with a hood, which the wearer can pull over the face or throw off according to pleasure.

Dominoes.—A game played with oblong pieces of bone, ivory, or wood (or bone or ivory overlaid on wood), the faces being white and divided into two equal squares, each square being blank or indented with black spots from one to six in number. There are twenty-eight dominoes in a set, containing every combination of pips from double-blank to double-six. Some sets go up to double-nine, in which case they consist of fifty-five pieces. In the ordinary game of dominoes, the pieces are all set face downward on the table and shuffled. The players then each draw a piece to determine who shall first play, this being settled by the number of pips on the piece, either highest or lowest as may be arranged. The pieces are then again mixed together, and divided equally among the players. The first player then puts down a piece face upwards, and is followed as at cards by the player next to him, who puts down another piece matching in pips one half or other of the domino already laid down. Thus if the first player play a six-five, the second must play a piece having a six or a five at one or the other end of it; this he must place at that end of the domino already played with which it corresponds in pips. Should the second player be unable to match either end of the piece played, he passes it, *i.e.*, allows the third player to go on, he himself waiting until his turn comes round again. The player who first gets rid of his dominoes wins the game. Should it, however, happen that a block occurs, and that at some time none of the players, though all hold pieces, can go on, that player wins who counts the smallest number of pips on the pieces remaining in his hand. It is perhaps hardly necessary to observe that players should always endeavour to rid themselves of their *doubles* first, for the fact that they are alike at both ends of course reduces the chance of disposing of them; after the doubles it is perhaps most important to dispossess oneself of the heavy pieces—six-five, six-four, &c. Sometimes when two or three persons only are playing, they each take seven dominoes only, and then when a player is unable to play, he draws from the remaining pieces until he finds a suitable piece. Sometimes a fixed score is pre-determined for this game, such as 100, and the player who gets out first, or who, in the event of a block, counts in his hand the lowest number of pips, scores the whole total of pips on the dominoes unplayed. He whose score first reaches 100 then wins the game.

There are several other games played with dominoes, the two most important of which depend upon the principle of making the end pieces count five or multiples of five, and seven or multiples of seven respectively. For every five or seven a player thus makes, a point is scored in his favour; if it be a multiple of five or seven which he makes, he scores according to that multiple. Thus if the ends make ten, two points are scored; if fifteen, three points; and if twenty (a combination of double-six and double-four), four points. The player who first makes the required number of points—any total that may be previously arranged—wins the game.

Donkeys. (*See* Ass.)

Door-leathers.—These are used to prevent draughts of air from entering rooms or passages. It sometimes happens that doors are made of green wood, which after a time shrinks, and consequently the door does not then fit closely to its frame. To remedy this defect, strips of leather, placed to project beyond the edge, are nailed round the latter. This leather should be thick and yet not too stiff. That called American is cheap, but its edges are apt to curl, and therefore it is not fit for this purpose. Leather stamped out at the edges, which is sold ready for the edges of book-shelves, may be used for doors: this should be fastened on with ornamental nails. Some persons place india-rubber tubing round the door steads, or

nail thick list there: these are effectual, but not such sightly remedies as leathers.

Door-mats.—These are made of cocoa-fibre, of twine, of sheep-skins, and of wool, woven as for carpets. The place assigned for the first two is at entrance doors. The first-mentioned are the more serviceable; they should be of good quality, otherwise the daily usage will quickly wear away the fibre or loosen its tufts; the twine mats, being lighter, are easily displaced, and the dust is visible through their interstices: therefore, they are not generally liked. Skin mats present the best appearance for the doors of sitting-rooms; although they are not used in any rough manner, it is necessary that the quality should be good, because mats of this kind soon look shabby, the wool mats together, and is easily pulled off the skin. For the doors of bedrooms, mats to match the landing carpets are often chosen. Door-mats of any kind are expensive articles in comparison to their size. Cocoa and wool mats of an ordinary size will cost from five to ten shillings apiece.

Door-plates.—Metal plates, usually of brass or of zinc, fastened on the outside of the front door of a house to indicate the name, and perhaps also the profession, of the occupant. The same name is sometimes given to what are more appropriately styled finger-plates, which are affixed perpendicularly above and below the handles of room doors inside the house. These are of brass, porcelain, enamelled ware, and various other materials, and are more or less decorated.

Door-springs.—These vary in their form, and their object is to keep doors closed which might otherwise be left open. In some instances a stout spring is brought into action by the opening of the door, and serves by pushing; in another the closing power is derived from the action of an elastic medium, and serves by drawing the door to.

Doors are the openings into a house or room by which persons enter. The proportions of doors are in general regulated by those of the human frame. In capacious buildings, they ought always to be larger than in small ones; but they should in none be less than six and a half feet high, so as to allow a tall person to pass through it erect, and the width must not be less than three feet.

Doorways.—The framework of wood or stone upon which the door closes and is suspended is the doorway, and it is often a very striking and important architectural feature. The Anglo-Norman architects, in their elaborately-ornamented doorways, displayed a considerable amount of decorative taste and artistic ability, with a wide range of design. In Gothic architecture the doorways are always prominent in their decorative character, and in their ornaments and mouldings usually indicate the date of their erection and the style to which they belong. In classical architecture the rectangular form generally prevails in doorways, although sometimes the opening diminishes as it ascends; and it was not until the latter days of the Roman Empire that arches were associated with doorways. When not arched, classic doorways usually have a suite of mouldings running round them, called an architrave, and frequently additional mouldings project above them, and are supported at either end by a large console or truss.

Doquet. (*See* Docket.)

Dor.—The common black-clock, or dung beetle of our hedges (natural order, *Coleopteræ*, or sheath-winged insects, because they not only possess strong membranous wings, but have these protected, when not in use, by hard horny cases, called *elytra* by naturalists). The dors are of burrowing habits, and their wings would suffer injury if not protected by nature in this remarkable manner. They are possessed of some wonderful power, whether of scent or otherwise, which leads them with unerring certainty on long journeys to where dung or some other filth lies, and this they carry away to their burrows, where it it is deposited to form forcing-beds for their eggs.

Dorcas Meetings and Societies.—Societies known as Dorcas meetings have long been established, the name Dorcas being given to them after Dorcas, the benevolent woman whom Peter restored to life. Much good has been done in past years by means of these societies, as thousands of the poor could testify, and they are still held at stated times in connection with many religious institutions. Warm, useful, comfortable clothing is made by the ladies who form the society, and this is given out systematically to those who are considered deserving and in need of assistance. By some societies not only clothing, but blankets and other comforts are distributed. As the ladies visit among the poor whom they relieve, they ascertain in which way the greatest help can be rendered, and the gifts are regulated accordingly.

Dorking Fowls. (*See* Poultry.)

Dormant Partners. (*See* Partnership.)

Dormer.—A dormer is a dormitory or sleeping-room in the attic; but the word is only applied to such an attic as has a gable projecting from the sloping roof of a house. The windows which are constructed on the principle of a dormer, in the roof of a church for example, are styled dormer windows.

Dormouse.—The common dormouse, called by naturalists *Myoxis avellanarius*, belongs to the natural family *Muridæ*. It is supposed to form the connecting link between the rats and squirrels. It is not unlike a mouse in appearance, but is plumper, although about the same size. It has large prominent eyes, a tail between two and three inches long, and hairy at the end. It is of tawny-red in colour, and has a white throat. It is found all over Europe, as well as in England. It is an exceedingly gentle creature, and makes a very nice pet. In its wild state it lives in thickets and hedgerows, and never fails to lay apart a winter store of nuts, acorns, haws, &c., after which it gets very fat, curls itself up into a little ball, and falls off to sleep. Only on very mild days

does it awake—then only to eat and slumber again; and so it goes on till spring-time, when it awakes thoroughly and comes forth. It has young about twice a year. In Europe two other dormice are found, viz., the fat dormouse



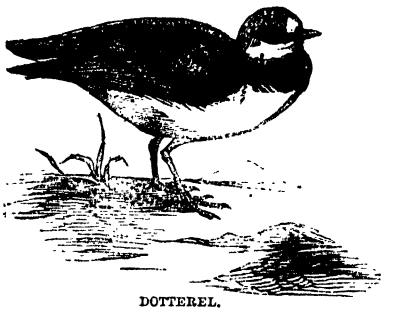
GARDEN DORMOUSE.

(*Myoxis glis*), as large as a rat, and the garden dormouse (*Myoxis nitela*), which is very destructive to fruit.

Dorset Butter. (*See* BUTTER.)

Dory. (*See* JOHN DORY.)

Dotterel.—Called by naturalists the *Charadrius morinellus*, and belonging to the *Charadriadæ*, or plover family, is a migratory bird, appearing in the mountainous districts of our own country in spring-time, but being much more abundant in the east of Europe and north of Asia, where it breeds, going in winter as far south as Spain and Italy. It is about ten



DOTTEREL.

inches long; and, in summer at least, is brown on the back, middle of the belly black, breast a rufous red, with a white patch; the cheeks white, as well as the throat, and a stripe above the eyes, some of the tail feathers being also white. It gets the name of being a stupid bird, but this is really not the case.

Double Acrostics.—Puzzles consisting of a certain number of words, enigmatically expressed in rhyme or otherwise, the initial and final letters of which represent two other words.

Double Refraction. (*See* REFRACTION.)

Doublet.—In jewellery, a doublet is a fraudulent imitation of a precious stone effected in various ways. Two pieces of rock-crystal, which is colourless, may be so joined with a layer of colour between them as to imitate a sapphire or other gem. At other times, the upper of the two pieces is genuine, and the under one glass or some cheap stone. These frauds are very common, and it is difficult for ordinary purchasers to detect them; jewellers, however, can apply several tests, and are fairly responsible for the quality of what they sell. Mr. Emanuel says:—"Doublets are frequently sold by the Cingalese at Colombo to Europeans, and to the passengers by the Peninsular and Oriental steamers." He adds that sometimes pieces of blue glass, cut into facets, and sent to Ceylon from Birmingham and Paris, are palmed off for real sapphires.

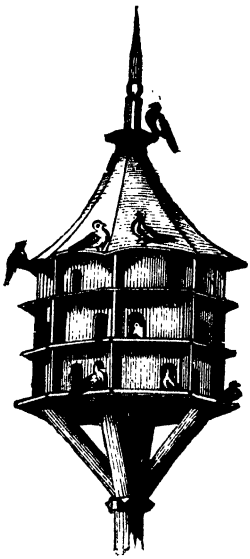
Doublet (Coat).—A garment made of double stuff, padded between the two sides, as indicated by its name. This article of dress fastened closely like a waistcoat, and fitted the body tightly, the skirts reaching a little below the girdle. Sometimes the sleeves were separate articles, worn or not at will, and were tied on at the shoulder. In Queen Elizabeth's time there was little difference between the jerkin and the doublet. The latter was usually made of buff leather, sometimes with a canvas back.

Douche Bath.—This consists of a stream of cold or warm water thrown on some part of the body with considerable force by means of a tube. Its power varies with the temperature of the water, the velocity of the stream, and its magnitude. Its use is principally under medical advice, and as a remedial agent. The water may flow through the tube from a receptacle placed at some height above the patient, or an inferior substitute may be found in a common tea-kettle, or other convenient vessel. Practically, the douche is employed in the familiar process of shampooing.

Dough is the prepared mixture of flour and water, which is made light by the introduction of carbonic-acid gas, and when baked becomes bread. The carbonic-acid gas is produced in various ways with leaven, yeast, or baking-powders. Sometimes it is prepared beforehand, and the water with which the dough is to be mixed is charged with it. Bread thus made is called aërated bread. (*See* AËRATED BREAD; BREAD.)

Dove-cot.—It is much better to have a cot for one's doves, and it is pleasant to remember that one can be built, and doves be kept even in the midst of a large city, by placing them just outside the window. One of this kind need only be a simple box, or retiring-room, having a cage in front and a little platform on which to bask. Dove-cots may also be made very ornamental, even if rustic, as the one engraved on the next page. It is elevated on a pole, and is divided into cells, each cell having a little platform in front, and should be at least twelve inches deep and about fifteen inches wide at the front. The entrance-hole should not be very big, and, as may be seen in the woodcut,

it ought not to be opposite the centre of the cell. Each cell is divided also by an upright



DOVE-COT.

partition. This is to prevent the doves from fighting about what may seem to them pet nests or holes.

Dover's Powder. (*See* POWDER, DOVER'S.)

Doves.—This is a name sometimes given to pigeons in general, and sometimes to those only which build their nests singly and apart from each other, and not close together on the same tree. The name of "dove," however, is more correctly applied to the smaller and more gentle of the pigeon family, the kind usually kept as domestic pets. They belong to the natural family *Columbidæ*, which some naturalists divide into pigeons, doves, and turtles. (*See* PIGEONS.)

Dowager.—In English law, a widow who is endowed, or has a jointure; one who either possesses a dower from her late husband, or has property of her own brought by her to him on her marriage, and settled upon her after his death. The word is also applied to a widow, to distinguish her from the wife of her deceased husband's heir of the same name. The term is commonly limited to persons of rank, as a queen dowager, a duchess dowager, &c.

Dower is an estate for life, to which widows married on or before the 1st of January, 1834, are entitled in a third part of the lands and hereditaments of which their husbands were respectively solely seised in possession at any time during the coverture, and of which lands any issue she could have had might have inherited. Similarly under the "Dower Act," the 3 & 4 Will. IV., c. 105 (which applies to all widows married after the above date), the amount is a third, but it does not attach until the husband's death; the lands, however, need not be in possession, and it extends to equitable estates. In lands of special tenure the amount varies, as in "gavelkind," which is the common tenure of Kent, the amount is one-half instead of one-third, subject, however, to the widows remaining unmarried, &c.

Dowlas.—A coarse linen cloth, chiefly manufactured in Brittany, and used by the lower classes. Falstaff, in "The Merry Wives of Windsor," speaks of "Dowlas, filthy dowlas!" when Mistress Quickly brings him "a dozen of shirts."

Down.—That of the swan holds the highest place for beauty and softness of filaments; it is used as a trimming, and looks especially well when bordering black velvet. This down is obtained from the wild swans which inhabit the cold regions of Lapland, Iceland, &c. The skins of these birds is dressed with the down on it. Eider-down is highly prized for its softness, lightness, and warmth. It is procured from the nest of the eider-duck. These birds line their nests with down which they pluck from their breasts: they abound in the northern parts of Europe, Asia, and America. Goose-down is warm, but not so light as eider; the former is much less expensive than the latter. Of both these downs quilts and petticoats are made by filling silk or cotton cases with it, and owing to the lightness of weight and warmth afforded, they are particularly valuable to invalids.

Dowry.—That property which the wife brings to her husband on marriage, and, like the *dos* of Roman law, it is distinguished from the dower or jointure in lieu thereof, which corresponds with the *donatio propter nuptias* of Roman Law. The wife's dowry is frequently called her *maritagium* in the old statutes.

Doyley. (*See* DOILY.)

Dozing.—This is a term apparently of Saxon origin, signifying a condition of drowsiness, or semi-somnolence, from which the person can be easily aroused.

Drab.—A colour which originally derived its name from a thick woollen cloth of a dull-brown or yellowish-dun colour. It is one of the commonest colours employed for the liveries of domestic servants; and is still one of the few permitted in the dress of the Quaker sect. In the dying of woollen fabrics, a solution of brown oxide of iron must be used, after which a bath of quercitron bark will be necessary to produce the drab tint required.

Drachm.—There are two drachms in our measures of weight: the one being the sixteenth part of an ounce avoirdupois, and the other the eighth part of an apothecaries' or troy ounce; of these the former is equal to $27\frac{11}{32}$ grains troy, and the latter to 60 grains troy. (*See* AVOIRDUPOIS and TROY.) There is also a fluid drachm in the apothecaries' measure. (*See* APOTHECARIES' MEASURE.)

Draft.—An order, drawn by one person on another, for the payment of money: both bills and cheques are commonly termed drafts.

Drag.—The chain which is fastened to wheels, to prevent their revolutions when a

vehicle is running down a more or less steep incline, is called a drag, and its purpose is to prevent or check the accumulative impulse which would otherwise cause the speed of the vehicle quickly to exceed that at which the horse or horses drawing it could move, and thereby cause it to press upon and overturn them. The drag is sometimes simply a chain, but it is generally a kind of iron plate, attached by a chain, with sides fitting it to the wheel, and thus retarding its rotation. The term "drag" is one which is often applied to a four-wheeled coach accommodating inside and outside passengers, and drawn by four horses.

Dragon-flies.—These insects, called by naturalists the *Libellulidæ*, comprise in all over sixty known species. Their exceeding beauty and their peculiar habits make them very great favourites with the entomologist. They may be described as four-winged flies, with large heads, bulky thoraxes, and very long bodies, of a brilliant metallic hue, brown, or blue, or crimson, extremely swift in flight, and to be met with in any green lane or near the water-side in summer. They pass not only their larval but their pupa state in the water, making war upon and devouring other insects. When they leave the water at length, and become perfect flies, they constitute themselves the tigers of the insect race, being exceedingly ferocious, and fearlessly attacking creatures double their own size.

Dragon, Gum.—Another name for dragon's blood (*which see*). The name is also given to the colourless gum tragacanth. (*See* TRAGACANTH, GUM.)

Dragon's Blood.—This is a resin obtained from various species of calamus. In powder it is of a bright red colour, and in lumps of a dark brownish red. It will dissolve in alcohol, oils, and ether, and produces a rich red and transparent solution. Its chief use is for tinging lacquers and varnishes. An imitation is made, the ingredients being shellac, Canada balsam, gum benzoin, red sandal wood in powder, and Venetian red in powder. This is not so good as the real unadulterated article. Cooley's receipt for it is: shellac, four pounds; melt, remove from the fire, and add Canada balsam, six ounces, and gum benzoin, two ounces; mix well, stir in red sandal wood, one pound and a half, and Venetian red, three-quarters of a pound (both in fine powder), and form the mass into sticks. Dragon's blood is sometimes called gum dragon.

Drainage and Drains.—The importance of these topics, from a sanitary point of view, is now universally admitted. The drainage system of a house must be sufficient for the removal of all superfluous water, and of all matters which are soluble in water, or can be so mixed with it as to be carried away by it. It is therefore necessary that all house drains should be large enough, water-tight, and laid with a proper fall or slope. In view of health and comfort, the egress of foul air should be prevented by having suitable sinks or drains, fitted with traps, of which there are sundry sorts. (*See* TRAPS, DRAIN.) Open sewers and drains are an abomination, and the noxious gases emitted by them are a fruitful cause of typhoid and other deadly diseases. Not only should the drains be trapped and covered in, but, especially in country houses, they should be carried beyond the precincts of a dwelling sufficiently far to prevent all contamination of wells; while in towns they should be connected with the common sewer, which, in every well-ordered parish, is provided by the authorities. The vast system of drainage which London has executed, at an enormous outlay, is the finest in the world, and equal to all ordinary demands. But even in the metropolis the drainage of buildings is often very defective, owing to the neglect, ignorance, or niggardliness of both builders and landlords. Both here, however, and in most towns, the legislature has created powers for the prevention of danger and disease from this cause. Every householder who studies his own health and that of his family will keep his eye upon the drainage system of his residence, and will see that defects are remedied and faults made good as speedily as possible. If those whose duty it is to do these things fail to perform it, the local authorities should at once be communicated with.

Drainage of Garden Walks, &c.—This is an important subject, and should enlist the attention of all those who, having gardens, wish to see their flowers and fruit arrive at tolerable perfection. In laying out a garden, it is desirable that small drains should be placed under the borders and paths, as the retention of too much moisture has a tendency to rot, or, if not, to allow too free growth to vegetation. The depth of the drains should be about two feet six inches or three feet, and about twenty feet apart. The pipes are small ones, pierced with holes, and placed at the bottom of the cutting, well puddled with clay laid on the top of them six inches thick, and then covered up with earth. When the drains are made, care should be observed that they have an outfall at the lowest part of the garden, either into a ditch or a drain connected with the house; or when these means are not at hand, a very simple method may be adopted:—First dig large holes (at given distances, either in the path or border) about three feet deep. Into each of these put a very large earthen flower-pot inverted, with another at the top of it rather smaller, also inverted, and let the surface of the top pot be on a level with the path. Then fill up the space between the pots and sides of the holes with broken bricks, and cover the whole with earth or gravel. This plan will drain a large surface, and is within the means of all.

Drainers. (*See* STRAINERS.)

Dram. (*See* DRACHM.)

Dram Glasses.—A name sometimes given to small spirit glasses, which hold about as much raw spirit as a man is supposed to drink at once. With the decline of the reprehensible practice of dram-drinking, this style of glass has almost disappeared, and its nearest congener, the liqueur glass, is better known (*see*

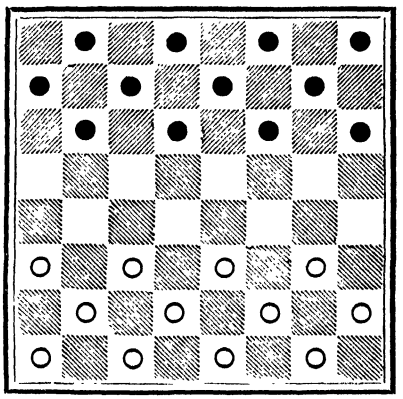
Liqueur Glass). Rarely only is the name of dram glass given to a small graduated glass for measuring medicine, of which sixty drops are a fluid drachm or dram.

Drama (Greek, *drama*, an action or thing done).—A poem or composition, representing a story of human action, by means of dialogue carried on by the various *dramatis personæ*, and from which the movement of the story is to be gathered. According to Professor Morley, "it must be the story of a single action, its whole sequence of events bound together by their relation of cause and effect to the main incident on which all turns. When two stories are interwoven they must be necessary to each other, and so blended as to become one to the understanding." A great point in a good drama is that it be not too long for representation before spectators at one sitting. The two principal divisions of the drama are comedy and tragedy, both of which originated with the Greeks and Romans. The English Drama arose in this country in the middle of the sixteenth century, in imitation of the old Latin dramatists and of the Italian writers of the early part of the same century. "Ralph Roister Doister," the first English comedy, was written somewhere between 1534 and 1541, by Nicholas Udall, the headmaster of Eton, and was specially prepared by him for his boys to act. A few years later (1561), the first English tragedy, "Gorboduc," appeared, written conjointly by Thomas Norton and Thomas Sackville. This was acted by the gentlemen of the Inner Temple before Queen Elizabeth in the Queen's Hall at Westminster, at the beginning of 1562. Two years later, Shakespeare, the prince of dramatic writers, was born, and thus, as has been well said, "Shakespeare and the English Drama came into the world together." Then followed the most brilliant period of our national drama, when Shakespeare, Marlowe, Massinger, Ford, Ben Jonson, and Beaumont and Fletcher, were all at the zenith of their fame. This dazzling era was, however, succeeded by a period of stagnation—the Puritan interregnum—to be afterwards followed by the drama of the Restoration, represented by Dryden, Davenant, Wycherley, Congreve, Vanbrugh, and Farquhar. And then came Steele and Addison, Sheridan and Lord Byron, Sheridan Knowles and Lord Lytton, until we arrive at the drama of the present day.

Drastics.—Purgative medicines which act in a violent manner are called drastics, of which jalap and gamboge are familiar examples. They are sometimes improperly resorted to by inexperienced persons; but as they may do harm rather than good, they should not be taken without professional advice.

Draught, Black. (*See* Black Draught.)

Draughts.—This game is played upon a board similar to that used for chess, having sixty-four squares on its face, coloured black and white, or black and red, alternately. As at chess, there can be two players only, each of whom is provided with twelve draughtsmen, the one set being black and the other white. A full set of draughtsmen usually contains fifteen of each colour, the surplus men being provided partly in case it should happen that a king may require to be crowned before any men of his colour have been lost, but more particularly in order to make the set of pieces perfect for backgammon, for which they are also used. (*See* Backgammon.) At the commencement of play, the board and pieces should be arranged as shown in the accompanying diagram, it being



remarked that each player must have a white corner square to his left hand on the board. The pieces are moved *forward* and diagonally on the board, on the white squares only, and one square only at a time, except when an adverse piece stands in the way, with a vacant square beyond: in such case, the vacant square may be occupied and the adverse piece "taken," *i.e.*, removed from the board. When two or more adverse pieces are so placed with vacant spaces beyond in the line of march of any one piece, the player may take all such, making, in fact, a continuous series of leaps. The players move alternately, and the object of each is to capture all his opponent's pieces, or so to hem them in that they cannot move; the player who succeeds in this winning the game. Should a player succeed in moving one of his pieces to the last row on his opponent's side of the board, that piece is *crowned* (by the super-position of another piece), and becomes a king. A king has the privilege of moving backwards or forwards at will. There is no limit to the number of kings a player may make. Should a piece be left *en prise*, that is, so placed that an opposing piece can capture it, and the player omit so to capture it, he can be *huffed*, that is, the piece neglecting to capture may be removed from the board. Should the owner of the piece *en prise* desire, however, he may demand to be taken, as at some points of the game this course may be most advantageous to him. Huffing does not constitute a move; a player, after removing his opponent's faulty piece, may still move one of his own men.

Draughts (Air).—Most people of any experience are afraid of being exposed to draughts of cold air, and rightly so, because they are fruitful causes of rheumatism, colds, and coughs, and ought to be most carefully avoided by all. Too often, however, a draught

is confounded with fresh, pure air, and the warfare against it is so vigorous that the necessity of ventilation is not recognised at all. This is unfortunate, and it explains the fact that the people who are the most determined in their avoidance of draughts are frequently those who take cold most easily. They do so because they are not careful to surround themselves with fresh, pure air, and forget that, as Miss Nightingale says, the "constant breathing of foul air, saturated with moisture, and the action of such air upon the skin, make a person peculiarly liable to cold, which is a sign of the danger of chest disease to which he is exposed." Whilst draughts and draughty situations should be avoided, and whilst especial care should be taken to prevent a current of cold air from blowing upon any one in a heated condition of body, it should be remembered that air which has been breathed has become charged with carbonic gas—a gas which is destructive of animal life. Therefore, provision should be made for its removal, and for keeping the air fresh and pure. For the majority of people the easiest way of securing this is to allow the window to remain open, *at the top*, a few inches night and day, according to the state of the weather. There are few days or nights when this may not be done with perfect safety. When there is a thick fog or a high wind the windows should be closed, and ventilation obtained through the door. The criterion of ventilation is to step out of the sitting-room or bedroom in the morning into the open air. If on returning to it there is the least sensation of closeness, the ventilation has not been sufficient, and the room is unfit either for those who are well or ill. Those who are careful in the matter of proper ventilation will not be nearly so likely to suffer from the effects of a draught as will those who shut themselves up in close, ill-ventilated apartments.

Drawee and Drawer.—The drawer is the person who draws a bill upon another, who is termed the drawee. (*See* BILLS OF EXCHANGE.)

Drawers.—An inner garment, of various materials and manufacture, being woven in silk, merino, wool, and cotton, and worn by both men and women. They are also handmade, of linen, calico, silk, and cambric—the latter two are more especially for use in hot climates—and cut according to various patterns, suiting the sex, size, or fancy of the wearer. Those most commonly worn are of calico, and are frilled, or ornamented with insertion and worked edging.

Drawers (in Furniture).—The making of drawers is a section of cabinet work which demands the greatest skill and the most careful workmanship, so that well-fitting drawers in a table, cabinet, or other piece of furniture may be received as a very fair indication of sound construction and good honest work throughout. They must, of course, be constructed of well-seasoned wood, and put together strongly.

Drawing.—The art of representing the outward form of objects by means of lines, as distinguished from painting, which expresses, in addition to form, light and colour. Drawing has been well described as the foundation of all art, requiring, as it does, a correct appreciation of perspective and proportion. It is an art not so much dependent on genius as on steady perseverance in study, and to become an able draughtsman is certainly within the power of all, destitute as they may be of those higher gifts which mark out a Raphael or a Michael Angelo.

Drawing Board.—This is a smooth, square, and flat board, on which the artist who draws with pencils or paints with water-colours places the paper while at work. As the paper requires to be fastened down and held in place by small pins, the wood of which the board is made should be deal, or a wood similar in softness of nature, so that the pins may be easily pressed in or removed at will.

Drawing Materials.—Drawing board, papers, pencils—either black-lead, chalk, or charcoal — together with case, india-rubber, and compasses, are the requisite accompaniments of those who follow this art.

Drawing Paper.—Of this there are various kinds, which are chosen according to the fancy or design of the artist. Some prefer plain white, others the tinted paper, of which there are many shades; that with smooth surface finds favour with some, that having a rough face is chosen by others. The latter is more particularly adapted for drawings executed with chalk or charcoal, while the smoother paper is best fitted for pencil sketches. Although both sides of this paper are seemingly alike, there is a difference: the best plan for detecting it is to look for the trade mark, which is more distinctly visible on the right side of the paper.

Drawing Pencils.—English pencils of this class bear a very high reputation, and are largely exported to other countries. They are made of a mineral substance known as plumbago, which is found embedded between layers of slate in the Cumberland mines. In order to be able to cut the plumbago into the thin strips necessary for use, the substance is previously boiled in oil. Drawing pencils are marked with initial letters, which signify their different degrees. Thus, F. is known as making the finest and lightest stroke, H. signifies hard, B. black, H.B. hard black, B.B. means very black. (*See also* CRAYONS.)

Drawing-room.—This is generally the one room in a house which is kept more exclusively than any other for ornament rather than for use, and in it are generally found the little elegancies, curiosities, and articles of value belonging to the household. In old times it was called the withdrawing-room, and this word may well express its use, as the drawing-room is resorted to after dinner as a place of quiet after the necessary bustle connected with dining. It is generally used, too, as the apartment for receiving visitors. The drawing-room may be said to be the most difficult room to furnish so that elegance and comfort should appear together. Elegance should not diverge into mere show and comparative uselessness, and comfort should not

exclude elegance. In the present day, when fashion tends towards the restoration of the mediæval style, cheerfulness and comfortableness disappear to a great extent from the drawing-room, while stiffness of form and coldness of colour are encouraged. Uniform suites of furniture generally give a formal appearance to the room; variety of shape and size, both in tables and chairs, should be chosen, but the covers of the chairs and couch should be alike. The colour of the carpet and wall-paper must depend mainly upon the size and aspect of the room, but neither should be florid in character. The ornaments should be well selected; they may be numerous, but not be crowded together. If china is introduced, it should be arranged on brackets, on shelves, or in cabinets, and not set out on tables.

Drawing-room Amusements.—It is an advantage for the mistress of a house and the mother of a family to have at hand the means of affording interest and amusement to her friends and her young people during the time that they are seated in her drawing-room. It happens too frequently that the time which is spent by the ladies alone, when the gentlemen are otherwise occupied, is but a dull, sleepy period, and it requires both tact and ability on the part of the mistress to make it anything else, or to keep up a bright, energetic conversation. It is a great advantage to a lady if her drawing-room is supplied with artistic or amusing objects which suggest subjects of interest. A drawing-room cannot be said to be complete unless it is supplied with photographs, curiosities, and plenty of books, magazines, and illustrated works of travel and research. There is nothing like a book for suggesting a conversation. The last work of a well-known author is always sure to lead to a discussion of his merits as a writer, which will call forth an expression of various opinions which must be interesting. Good books constitute such a bond of sympathy amongst cultured people that they must be valuable in promoting conversation between them. Puzzles and quiet games are useful in the same way, and a lady would certainly reap the benefit of supplying her drawing-room with articles of this kind.

Drawing-room, Arrangements of.—A drawing-room possesses its greatest charm when it impresses those who enter it with a sense of being constantly occupied by a lady. It is no use attempting to impart this peculiar feeling to a room that is only entered on state occasions, and which, as a general rule, has all the furniture done up in bags. The example of the perplexed Mrs. Tibbs may be followed, and the drawing-room before it is used may be carefully dusted, and afterwards three or four chairs may be pulled out of their places and a corresponding number of books may be carefully upset, in order that there may be a due absence of formality, but all to no purpose. Unless the room be in daily use, the atmosphere of home, of family comfort, and enjoyment, will be wanting. The drawing-room is, strictly speaking, the room of the lady of the house, and it ought to give evidence of her peculiar characteristics. Stiffness and uniformity should be banished from it, and refined comfort should reign supreme. Easy chairs of all shapes and sizes, high-backed, low-backed, straight-backed, round-backed, should be seen in every cosy nook. Tables, with objects of interest of all kinds, should be here, there, and everywhere, excepting in the way, and culture and comfort should preside together over all.

Drawing-room, Queen's. (*See* Court Drawing-rooms.)

Drawing-room Theatricals.—The pieces chosen for these performances should be those which necessitate but little or no change in the scenery, because of the difficulties which attend both the removal and placement; and also those which do not require many actors, because of the smallness of the stage. As both scenery and actors are necessarily brought into closer proximity than is usual in public performances, it is essential that all appertaining to the spectacle—scenes, dresses, and acting—should be thoroughly good of its kind. For general directions, see Amateur Theatricals.

Drawings, Copyright in. (*See* Paintings, Copyright in.)

Drawings, To Copy.—Great accuracy is required in this art. The outlines and leading features should be first sketched out very lightly, so that the corrections can easily be made. When these are found to be quite correct in every respect, the remaining portions may be added, and finally the whole may be shaded and darkened. In copying flat drawings, or when copying models, great help can be afforded by a pair of compasses, for very few persons possess the necessary correctness of eye as to size and distance which will enable them to dispense with other aid than their own judgment. Landscapes are the easiest subjects, because a general accuracy will suffice; whereas, exact fidelity is required when the human figure is depicted: thus a tree could be more easily represented than a statue could be drawn. In order to become proficient, it is necessary that the artist should copy both flat drawings and models.

Drawings, To Fix.—Pencil drawings are easily fixed by being immersed in a bowl of skimmed milk; this should be done quickly, so that the paper may not be saturated.

Drawn Work.—A sort of fancy work of the lace class, invented ages ago, and named from the circumstance that part of the threads of a piece of linen or silk were drawn out so as to form a pattern previously sketched. The threads left exposed were formed into a network by a system of overcasting in any colour selected. The art is still practised in Portugal, though in a less meritorious style than was adopted in ancient days.

Dreadnought.—A thick coat made of dark-blue rough cloth, and worn by seafaring men, of a sack-shape, more or less long, and closed with large horn buttons; so named from its being particularly impervious to wet, and providing a perfect shelter from the cold.

Dreams.—The phenomenon of dreaming has long exercised the skill of scientific

inquirers, but it has never been fully explained. Dreams are not peculiar to man, but are also experienced by dogs and other animals. In man, the train of ideas passing through the mind in sleep, and constituting a dream, seems to combine the active play of the memory and imagination with an altogether inadequate exercise of the judgment. Dreams have been classed as physical and psychological. In the former the body takes part, and the dreamer talks, walks, &c.; in the latter the body is passive, and all that takes place in the mind fails to move a muscle. The causes of dreams are not all known, but sometimes dreaming is due to actual impressions from without, sometimes to disordered digestion, sometimes to stimulants and narcotics, sometimes to disease or an unhealthy condition. There are persons who say they never dream; it is more probable that their dreams are unremembered. No doubt, some persons sleep so soundly that they dream but little; while others, whose slumbers are usually light, never pass a night without dreams, which they recollect more or less perfectly when awake. In some dreams there is a semi-consciousness which appears in different ways, and in others no consciousness of incongruity, absurdity, or unreality. Dreams are frequently influenced by the presence or reminiscence of what has greatly influenced the mind; yet, not always, for they may relate to countries and characters with which the dreamer has no acquaintance, and which may, in truth, not exist. The prevention of unpleasant dreams is possibly best secured by whatever tends to quietude of mind and the healthy condition of the whole system. Of the superstitious meanings given to dreams, it is only needful to say that they are, if it can be, more irrational than the dreams themselves. (*See* NIGHTMARE; SOMNAMBULISM.)

Dredgers.—A dredger is a very useful culinary utensil. It consists of a tin box perforated with holes, and is constructed for the purpose of distributing flour lightly and equally.

Dresden China.—The famous porcelain so styled is also called Meissen from the place of manufacture, and by the French *Vieux Saxe*, or Old Saxon. The work was commenced early in the last century, and has been continued to the present time. From about 1720 onwards the articles produced were in immense demand, and included many masterpieces in a vast variety of forms. Notwithstanding a heavy import duty intended to protect our home products of a similar class, much of it was brought into this country many years ago. Its reputation was such that its forms and even its marks were largely copied by the china-makers of England. The old work is the best, though much that is modern is very beautiful. The old marks employed are various, the best known being two crossed swords, and the letters A R in monogram; but both these are still used, for obvious reasons. Old Dresden is highly prized by connoisseurs, and deserves its reputation.

Dress. (*See* DRESSES.)

Dress, Hints on.—The age, rank, complexion, height and size, the pecuniary circumstances and health of the wearer, as well as the season in which the dress is to be worn, should all have their due consideration in the selection of the apparel to be purchased. The relative harmony of colours must also be studied, for two contrasting colours which suit a certain complexion worn separately, or with some other tint, may make an unbecoming mixture together. Short people should not wear large patterns, horizontal stripes, flounces, or very light colours if stout. They should also be careful not to attempt to increase their height fictitiously, by a very high head-dress, or otherwise, as the enlargement of the head dwarfs the figure. Tall thin women may wear flounces, but should prefer horizontal patterns to upright ones, as they add to the width of the figure. Black is becoming to every one, but more especially to stout and florid people. Those who must study economy in their dress should beware of remarkable colours or styles that may speedily go out of fashion, as the fact of their having to appear in them often will attract remark. The most serviceable materials are French merino, black satin, and good soft black silk. Real navy blue serge bears wear and wetting better than any other material. It should be borne in mind that a really good article is worth a sacrifice on the part of the purchaser. It is bad economy to buy an article because it happens to be a bargain, however good, if it be not a matter of necessity to procure it. It is also extravagant, as well as a breach of etiquette, to wear an out-door dress in the evening. A person with a full face or prominent nose should not wear a small bonnet or hat. Dark complexions look well in gold-colour, orange, and the various shades and varieties of red; while fair persons can wear pinks, blues, greens, purples, and violets. The red-haired must avoid pinks, reds, and yellows. Pale complexions look still more colourless by wearing violet, lilac, puce, or pale blue.

Dress Improvers. (*See* BUSTLES.)

Dresser.—This is the most important piece of furniture to be found in the kitchen. Its proper place is under the window, so that the housewife may have as much light as possible. It should not be too high; from the floor to the top should not exceed two feet seven and a half inches. Higher than this is inconvenient and tiring for a female to stand at and do her work. There should not be any plinth on a dresser; it is better to rest on feet, so that when standing beside it there may be room for the feet to go a little way under the bottom rail. Sycamore is the most useful and suitable material for a top. This wood is not expensive if jointed, is easily kept clean, and is well adapted for kitchen purposes. The carcase should be framed together out of scantling; it can be made of pine, and painted, or, better still, out of oak, and simply oiled. In London houses the dresser is usually found as a fixture against the kitchen wall, being provided with drawers, and, above the top, rows of shelves for the accommodation of crockery-ware—plates, dishes, jugs, &c.

Dresses. (*See* BALL DRESS; BATHING DRESSES; COURT DRESSES; FANCY COSTUMES;

MOURNING DRESSES; RIDING HABITS; SERVANTS' DRESSES; WEDDING DRESSES.)

Dresses, Care of.—Shake the dust out of the skirt as soon as taken off, and rub the mud from the edge, using a soft brush afterwards to complete the cleaning. Then hang it up in a wardrobe at the hook and eye of the waist-band, having turned the skirt inside out. The bodice should be spread out for a time to be cooled and aired, especially after wear on a warm day, but first remove all dust from the back of the neck and shoulders with a silk or cambric handkerchief, and then lay it in a drawer. If hung up, it should be suspended by a loop of ribbon sewn inside the back of the neck. If the dress be of a woollen material, it must be shaken, and brushed, should the surface bear it, and hung up under cover. Care must be taken in sitting to draw aside or smooth down any flounces, frillings, or sash-ends, and to avoid sitting on iron or cane open-work seats, if the dress be of silk or velvet. The back of the chair should also be guarded against, as silk dresses soon look shiny from leaning on any hard surface; walls likewise are often destructive to sleeves and skirts, which should be remembered in church, and in kitchens and lower passages. To raise the skirt at the back is of much importance, whether the ground be wet or dry, friction alone being so destructive. The suitability of a dress to the weather should be considered. To wear a silk or other material liable to cockle on a damp foggy day, or a muslin which must thereby lose its stiffness, would be to deteriorate for the time, if not permanently destroy it. When a dress is to be worn in hot weather, if a silk of a delicate colour or liable to run, it may be necessary to line certain portions (for instance, across the back of the neck above the petticoat bodice) with thin flannel, or thick, according to circumstances, as one day's wear may destroy a dress irretrievably. Aprons of silk or crash, embroidered in silk or crewels, are greatly to be recommended. The dress worn for walking in the afternoon should be changed, as a matter of economy as much as of etiquette or comfort, in the evening. Lastly, every button, hook and eye, or portion of the trimmings which may need re-sewing on and adjusting should receive immediate attention, and spots of grease at once removed by friction with a silk handkerchief, and then by rubbing in powdered French chalk, to be lightly wiped off afterwards. If the material be of a dark woollen texture, such spots may be removed by holding a red-hot poker to them, being cautious not to scorch it in so doing. Light, dust, rain and fog, grease, stains of all kinds, damp in hanging-closets, hard backs of chairs, perforated seats, walls, nails in floors and stairs are all enemies to be guarded against, so also are bedroom candles, to the careless carrying of which the destruction of clothing is so frequently due.

Dresses, To Fold.—Avoid a convex or projecting crease down the front of the skirt. Lay it on a bed, holding it by the waist-band, the front portion being uppermost. The train will then extend in the middle considerably below the front breadth. Take one side of the skirt and fold it over the front breadth, and then take the other side and fold it across that again. Then beginning at the waist-band, fold over towards the train three times successively, passing the hand between each fold to ensure smoothness. Of course all strings should be untied and all buttons released from holes and loops. Short skirts having flounces should be taken at the edge, and all the flounces allowed to fall towards the waist-band, and laid as smoothly as possible on a bed, arranging the flounces carefully. If to be packed in a trunk, some measurement as to the breadth and depth of the folds will be necessary. A long towel as broad as the folding should be pinned round the dress, and the bodice laid upon it, and fastened at each end, so that it can be removed and replaced without disarrangement. In folding the bodice, lay back the shoulders one on the other, and lay the sleeves flat on either side; the fronts and back seam of the bodice brought together parallel with each other, and any basque placed seam to seam in the same way. Should the material be velvet, be careful lest the buttons and hooks should mark it by pressure where they may come in contact with it.

Dressing.—A term which denotes the material used for stiffening cotton, linen, silk, and other fabrics. The substances employed for the purpose are numerous, the most frequent in household economy being flour, gum, starch, and such-like. Manufacturers take a much wider range, and introduce ingredients which are not always harmless, and which add weight, substance, gloss, &c., to the goods upon which they are applied.

Dressing (Cookery).—Amongst cooks, the stuffing which is used for poultry, veal, and pork, is frequently spoken of as the "dressing." The same name is given to the prepared sauce used for salad, and made of oil, vinegar, and condiments. This salad dressing is sold in ornamental bottles, and is very convenient to have on hand when only a small quantity of sauce is needed. When a large bowl of salad is to be served, the dressing can be quite as satisfactorily, and much more economically, prepared at home.

Dressing (Surgery).—By this is meant the various applications employed by surgeons in the treatment of wounds, ulcers, tumours, &c., as, for example, lint, plaster, bandages, poultices, caustics, ointments, lotions, &c.

Dressing Cases are ordinarily made of rosewood, mahogany, or coromandel wood, the last-named of late years having become very fashionable. The contents of both ladies and gentlemen's dressing cases vary very slightly, except in the handsome and expensive nature of the fittings. A lady's dressing case should contain perfume bottles, jars for pomade and tooth-powder, small cups for lip salve and cold cream, trays for nail and tooth brushes, soap dishes, cutlery, and brushes and combs. A gentleman's dressing case should include scent bottles, jars for pomade and tooth-powder, hair brushes and combs, shaving, nail, and tooth

brushes, razors and strop, nail scissors, button hook, tweezer, nail file, and penknife. The price of these articles varies from one pound to a hundred pounds each.

Dressing-rooms. — Dressing-rooms are attached to bed-rooms. They are generally supplied with a fixed bath and dressing table, and everything requisite for the performance of the toilet. When furnished with taste, dressing-rooms may be made very pretty and ornamental as well as useful. The carpet and furniture should correspond with those of the bed-room.

Dressing Table.—This should be one of the prettiest objects in the bed-room. It is usually made to match the rest of the furniture, and may be procured in various degrees of ornamentation and elaboration. Whatever its form, it should be tastefully appointed, and liberally provided with toilet requisites. When economy is a consideration, a plain deal table may be obtained, and this, when covered with coloured calico and white muslin, has a very pretty effect. Deal tables may be bought properly rounded and shaped for the purpose. If preferred, a large wooden box may be used, and this can be employed for holding dresses or bonnets. Sometimes a shelf for holding boots and shoes is put under the dressing table, and then it is necessary that the muslin should open in the middle, like doors, so that the boot-shelf can be easily reached.

Dressmakers.—As a rule, dressmakers are duly qualified to act as such by passing through an apprenticeship of a certain duration, for which a premium is paid or a period of service is given free. In large drapery establishments, both the fitters and cutters-out form distinct branches of the trade, apart from the needlewomen, and are better paid, some obtaining salaries of £100 per annum and upwards.

The price paid for goods to the dressmaker varies according to the material, the amount of ornamentation, and her own place of residence; the fashion, as regards the latter, and the amount of rent paid to make an important appearance, being taken into account. Certain societies have been formed, and classes for instruction held, for the purpose not only of assisting the workers and training gentlewomen of small fortune to obtain a living by this means, but also for the purpose of protecting employers from the exorbitant charges which have latterly been made in this trade.

Dressmaking. — Although home-dressmaking may be of less perfect accomplishment as to its general style, the economy realised is well worth consideration. The difficulties of cutting-out are much exaggerated, and many ladies would find themselves fully competent for the undertaking after a few experiments on inexpensive materials. A knowledge of the various branches of plain needlework is essential; and now that paper patterns can be purchased—not merely flat patterns, but well arranged in position, and trimmed—every facility is afforded to the amateur dressmaker. The bodice should be cut from the lining of an old dress, made by a good professional hand, and found in the wearing to be a good fit. It must be ripped carefully, and each part preserved whole, all the broken threads extracted, and the several portions of the lining pasted upon brown paper, and pressed smoothly, and the superfluous part of the paper cut off. Then mark the seams with a piercer. Do not wash the lining, as it will draw it out of shape, and render it a misfit. By means of such a pattern, dressmaking at home will be rendered comparatively easy, and thus it should be always preserved. The fashion of the current season being ascertained, and the quality of the dress decided upon, the quantity of the material must be carefully calculated; on the economy in the purchase and cutting-out depends the gain realised by home-dressmaking; but cutting-out needs careful contrivance and much thought, as novices are apt to make serious mistakes, not through ignorance, but sheer inadvertence, such as the cutting-out of two sides alike, or both sleeves for the same arm. It is well to procure the paper pattern before the purchase of the dress, as the inexperienced worker can then ascertain the quantity of material required. This can be done by pasting a number of newspapers together in a long strip, of the exact width of the fabric designed for the dress. The pattern should be laid upon the paper, turned in various ways, yet so as to run properly with regard to the selvage; backs, fronts, skirts, and sleeves all running, as an invariable rule, parallel with it. The necessary quantity for the several parts of the bodice and skirt being once ascertained, a note should be made on the paper pattern, for future guidance. The ordinary proportions respectively required are: sleeves, one and a half to two yards; bodice (basque), two and a half to three yards; polonaise, six to eight yards; skirt, without trimming, eight to ten yards. The lowest of these quantities applies to twenty-seven inch wide materials. When the fabric is wider, or the individual what is termed an "outsize," the proportions must vary accordingly. A large pair of cutting-out scissors and a yard measure will be found to be as essential as thimble, needle, and thread.

Dried Flowers.—If care be taken and patience be practised, success is certain in this work. The principal aim is to extract all moisture from the flowers without damaging them during the process. For this purpose many sheets of paper, either ordinary blotting or prepared botanical paper, will be required, together with a few thin pieces of board; a penknife will also prove of much use. The specimen flowers should be laid separately on a sheet of paper, placed on a board. The operator should then take another sheet, and holding one corner on the one underneath, should, with pen or paper-knife, lay each leaf and petal straight, working from one direction, and immediately pressing down the upper sheet as each portion of the flower is arranged. A couple more blank sheets should

be added, and then a board placed on the top, before any more specimens are brought forward; then more sheets of paper and another board can be used. When the pile is complete, the whole should be placed under a press, and left there until the next day, when the paper should be changed, and the pile again be pressed. This work should be repeated several times, and then the flowers will be sufficiently dry, and will long retain their colours. They can be made into pretty groups in albums or on cards. Liquid glue is better than gum for attaching them.

Dried Fruits.—Dried fruits are used both for dessert and in cookery. They are wholesome and palatable, and supply the place of fresh fruit when this is out of season. The varieties most commonly used are grocers' currants, which are small grapes that come chiefly from the Levant, prunes or dried plums, raisins or dried grapes, dried figs from the Levant, and dates, or the dried fruit of the date-palm tree. In some places cherries are dried, and are used in the same way as raisins. In America and Normandy apples are dried and flattened in great quantities, and are called Normandy pippins.

Dried Meats, Fish, &c.—Meat is an article of food so essential to man that various methods of preserving it have been adopted; and though no dried or salted meat can be equal in nourishment to fresh butchers' meat, it makes a pleasant variety, besides being at times of great value when fresh meat cannot be obtained. When a piece of fresh meat is put into salt, the fleshy juicy matter, which is so nutritious, passes into the brine, and salt takes its place. After this the meat will keep good a long time, but it is naturally harder and more difficult of digestion—consequently not so nourishing. The simple drying process has long been in use, and is most effectual, though the flavour and other qualities of the meat are not improved thereby. Another method—that of drying in wood-smoke—has an advantage in one respect over the simple drying, in that it preserves the substance from any further change, even though it become moist. This effect is caused by the creosote or carbolic acid in the smoke. A piece of fresh meat dipped in a weak solution of carbolic acid will dry up without the flavour of the meat being injured. Smoked and dried legs of mutton have been received from Australia, the quality of which is excellent.

Our dried fish are salmon, cod, herrings, and haddock. These are first salted, then dried. A more economical way of preserving them is to rub them once with pyroligneous acid. Most of the preserved cod is prepared in Newfoundland, and is sent to us dry or in salt. Dried salmon is known by the name of kippered salmon.

Dried Vegetables, already cut for Julienne and clear soups, may be bought at various foreign warehouses. In appearance they are something like chips, and as they are particularly light in weight a small quantity will go a long way: a table-spoonful will be *found amply sufficient for a quart of soup.* The vegetables before being used require to be soaked in cold water for about three-quarters of an hour, and then to be put in a saucepan with cold water, slightly salted, and boiled like fresh vegetables. When done enough, they will have the flavour and appearance of freshly-turned vegetables. As vegetables for soups are rather troublesome to cut, the cook will find it a convenience to have a supply of dried vegetables always at hand.

Drills.—Drills are a class of tool of varied and extensive use both in metal manufactures and for woodwork. They vary in their cutting forms to serve different purposes. The *watch-maker's drill* has a shape, for instance, which fits it rather for scraping than cutting, although it works with rapidity; and its edges are double bevelled, in order that they may cut, when revolving, in any direction. In its older and sometimes more common form, the drill consists of a straight bar of steel, pointed or otherwise, shaped like a gouge or screw at one end, and inserted at the other end into a handle shaped like a bow, and a breastplate, which the workman fastens to him in order that he may steadily press the point into the wood or metal with his breast, while at the same time he turns the bow-handle with his hand. The *Archimedean drill-stock* dispenses with the necessity for either bow or breastplate by the substitution of a spirally-grooved stem. In other forms this tool is known as the *brace*, a bevel-wheel drill-stock, the *smith's brace*, the *rachet brace*, &c.

Drills (Textiles).—These are strong twilled linens, either white or brown, which resemble thick twilled holland. The material has largely taken the place of duck, being not so thick and heavy; it is principally used for men's trousers and boys' summer suits, particularly in India and other hot countries.

Drink.—Strictly speaking, drink is liquid food, and its importance, at least in the form of water, is shown by the fact that about 87 per cent. of the whole body consists of water, which is constantly evaporating, and must be regularly renewed. Water is found in all the food we take, and we must have several pints of it, in some form or other, every day. The uses of drink are manifold, and we need to take it as a beverage, since what we eat does not contain so much liquid as the system demands. The natural drink of man is water, and this, however flavoured or disguised, forms the chief ingredient in all that is drunk. That it is of tea, coffee, ale, and other customary beverages, is true; and it is also true that even new milk consists of 86 per cent. of water. Though not taken as drink, turnips comprise nine-tenths of water, and potatoes 75 per cent., and so on. That the nutritive power of food is not always regulated by the amount of fluid it contains is quite as certain as that the nutritive value of a beverage is proportioned to the quantity of solid it holds in solution. To illustrate this, it may suffice to say that there is about as much per cent. of water in turnips as there is in ale or beer; yet their nutritive elements will differ. Another observation is that absolutely *pure water is not required for drink*, and is

indeed better when it contains certain chemical elements, such as magnesia and salts of lime. Some kinds of water contain, in their natural state, ingredients which do not interfere with its usefulness as ordinary drink; while others, again, contain minerals and gases which render them more suitable for medical purposes. Some of the latter, as well as some of the artificial and other beverages, are referred to under their respective headings. (*See also* WATER.)

Drinking Customs.—It is satisfactory to know that several of these are not held in such estimation as they were in former times. They are of various kinds:—(1) Those connected with public and private festivities; (2) those associated with special occasions, such as births, marriages, and deaths; (3) those connected with trades, &c. The drinking of toasts still keeps its ground; but the custom of drinking healths at parties is not favoured in good society. At social family gatherings, more moderation is practised than formerly, and particularly at the house of mourning, which was once too much dishonoured by excessive drinking. Irish wakes and Scotch funerals are not what they used to be. To some extent workmen cling to the old practices which involved the expenditure of money upon drink on many occasions which it is needless to enumerate. In like manner, the giving of money for drink to servants and others is less habitual. On the whole, it is evident that there is a marked improvement, but much remains to be done; and it is the duty of all who have influence to use it in endeavours to abolish, so far, at any rate, as they favour excessive and unreasonable indulgence, the various forms in which drinking customs still exist among us.

Drinks.—An immense amount of labour and skill is expended in the preparation of beverages agreeable in flavour and nourishing to the body. These are principally prepared from the leaves or seeds of plants and from the juice of fruits, and particularly the juice of the grape, and include wines and spirits of all kinds, the varieties of beer, tea, coffee, cocoa, and milk—which is Nature's pattern food—many of which are referred to under their respective headings.

Dripping.—The fat that comes from joints of meat during the process of roasting. It is of great value in housekeeping, as, if properly clarified, it may be used for making meat pies and plain family cakes, as well as for basting meat. Good dripping is much superior to lard for frying purposes. When economy is a consideration, dripping is frequently used instead of butter; it can be bought for sevenpence or eightpence a pound. In some households it is regarded as the perquisite of the cook, who sells it for about fourpence a pound. This practice ought to be steadily discountenanced by every intelligent and economical housekeeper, as it has proved again and again a most prolific source of dishonesty and waste among servants.

Dripping-pan.—The pan placed under a joint of meat, when roasting, to receive the gravy and fat that come from it. The pan is made with a well in the middle, and this is covered with a lid and surrounded with holes, so that the dripping which runs into it is kept clear and free from ashes. Dripping-tins are generally made of tin or wrought-iron; stands for them are sold separately. They may be bought, too, made of copper; but these are more costly.

Dripstone.—The moulding over a door, archway, or window, which, by its degree of projection, protects the one or the other from wet, is called the "dripstone," or "weather-moulding," and sometimes the "label," or "water-table," or "flood-mould." It is frequently of a very ornamental character, and bears the same names when used for internal work. It usually extends over the arch from the points at which it springs, but sometimes descends the entire length of the jamb. In Norman architecture its projection is slight, and usually consists of a few simple mouldings, and it is occasionally enriched with billets or other small ornaments. In the Early English style it is usually small, and terminates with what is called a "dripstone termination," a small corbel of carved foliage or a head. In the Perpendicular style, when the opening above which it is has a square above its arch, the dripstone partakes of that form.

Driving.—To give instructions in the art of driving is not possible here, but a few hints to drivers are desirable. Accommodate your pace to the roughness of the road. Avoid as far as possible short and sharp turnings. Refrain as much as you can from the use of the whip, the severe application of which to the horses is seldom necessary, and often mischievous. In crowded places do not endeavour to force your passage, but pause, and do not covet the questionable praise of "driving to an inch." Keep a constant look-out in all directions for other vehicles, of which the slow are often more dangerous than the quick. Let your pace be as even as may be, and bear in mind the time you have for driving a given distance. Choose the best rather than the shortest route; and in London and other large cities do not select the most crowded thoroughfares. When stopping in a main street, draw up close to the footway; shut the door when you leave the carriage, and stop no longer than you need. When in rank, do not break it if you can help it; but hackney coaches must give way to gentlemen's carriages. If another driver is uncivil, do not return his improper language. In case of a collision, ascertain whose vehicle has caused the mischief. A coachman on duty should not speak to his acquaintance, but nod or move his whip-hand. Should stoppages be necessary, start earlier, and allow time for each. The pace in thronged streets should be calculated at about five miles per hour. Be careful to do nothing which may endanger the vehicle, the horses, or the riders; hard driving and all rash driving are without excuse. Special cases, as when horses are restive, require special precautions, which cannot here be enumerated. Accidents also may happen, and it is well to provide against such as are most probable. (*See next paragraph.*)

Driving Regulations.—In addition to the miscellaneous advices given under the head of DRIVING, it may be well to add a few words here for the use of the novice. "The rule of the road," as it is popularly termed, should be rigidly adhered to, as neglect of it may lead to serious mishaps. The great point is this, that when two vehicles approach each other the drivers should keep to the near or left-hand side of the road, so as to pass "on the whip-hand," *i.e.*, with their right hands nearest together. When two vehicles move in the same direction, the one moving most slowly keeps to the near side of the road, and the other passes on the outside, *i.e.*, on the off side of the first. When a driver has to stop or slacken speed in a crowded street, he lifts up his whip-hand as a warning or signal to those behind—a valuable rule to prevent collision. On special occasions, when many carriages are assembled, all move in one direction, and keep their places in accordance with particular regulations, which are given by the authorities.

Drops.—Confectionery drops are nearly all made of boiled sugar, flavoured in some way, and named after the flavouring ingredient. Thus there are pine-apple drops, strawberry drops, red-currant drops, &c., which are simply preparations of sugar, to which the delicate flavour of the fruit in question has been imparted.

Drops, Medical.—A medical drop is the twentieth part of a scruple, the sixtieth part of a drachm, and the four hundred and eightieth part of an ounce. Many drugs are administered in drop doses; that is to say, so many drops are to be taken in water or otherwise. As drops vary according to the bottle from which they are poured, it is always advisable to use a graduated drop glass for medicinal purposes.

Dropsy.—This is an accumulation of fluid, either in the tissue beneath the skin or in one of the cavities of the body. In the former case it is called anasarca, if it extends over the whole body; if limited to one part only, as the leg, it is called œdema; in the latter case it receives its name from the cavity into which the effusion takes place. Thus dropsy of the head is called hydrocephalus, that of the belly ascites, that of the chest hydro-thorax, and so on. Dropsy may be the result of debility, as in the case of swollen legs; it may also be a consequence of heart disease, kidney disease, obstruction of the liver, pleurisy, ovarian disease, &c. When large accumulations take place, as they often do in the abdomen, the operation of tapping is performed, and the fluid drawn off. As dropsy is more a symptom—a result of something else—than a disease of itself, the medicinal treatment will, of course, vary with the cause. If the heart is at fault, digitalis is the best remedy; but this should only be taken under medical advice. If the liver is the cause, then the medicines suitable for that condition must be employed. As a general rule, however, unless contra-indicated, diuretics, as acetate of potash, broom, &c., and purgatives, as elaterium compound, jalap powder, &c., are of considerable service in relieving dropsical effusion.

Drowning, Advice in Cases of.—No better advice can be given in cases of drowning than that published by the Royal National Lifeboat Institution, founded as it is upon the principles laid down by Dr. Marshall Hall and Dr. Sylvester, as well as upon the result of the most careful inquiries made amongst those whose opinions on such a matter were worth having. The directions given are as follows:—1. Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly* on the spot in the open air, with the face downward, whether on shore or afloat, exposing the face, neck, and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces. The points to be aimed at are, first and *immediately*, the restoration of breathing; and secondly, after breathing is restored, the promotion of warmth and circulation. The efforts to restore breathing must be commenced immediately and energetically, and persevered in for one or two hours, or until a medical man has pronounced that life is extinct. Efforts to promote warmth and circulation, beyond removing the wet clothes and drying the skin, must not be made until the first appearance of natural breathing, for if circulation of the blood be induced before breathing has re-commenced, the restoration to life will be endangered. 2. *To restore breathing.* To clear the throat, place the patient on the floor or ground, with the face downwards, and one of the arms under the forehead, in which position all fluids will more readily escape by the mouth, and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth. If satisfactory breathing commences, use the treatment described below to promote warmth. If there be only slight breathing, or no breathing, or if the breathing fail, then turn the patient well and instantly on the side, supporting the head, and excite the nostrils with snuff, hartshorn, and smelling salts, or tickle the throat with a feather, &c., if they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water alternately, on them. If there be no success, lose not a moment, but instantly *imitate breathing*. To imitate breathing, replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress. Turn the body very gently on the side and a little beyond, and then briskly on the face, back again, repeating these measures cautiously, efficiently, and perseveringly, about fifteen times in the minute, or once every four or five seconds, occasionally varying the side. (By placing the patient on the chest, the weight of the body forces the air out; when turned on the side, this pressure is removed, and air enters the chest.) On each occasion that the body is replaced on its face, make uniform but efficient pressure with brisk movements on the back, between and below the shoulder-blades, or bones on each side, removing the pressure immediately before turning the body on the side. During the whole of the operation, let one person attend solely to the movements of the head and of the arm placed

under it. The result is *respiration* or *natural breathing*, and, if not too late, *life*. Whilst the above operations are being proceeded with, dry the hands and feet, and as soon as dry blankets or clothing can be procured, strip the body, and cover or gradually re-clothe it, but taking care not to interfere with the efforts to restore breathing. 3. Should these efforts not prove successful in the course of from two to five minutes, proceed to imitate breathing by Dr. Sylvester's method as follows:—Place the head or the back on a flat surface, inclined a little upwards from the feet, raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades. Draw forward the patient's tongue, and keep it projecting beyond the lips. An elastic band over the tongue and under the chin will answer the purpose, or a piece of tape or string may be tied around them, or by raising the lower jaw the teeth may be made to retain the tongue in that position; and remove all tight clothing from about the neck and chest, especially the braces. *To imitate the movements of breathing.* Standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upwards above the head, and *keep them stretched* upwards for two seconds. (By this means air is drawn into the lungs.) Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest. By this means air is pressed out of the lungs. Repeat these measures alternately, deliberately, and perseveringly, about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which, cease to imitate the movements of breathing, and proceed to *induce circulation and warmth.* 4. *Treatment after natural breathing has been restored.* To promote warmth and circulation, commence rubbing the limbs upwards with firm, grasping pressure and energy, using handkerchiefs, flannels, &c. (By this measure, the blood is propelled along the veins towards the heart.) The friction must be continued under the blanket or over the dry clothing. Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, &c., to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet. If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room. On the restoration to life, a tea-spoonful of warm water should be given, and then, if the power of swallowing have returned, small quantities of wine, warm brandy-and-water, or coffee, should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

General Observations.—The above treatment should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours. *Cautions.* Prevent unnecessary crowding of persons round the body, especially if in an apartment. Avoid rough usage, and do not allow the body to remain on the back, unless the tongue is secured; under no circumstances hold the body up by the feet. On no account place the body in a warm bath, unless under medical direction, and even then it should only be employed as a momentary excitant.

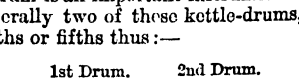
Drowsiness.—This is the condition which precedes sleep. When it occurs naturally, it simply indicates fatigue, and that the body requires rest. It generally follows a full meal, especially if there has been any indulgence in alcoholic drinks. Drowsiness may, however, be the forerunner of disease of the kidneys, and it is frequently associated with lesser ailments, as torpor of the liver, &c. It is a condition present when there is pressure upon the brain from disease or accident, and occurs to those who live in foul air charged with carbonic acid gas. Drowsiness generally follows a prolonged exposure to excessive cold, and if not strongly resisted may end in fatal sleep.

Drugget is a coarse woollen fabric, thick, but not durable, which is generally used either as a covering or a substitute for carpets. Some time ago this material was made into articles of clothing for the poor, and, owing to its thickness, it proved a great protection from the cold. The *drugget petticoat* is still worn in some parts of England. Its use is not, however, to be recommended for this purpose, because, though warm, it quickly gathers dust, and is apt both to absorb and to retain contagious poisons. Employed as carpets, however, druggets are very useful, and some of the designs in which they are printed are very bright and pretty.

Druggist.—A druggist is a person who deals in drugs used in the preparation of medicines. The drugs are the materials in their original commercial form, and the business of the druggist is to prepare them and make them up for use from the prescriptions of medical men. Any one assuming the title of chemist or druggist must be properly qualified to do so. The Pharmaceutical Society has a right to examine candidates, and, if considered worthy, to confer upon them the title of pharmaceutical chemists. (*See also* CHEMISTS AND DRUGGISTS.)

Drugs, Adulterations of. (*See* ADULTERATIONS OF DRUGS.)

Drum.—A musical "instrument of percussion," consisting of a wood or metal cylinder, the end or ends of which are covered by tightened parchment. In the modern orchestra the *kettle*-drum is an important instrument. There are generally two of these kettle-drums, tuned in fourths or fifths thus:—



The kettle-drum is of hemispherical shape, the spherical portion being of metal. By means of nuts, or keys, the parchments can be tuned to any pitch within an octave. The bass drum, long drum, or *grosse caisse*, is much bigger than the kettle-drum, and is used only in very large orchestras or in military bands. The drum, when used not merely for noise or for marking

time, is a very effective instrument; and Beethoven and Berlioz are especially noted



KETTLE-DRUMS.

for their treatment of the smaller species in symphonic music.

Drum (Machinery, &c.).—In machinery, the drum is a kind of short, hollow cylinder, revolving upon an axis, around which endless straps, chains, or cords are passed to communicate motion to other pieces of mechanism. The word drum is applied also to a crowded evening party.

Drum of the Ear. (*See* TYMPANUM.)

Drummond Light.—So called from Captain Drummond, who was the first to turn it to practical account. It is the same as the Lime Light (*which see*).

Drunkenness.—Intoxication from the use of alcoholic drinks. (*See* INEBRIETY; TEMPERANCE.)

Dry-cupping. (*See* CUPPING.)

Dry Gilding. (*See* GILDING.)

Dry Nurse. (*See* NURSES.)

Dry-rot.—A species of decay which attacks wood, rendering it very rotten, and destroying the cohesive nature of its particles. It is generally occasioned by the attacks of fungi and other parasitic growths, the fine threads of which diffuse themselves through the timber, entirely destroying its texture. Among the principal causes of dry-rot are insufficient seasoning of the wood when first felled, and bad ventilation of the timber when employed for building and other purposes. Thus dry-rot often occurs beneath the flooring of a house where there is entire stagnation of air; in well-built houses, however, where sufficient ventilation of all parts of the building is provided for, dry-rot is almost unknown. For the prevention of the disease many processes have been originated, the most successful of which depend upon the filling-up of the pores of the wood with some chemical, such as creasote, chlorides of zinc and lime, silicate of potash, &c.

Dry Scurf. (*See* DANDRIFF.)

Dry-stove.—A dry-stove is a hothouse, generally warmed by fire heat, the heat so produced passing along brick flues. A dry-stove is used for rearing those plants which require a high degree of temperature and a drier atmosphere than is produced by stoves heated by steam, or when tanks of water or earthen pits are used.

Dryers.—There are four preparations of dryers for paint:—(1) Lithargo, ground to a paste with drying oil—this is used for dark colours; (2) prepared from white copperas and drying oil; (3) from sugar of lead and drying oil; (4) from white copperas and sugar of lead, of each one pound, pure white lead two pounds. These latter are used for whites, greys, and opaque light colours. As the name implies, dryers are employed to increase the hardening properties of oil-paints.

Drying Herbs, &c.—Herbs are very valuable and are easily cultivated. They may be reared in very small gardens, and as they are much better when freshly gathered, it is a good plan to grow them when practicable. Apart from their value as flavourers, herbs have a beneficial effect upon the system; they are stimulating, and many of them are very efficacious as medicine. For winter use they must be dried, and for this purpose they should be gathered when in full bloom and free from moisture, but not in the heat of the sun. The more quickly the drying process is accomplished, the more effectually will the flavour of the plant be retained. It is a good plan to spread the herbs before a hot fire, taking care not to let them burn. When perfectly dry, instead of hanging the plants in bunches, or putting them in paper, as is frequently done, the leaves should be taken off, rubbed to powder, and then passed through a sieve. Afterwards the powder should be put in air-tight bottles. In this way it may either be used immediately, or kept for a length of time. The following are the proper months for drying the different herbs:—Basil, August; chervil, elder flowers, and fennel, May, June, and July; knotted marjoram, July; lemon thyme, July and August; mint and orange thyme, June and July; parsley, May, June, and July; sage, August and September; summer savory, July and August; tarragon, June, July, and August; thyme, July and August; and winter savory, about the end of July.

Drying Linen, &c. (*See* AIRING LINEN, &c.; WASHING AND DRYING CLOTHES, &c.; *also next paragraph.*)

Drying Machines.—Under this head might be reckoned a number of inventions, the common aim of which is to facilitate the drying of textile fabrics, especially by the application of heat, though not exclusively so. The drying closet, or hot closet, as it is also called, is an enclosed space or chamber, so constructed that it can be heated by means of a flue or iron pipes, like a greenhouse. The linen to be dried is suspended on horses, which can be put in and drawn out as required. When heated enough, the air is let in by means of a valve at the bottom, and carried off through another opening at the top. The current of hot air rapidly carries away the steam and dries the linen. Another plan is to furnish the closet with iron pipes charged with heated air from the furnace. A third mode is to employ a steam-pipe con-

nected with a copper or boiler, the hot steam from which passes through the tube and heats the chamber. A full description of these systems would not be very intelligible, and the adoption of either should be entrusted to competent workmen who understand their construction. Drying machines, in the proper sense of the term, are chiefly used in large establishments for dyeing, bleaching, and calico printing. In these cases metal cylinders are used heated by steam and made to revolve. The articles to be dried pass round these cylinders, and are carried forward by their motion. Special contrivances are also employed for drying such things as thread and yarn, which are turned round very rapidly, causing the materials to throw off the moisture by centrifugal force. Partial drying of house-linen is effected by means of some of the machines which have been invented for wringing, &c. For this branch of the subject, *see* the article LAUNDRY, MACHINES FOR THE, where the principal kinds are enumerated.

Drying Oils. (*See* OILS, DRYING.)

Dubbing.—A preparation used by curriers in dressing certain kinds of leather, and also applied to the uppers of strong boots and shoes by sportsmen and others, who have to traverse wet grass, &c. It helps to keep out wet, and therefore to preserve the leather, both as regards dryness and durability. The composition consists of a mixture of tallow and fish oil, which are well melted and combined. When cold it has the consistency of cold cream or butter. Though not difficult to make, it is not always easy to procure the oil in small quantities, and it is therefore usual to purchase it either from a currier, or at shops where leather and shoemakers' materials (called grindery) are sold. Dubbing made with cod oil is of a lighter colour and less penetrating than that made of whale oil (called sod oil). A little powdered resin adds to its power of repelling water.

Ducal Coronet. (*See* CORONETS; DUKE.)

Duchess. (*See* DUKE.)

Duchesse Glass. (*See* MIRROR.)

Duck (Textile).—This word is derived from the Swedish *duk*, a cloth. The material so called is a strong, plain, very thick linen, with a glazed surface. It was formerly much used for trousers when it was the fashion for gentlemen to wear white ones; it is now chiefly used for the shirts worn by workmen in iron-smelting works and forges, and for the smock-frocks worn by agricultural labourers.

Ducks.—Ducks form the large natural family *Anatidæ*, and are all aquatic birds. They might be divided into three classes—the common or domestic ducks, the sea ducks, and the pond ducks. The *domestic* duck is of various sizes and colours, and especially should we mention the yellow-billed white Aylesbury, greatly esteemed for its size and flavour. Ducks have lesser bodies than geese, although the largest of the former is bigger than the smallest of the latter. The legs also are shorter in proportion than those of geese, and they are situated farther backward, and this causes ducks to waddle. Their backs, too, are broader, as is the bill, and the body is more compressed. Although an aquatic bird, water is not really essential to the existence of the domestic duck; the young, indeed, should not be allowed to take to it until a month old, nor should they be allowed to eat too freely of slugs and snails. Ducks need but little attention and are good layers, and the ducklings or young ducks can easily be fattened for the table in a month on boiled rice or grain and water. Mr. Yarell makes the common wild duck, the *Anas boschas*, or *mallard*, the true type of duck, and describes it as follows:—"It exhibits considerable length of neck; the wings are also long, reaching to the end of the tail; the tarsi somewhat round, the hind toe free. The keel of the breast-bone is deep, affording great extent of surface for the insertion of powerful pectoral muscles." Mallards frequent fresh-water ponds and marshes, feeding on aquatic plants, insects, worms, &c. During hard, frosty weather they come to the sides of rivers. The *Muscovy* duck is a distinct species, larger than the common duck, and easily distinguished from a red fleshy appearance on the cheeks and behind the eyes. The *Eider* duck is an inhabitant of the Arctic regions. It is very large, with a horn-coloured bill, the upper mandible being hooked. This duck lays from five to seven eggs, of a pale-green colour, and in a few days plucks the down from her breast to cover them up. It is this down which forms so valuable an article of commerce. It is extremely light and very compressible. The "duckeries" of Iceland and Norway are carefully protected, just as we protect our fisheries. Perhaps the most beautiful little duck of all for a pond is the summer duck, a native of Pennsylvania. The American *widgeon*, or *zinzin*, is much sought after on account of its flesh. The *Chinese teal*, or *mandarin*, is celebrated for the beauty of its plumage and curious shape of its feathers. (*See next paragraph.*)

Ducks as Food.—In choosing ducks, the principal points to be considered are that they should be young, plump, and fresh-killed—facts which may be ascertained by the condition of their feet and bills. When ducks are young, the bills and feet are yellow and free from hair; and when fresh-killed the feet are quite pliable: when the feet are stiff it is a proof that the bird has been killed some time. Some people imagine that large fat ducks are the best for eating. This is a mistake, as the large birds are generally old, and consequently hard and tough; old ducks, too, are lean and flabby at the breast. Young tender ducks are preferable, even though they be small. Ducks may be procured in any month of the year, but they are considered in the best condition in June and July, though the young ducklings of March and April are more delicate in their flavour. The flesh of the duck is not very digestible; it is richer and harder than that of the fowl and turkey, and ought, therefore, to be avoided by invalids whose digestive organs are weak. The wild duck differs from the tame variety in the colour of its feet; the former are black or red, the latter yellow. The

French lay great value upon a bird called the Rouen duck, the flesh of which is considered very delicious. It is supposed to come from Rouen, though really the word is a corruption of Roan; and the Roan duck is simply the tame duck which has preserved the gay plumage of the wild one. Many French people still think that all the gay-coloured ducks come from Rouen.

Duct.—This is the tube or channel through which the secretion from a gland usually passes to fulfil its special function. The most important ducts in the body are—the thoracic duct, conveying the chyle and lymph into the blood; the common bile duct, carrying the bile into the small intestine; the pancreatic duct, conveying the pancreatic juice to the same place; the ureters, carrying the secretion of the kidneys into the bladder; and the lachrymal and nasal ducts, for the secretion which lubricates the eyes.

Duel, Duelling.—A single combat, at a time and place appointed, in consequence of a challenge. This custom came originally from the northern nations, among whom it was usual to decide all their controversies by arms. In modern times a duel is a combat with weapons between two persons having a cause of quarrel, wherein, if one of them be killed, the other and the seconds are guilty of murder, whether the latter fight or not. It is a misdemeanour to challenge any one to fight or to provoke another to send a challenge.

Duet.—A musical composition, vocal or instrumental, for two performers. Ordinarily, a duet is understood to be a song for two persons, with a pianoforte accompaniment. But there are also duets for the violin and pianoforte, violoncello and pianoforte, concertina and pianoforte, &c.; and it is to be regretted that this kind of concerted music is not more frequently heard in the household. A pianoforte duet is a piece for two performers ("four hands") on the same instrument. In many houses, now-a-days, both the harmonium and the pianoforte are to be found; and it ought to be more generally known than it is at present that the effect of the two instruments when played together is sometimes very fine, almost orchestral. In the case of any two instruments being played together, previous care must be taken that they are in perfect tune with each other. This is easily seen to when the violin or any other stringed instrument is in question; *e.g.*, the violin is tuned to the pianoforte pitch. In the case, however, of reed instruments, such as the harmonium or concertina, the pianoforte must be tuned throughout to accord with the former, the pitch of which is unchangeable.

Duke.—Next to prince, this is the highest title which can be borne by a subject. In England various princes of the royal family are dukes, but the title is also given to others, all of them being named after some city, town, or county; hence Duke of Edinburgh, Duke of Wellington, Duke of Cornwall, &c. There are occasions on which the Sovereign addresses all dukes as princes. Dukes are peers of the realm, and they have a right to a seat in the House of Lords. Their title is hereditary, and their eldest sons, during the father's lifetime, are by courtesy styled marquises. The wife of a duke is a duchess, and both have assigned to them special coronets, robes, and precedence, with various other honours. The oldest English dukedoms at present are Norfolk (1483), Somerset (1547), and Richmond (1675.)



DUCAL CORONET.

Dulcamara, called by naturalists the *Solanum dulcamara*, belongs to the natural family *Solanaceæ*. Although common enough in Europe, in Asia, and in North America, it is also well known in this country under the name of woody nightshade or bitter sweet. Its purplish-blue flowers bedeck our hedgerows in June and July, and its beautiful currant-like scarlet berries garland them in autumn. Children should be cautioned against even touching them, for they have often been swallowed, and dangerous, if not fatal, effects have followed. An infusion of dulcamara is sometimes used in medicine as a cure for some skin diseases, for rheumatic and gouty afflictions, as well as in colds, and in the same cases where sarsaparilla has proved serviceable.

Dulcimer.—A musical instrument of very primitive origin and construction. It is composed of a flat resonant box, of a size and shape to be held conveniently in the hand and supported against the breast. Upon the upper side of this box are placed a number of metal strings, tuned in various ways (*i.e.*, the instruments are not uniformly tuned), which are struck with a stick having a cork head. Of course the instrument can also be laid upon a table, when it can be played by both hands. A pleasant sound is the result, but little music worthy the name.

Dumb. (*See* DEAF AND DUMB.)

Dumb-bells.—Weights used for purposes of exercise, and consisting of two spheres of iron, united by a bar to be grasped by the hands. This bar or handle should be at least half an



DUMB-BELL.

inch longer than the width of the hand, and so shaped that it may be readily grasped. Dumb-bells are of very ancient origin, and practice with them constitutes most healthy exercise. They should not be used, however, of too great a weight; indeed, as a general rule, the lighter the dumb-bells, the better. By an ingenious arrangement, some dumb-bells are made to open at either end (as shown in the illustration), for the insertion of weights, which may be varied at will. Dumb-bells with a long uniting rod, some three or four feet in length, and to be

held by both hands, are now much used; they are, however, generally termed long-bells.

Dumb-waiters.—These may be described briefly as portable shelves, mounted on a frame and moving on castors. Being easily moved, they are convenient in a dining-room for holding supplementary plates, dishes, &c., or for conveying articles required for the table from one room to another with perfect safety and great expedition. They vary in size and form, and the larger kind are frequently called dinner-waggons.

Dumplings.—Dumplings form an excellent wholesome dish for hungry people, and children are especially partial to them. Light dumplings are nothing but bread boiled instead of baked. If made carefully and eaten when quite hot they are very good; but they are very indigestible when heavy. Fruit dumplings, currant dumplings, and what are called plain dumplings, are all made of suet. When well boiled they are to be highly recommended as nourishing food for growing children. As a rule, children dislike eating fat, a certain amount of which is so necessary to health, and in the form of dumplings they take it unknowingly.

Dung-beetle. (*See* Dor.)

Dunlop Cheese. (*See* Cheese.)

Dunstable Straw. (*See* Straw Plaits.)

Duodecimo. — A book is said to be duodecimo (Latin *duodecim*, twelve) when each sheet of paper of which it consists is folded so as to make twelve leaves or twenty-four pages. (*See* Books.)

Duodenum. — The small intestines are divided into three portions, named respectively the duodenum, the jejunum, and ileum. Of these the shortest is the duodenum, which commences at the pyloric end of the stomach, and forming a curve, which embraces the head of the pancreas, terminates in the jejunum on the left side of the second lumber vertebra. Besides the numerous glands which open into the duodenum, there are also openings for the bile and pancreatic ducts, which here pour forth their secretions to act upon the chyme as it passes out of the stomach. The duodenum is about ten inches in length, and is divided, for anatomical purposes, into an ascending, a descending, and a transverse portion. Of these the first is the shortest, and is usually found stained with bile.

Dura Mater.—This is the outer investing membrane of the brain. It is of a dense fibrous structure, and serves both to protect the brain and to form an inner lining for the bones of the skull.

Duress.—Constraint; imprisonment; compulsion. Duress is either by imprisonment or threats. To constitute duress by imprisonment, either the imprisonment or the duress consequent thereon must be tortious and unlawful. Duress by threat has been thus divided:—(1) Through fear of loss of life; (2) of mayhem, or loss of member; (3) of imprisonment. At common law a contract made during duress is not void, but voidable; and the person on whom it is practised may avail himself of the duress, as a special defence to an action thereupon at any time. But the person who has employed the force cannot allege it as a defence, if the contract be insisted on by the other. As to crimes, distress by threat is an excuse for some but not for all; for although one be violently assaulted and have no other possible means of escaping death except by killing an innocent person, this fear of force shall not acquit him of murder, for he ought rather to die himself than escape by the murder of an innocent person. But in such a case he is permitted to kill the assailant, for there the law of nature and self-defence, its primary canon, have made him his own protector. It may be observed also that the compulsion which takes away guilt must be the fear of no less than present death or grievous bodily harm, for the mere apprehension of having houses burned or goods destroyed or injured is not sufficient.

Dust is an accumulation of fine dry particles of earth or other matter which gathers in masses in our houses and settles upon our furniture, and unless speedily dislodged gives to everything an untidy, dirty appearance. It is the abhorrence of thrifty housekeepers, and in every orderly household a continual war is waged against it. When cleanliness is rigidly observed, and in houses where the floors and furniture are washed at regular and frequent intervals, dust is easily kept within bounds. It is, however, always present in the atmosphere we breathe. When a ray of sunlight enters a dimly-lighted apartment through a chink in the furniture or any aperture of a similar nature, there may be seen in its track a number of minute particles of matter moving up and down with the air. This is dust consisting of minute fragments of mineral and organic matter. In some countries dust forms in such masses as to cause considerable inconvenience. For example, in Teneriffe, one of the Canary Islands, and also in some parts of South Africa and India, it forms in clouds sufficiently dense to obscure the light of the sun. These clouds are spoken of as dust-storms. In many parts of Ireland the peasantry believe that dust is raised on roads by travelling fairies, and they lift their hats to it, saying, "God save you, gentlemen."

Dustbins are receptacles for dust which are attached to modern houses. They are usually placed at the back of the house, within easy reach of the kitchen, and out of sight of the inhabitants. They ought to be emptied every three or four weeks. In large towns the dustman, whose business it is to clear out the dustbin, is a regular institution. When any difficulty is experienced in getting the dustbin emptied, a letter calling attention to its condition ought to be addressed to the Inspector of Nuisances for the district, and in almost all towns the answer to this will be a speedy removal of the nuisance. If from any cause it is impossible to have the dustbin emptied, a little freshly-slaked lime should be thrown into it, and this will for a time prevent mischief. Too often dustbins prove hot-beds of impurity, from which fevers and contagious diseases spread to the surrounding neighbourhood. This arises from organic and vegetable matter being thrown

into the bin and allowed to decompose there. All refuse of this nature, as well as paper and rags, ought to be burned at the kitchen fire. The prudent housekeeper will be particularly careful that the lid of the dustbin fits closely. (*See next paragraph.*)

Dust-heaps.—When the dustman has emptied the dustbin, he takes his load to some place set apart for it, and empties it upon the heap. Here it is subjected to the most careful scrutiny. There are men, women, and children who make it their business to turn over and examine each portion of it, and everything that can be utilised in any way is taken out and sold for the purpose to which it can be applied. The rags are used for making paper, the bones are ground down and used as manure, the nails and pieces of old iron are all made use of, and nothing is left behind that can be utilised in any way. Fabulous stories are told of the treasures that have been found in dust-heaps, and of the fortunes that have been realised by those who have had the disposal of them. When we remember how many little articles there are that entirely disappear from our homes, leaving no trace behind, we can have no difficulty in believing that some of them, at any rate, find their way to the dust-heap. When the heaps have been systematically looked over, they are employed to fill up hollows which are to be levelled and built upon.

Dust-pans or Shovel—and out of which is employed to receive the a short-handled brush, swept off the carpet, the dust will fly all over the place, and though the housemaid may dust the room afterwards, it is probable that half her labour will be lost. A room that is in constant use should be gone over with the broom and dust-pan every morning, and every crumb or piece should be taken up. Then after waiting awhile that the dust may have time to settle, the room should be thoroughly dusted. Bright tin or *japanned* dust-pans may be bought at a moderate cost.

Dusters.—A continual war is waged against dust, not only because it is unsightly and uncomfortable, and injures the furniture, but also because it is inhaled into the lungs, and becomes one of the sources of disease; therefore it ought to be removed. Housemaids when dusting too frequently flap the duster upon the furniture, by which means the dust rises, and in a little time settles again in another part of the room. Miss Nightingale, speaking of the practice, says, "What it is done for I cannot think. It is much better to leave the dust alone, if it is not to be taken away altogether." The better plan is to use a duster that has been slightly damped, and if this is not desirable, to *take up* the dust gently and carefully, and to shake the duster frequently out of the window. Of course it is supposed that the housemaid, before sweeping the room, has taken the precaution of sprinkling tea-leaves over the carpet. This will to a great extent keep down the dust. Dusters may be made of the cotton linings of dresses, old sheets, or old chintz of any kind. Cotton is better for the purpose than linen, because the latter is fluffy. When old cotton is not at hand, dusters may be bought of the draper. Whatever the material of which they are made, dusters will wear much longer if they are hemmed. Dusting-brushes are generally made of long soft hair or of feathers. They are employed for dusting picture-frames and articles of a similar kind, and are useful for getting into corners or crevices that a duster could not enter. They should be kept exclusively for the purpose for which they are intended, and should be hung up when not in use.

Dutch Auction. (*See* Auction, Mock.)

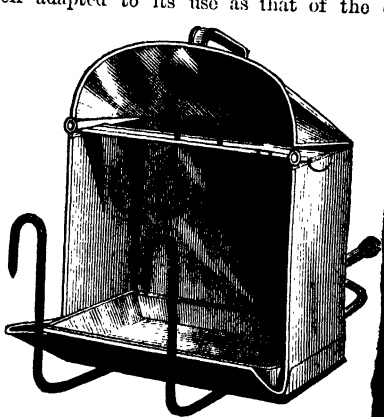
Dutch Cheese. (*See* Cheese.)

Dutch Clotted Cream.—This is a thick mass of milk and cream, almost solid in consistency. It is manufactured from new milk, which is placed in a pan, and stirred vigorously three or four times a day, in order to prevent any separation of the cream from the milk.

Dutch Drops.—This preparation is supposed to be the residue which is left in redistilling oil of turpentine. It is prepared in this country in various ways, one of the most common formulas being, balsam of sulphur, one part; oil of turpentine, five parts. Another is, linseed oil, one quart; resin, two pounds; sulphur, one pound. Boil together over a slow fire. When combined, remove from the fire, and add one pint of oil of turpentine and fifty drops of liquor of ammonia; stir well together, and bottle. Dutch drops are said to be a stimulant and diuretic, but the medicine is not officinal.

Dutch Gold. (*See* Gold, Dutch.)

Dutch Oven. A culinary utensil not so much known now as it was, the construction of the modern stoves not being so well adapted to its use as that of the old-fashioned ones. A Dutch oven is made in the shape of a triangle—hooks hang from the top on which to place chops, bacon, &c., and a tin is placed underneath to receive the fat. It is put before the fire, and its peculiar construction causing the heat to be attracted and concentrated, meat may be cooked very quickly by it



DUTCH OVEN.

Dutch Rushes.—The dried stems of a species of *Equisetum*, or horsetail, a common plant found in moist and watery situations. They are chiefly imported from Holland, whence their name; and owing to the large amount of silex or flint which they contain, they are extensively used for polishing ivory, wood, some kinds of metal, &c.

Duties. (*See* Customs; Excise.)

Duties of Masters to Servants.—An employer is bound to pay his servant the wages agreed upon, and to lodge and board him suitably, according to his station. The quantity and quality of the food must be in all cases of such a nature as to maintain the servant in health and strength, but the supply of "extras," such as beer and dainties of various kinds, is generally made a matter of special agreement. A master is not bound to supply a servant with medicine or medical attendance, although if a servant is taken ill, or sustains an accident of any kind, he cannot be turned at once out of the house, but may demand either a month's wages or a month's warning. The visits of his doctor must also be permitted. According to an Act of Parliament passed in the present reign, it is provided that where a master or mistress is legally bound to provide a servant with necessary food, clothing, or lodging, and refuses or neglects to do so, such master or mistress shall be considered guilty of a misdemeanour, and punishable with imprisonment for a term not exceeding three years, with or without hard labour.

Duties of Servants. (*See* Butler, Cooks, &c., under their respective headings.)

Duties of Servants to Masters.—It is a servant's duty to perform his business efficiently and conscientiously, to use diligence, and to be respectful to his master. He must also obey all lawful and reasonable commands of his master, and must be careful of his master's property. He takes the risk of all accidents connected with service, and the master is not liable to make compensation for the same, unless they were caused directly or indirectly by his means. Before the law, masters and servants stand on the same footing, and are dealt with in the same way. A breach of contract on either side may be followed by fine or imprisonment, according to the circumstances of the case.

Duvet.—A down coverlet or quilt. The down used is either goose or eider-down, which is enclosed in a case of Turkey chintz, silk, sarcenet, satinette, &c. As a bed covering it is said to combine the greatest amount of warmth with the least possible weight; and certainly it is a very pleasant and ornamental substitute for a blanket.

Dwarf.—A person or thing of low stature. In our own time cases have occurred of human beings far below the average stature. General Tom Thumb, as he was called, was said to be only twenty-five inches high, and without deformity of structure. The term dwarf is also used as an adjective in relation to undersized plants, &c., as dwarf peas. In like manner a low wall, such as is intended to support a palisade or iron railings, is called a dwarf wall.

Dwarf-doors. — These are doors which close only in the lower portion of a doorway, leaving the upper for the admission of air and light. They are sometimes called half-doors.

Dwelling-house. (*See* House.)

Dye-stuffs.—Cochineal, quercitron, Brazil wood, logwood, acacia-flowers, nut-galls, lac-dye, sumach, walnut-peels, pearl-ash, saffron, madder, cudbear, turmeric, fustic, weld, annatto, indigo, verdigris, archils, and catechu, pure alum, and a solution of tin, mixed with other bases as mordants. There are metallic compounds, such as Prussian blue, chrome yellow, manganese brown, sulphate and acetate of copper, oxide of iron, acetate and tartrate of iron, chloride of tin, also used in dyeing. Since the discovery of the aniline dyes they have superseded to a considerable degree the use of the above-named dye-stuffs.

Dyes.—Various dyes and methods of dyeing in common use are referred to under the headings of Bone; Cotton; Feathers; Grasses; Hair; Hemp; Horn; Ivory; Leather; Linen; Precious Stones; Silk; Wood; Woollen.

Dynamite, as originally prepared by Nobel, consisted of three parts of nitro-glycerine to one of infusorial earth; but any other similar absorbent, such as kaolin, burnt clay, chalk, &c., may be employed, provided it be sufficiently finely pulverised. Sawdust is sometimes used; and sugar is said to be a very good material for the purpose. In some descriptions the quantity of nitro-glycerine is only one-fifth to one-quarter. In the blasting of rocks, and generally in all cases where bursting effects are desired, dynamite is, in equal weights, much more powerful than gunpowder. The fractures extend to a great distance from the blast, thus effecting a considerable saving of expense in removing the fragments. Dynamite is made up into cartridges; but the paper envelope absorbs nitro-glycerine, and if in contact with a sufficient mass of a porous substance, the whole of the nitro-glycerine would be removed from the dynamite in process of time. This is a possible source of danger which needs to be guarded against in the use of this explosive.

Dynamometer.—A term compounded of two Greek words, and meaning literally a "power-measurer." The dynamometer is an instrument used to ascertain the force exerted at any given moment by a steam-engine or other motive power.

Dysentery.—This is an inflammation of the glands and mucous membrane of the large intestine. Dysentery is a painful and often fatal disease which, though happily becoming rare in this country, is very prevalent in tropical countries, as India, and may occur in any marshy districts where malaria exists. It is the scourge of armies, carrying off, in severe epidemics, 50 per cent. of those attacked; whilst it is equally fatal to sailors and others

condemned to live for any length of time on salt meat. Dysentery may be either acute or chronic. The symptoms of acute dysentery are, in the first instance, a certain amount of febrile disturbance, with some diarrhœa and griping pains. As the disease progresses, the feverishness increases, denoted by a flushed face, bright eye, and great anxiety and sleeplessness. The diarrhœa, which in the first instance afforded relief, and was characterised by the expulsion of hard matter (*scybala*) from the bowels, now degenerates into a most offensive discharge of blood and mucus, with shreds of membrane; there is painful straining and constant desire to go to stool, the result affording no relief; the bowels become tender and inflated; the urine is scanty, high-coloured, and imparts a burning sensation as it passes. At this stage of the disease the patient frequently dies from profuse discharge of blood, or from perforating ulcer, or from pyæmia, or some other complication, the approach of death being generally signified by hiccough, vomiting, pale sharp features, and rapid pulse. If this period is safely passed, the symptoms may either gradually subside until convalescence ensues, or they may assume the chronic form. This stage is characterised by a continuation of the purgation and straining, and these, if not checked, completely exhaust the patient, who becomes fearfully emaciated, until death at last ends his sufferings. A frequent complication of this dreadful disease is some lesion of the liver, either ulcer or abscess, which helps to increase the fatality. The treatment of the acute stage consists in first thoroughly cleansing out the bowels, by injections of thin gruel and salad oil, or by taking full doses of castor oil containing a few drops of laudanum or sedative solution of opium; in administering calomel or grey powder, or large doses of ipecacuanha (from thirty to forty grains) or Dover's powder, in general bleeding in suitable cases, in the application of leeches to the tender parts of the abdomen, and in subsequent hot fomentations and poultices. In the chronic stage, ipecacuanha, as already mentioned, sulphate of copper with opium, half a grain of the former with a quarter of a grain of the latter, in a pill, three times a day, and a daily injection of cold water, are the best remedies. The diet in all the stages of dysentery must be of the most simple, unstimulating kind. No solid food should be allowed, but beef tea, mutton and veal broth, arrowroot, milk, sago, rice, &c., should be taken at short intervals. It should not be forgotten that dysentery is a contagious disease in the same sense as typhoid fever and diphtheria, and is communicable by the secretions, which contain a specific poison and are of a most offensive description. In any case of this kind occurring, therefore, the same precautions as to disinfection, &c., must be taken as are recommended in those diseases.

Dyspepsia. (*See* INDIGESTION.)

Dysphonia. (*See* VOICE.)

Dyspnœa.—This is the term used to signify a difficulty in breathing. It is a prominent symptom in several diseases, as pneumonia, asthma, bronchitis, heart-disease, pleurisy, &c. The treatment of this condition will vary according to the cause.

Dysuria.—This is a condition of pain and difficulty in passing urine, due to various causes, as stone, enlargement of the prostrate stricture, inflammation of the bladder and urinary passages, and also to an acid and irritating condition of the urine itself. When due to the latter cause, alkalies, as soda or potash, with a copious use of bland fluids, as barley water, linseed tea, &c., will afford relief. The warm bath will also be found beneficial. (*See* BLADDER, COMPLAINTS OF.)

E

Eagle (Heraldry).—This emblem of power and dominion is represented in various forms. The Imperial eagle has two heads, one turned to either side; the Royal eagle has one head. This heraldic ensign has been assumed by the Emperors of various nations, by Russia, Germany, France, Prussia, and Austria, and also appears in the shields of some English peers. This emblem is to be seen in coats of arms at an early period of heraldic history, but is not found so frequently as that of the lion. Eagles and eaglets are also borne as crests.



IMPERIAL EAGLE.

Ear-ache. (*See* EAR, AILMENTS OF.)

Ear, Ailments of.—These are generally divided into—(1) affections of the external ear, (2) those of the middle ear, and (3) those of the internal ear. 1. *The external ear.* This is subject to various inflammations, such as erysipelas, eczema, and unhealthy excoriations. These are best treated by poultices; by astringent lotions, as two or three grains of sulphate of zinc to an ounce of water; by zinc ointment, by syringing the ear with warm water when necessary, and by the application of glycerine. The health must be improved by tonics, especially iron, and the bowels kept relieved by saline aperients. Leeches at the back of the ear are very useful if the inflammation is of a severe character. If wax or any foreign body is in the ear, it must be got rid of by syringing. (*See* CERUMEN.) Polypi and other tumours must be removed by surgical operation. 2. *Middle ear.* The diseases of this part are chiefly those affecting the tympanum or drum. This is subject to sudden rupture, from shock or unskilful meddling. It is also subject to inflammation and perforation. When rupture has taken place from any cause, it may easily be recognised by the person holding his nose and mouth and forcing the breath outwards, which can be felt passing out of the affected ear. To remedy this condition, an artificial membrane can be introduced. By wearing this for a short time, the hearing may become re-established. 3. *Internal ear.* These result, as a rule, from diseases of the middle ear, extending inwards and affecting the auditory nerve, and causing partial or complete deafness.

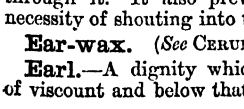
There is a form of neuralgia, however, occurring here which may be described. It receives the name of *otalgia*, or ear-ache, and is a most painful affection. It generally arises from bad teeth, and may frequently be relieved by a free purgation. The offending tooth should be extracted, and a hot poultice applied to the ear. This may also be syringed with warm water containing a few drops of laudanum. As has been already stated, under the head of DEAFNESS, any elaborate advice as to treatment when such a delicate organ as the ear is concerned would be more calculated to mislead than guide. Therefore, if the slight measures recommended fail to relieve, an aurist should be consulted.

Ear-rings and Pendants.—The custom of wearing ornaments in the ears dates from a remote period, and spreads over the greater part of the world. It was common among the Egyptians, Assyrians, Etruscans, Greeks, and Romans, and indeed prevailed from Germany to China. Some nations adopted the practice for both sexes; and even in our own country examples of men wearing ear-rings have been numerous. Shakespeare seems to have worn them; but at present, though habitual in some parts of the world, their use by men is limited among us to sailors, &c. As an ornament for women they have long been specially popular, and wealth and skill have been lavished upon their construction. The ring proper is usually of gold, to which appendages, in gems and pearls and other costly materials, are often added. The forms are infinitely varied; it is doubtful, however, whether any modern examples are more truly elegant than some which have adorned Etruscan, Greek, and other ancient ladies. With regard to the utility of these things, a word or two may suffice. Their true use is as an ornament. When of too great weight, and when constructed after certain eccentric models, they may cause inconvenience or even pain to the wearer. The idea that to pierce the ears and wear rings is beneficial to weak eyes seems to have no foundation whatever in fact. To prevent the need of piercing the ears, various devices have been resorted to by modern jewellers; but the piercing is a very popular device, and is resorted to even by the Chinese.

Ear-trumpet.—This is an instrument constructed on scientific principles which, when applied to the ear, concentrates the sounds which reach that organ when conversing through it. It also prevents the unpleasant necessity of shouting into the deaf person's ear.

Ear-wax. (*See* CERUMEN.)

Earl.—A dignity which comes above that of viscount and below that of marquess. The wife of an earl is styled a countess, indicating that her husband's title is equivalent to that of count, which is not adopted in England, though in the Latin an earl is called *comes* (plural *comites*). An earldom is hereditary, the oldest in England being Shrewsbury (1442), and Derby (1485). Earls are either English, Scotch, or Irish. The oldest Scottish earldom is Errol (1452); and the oldest in Ireland that of Cork and Orrery (1620). An earl and his countess are entitled to special robes and coronets; their eldest sons are viscounts, and their younger sons barons, both by courtesy.



EARL'S CORONET.

Earl Marshal of England.—A high officer of state of great antiquity, the title being personal, the office honorary and officiary. The title was formerly Lord Marshal only, until the time of King Richard II., who in 1397 granted letters patent to Thomas Mowbray, Earl of Nottingham, and his heirs, by the name and style of Earl Marshal, and gave them power to bear in their hand a gold truncheon, enamelled with black at each end, having at the upper end of it the king's arms engraven thereon, and at the lower end his own arms. King Charles II., by letters patent in 1672, granted to Henry Howard, Earl of Arundel and Surrey, and the heirs male of his body, the office and dignity of Earl Marshal of England, and the same have ever since continued in that family. The present Duke of Norfolk, as Earl of Arundel, now holds this office. The Heralds' Office and College of Arms are under the Earl Marshal's superintendence and control. He was also formerly judge of the Marshalsea Court, now abolished.

Early Rising.—Much has been written in praise of this habit, and unquestionably, where circumstances allow a person in ordinary health to retire early for rest, early rising is very desirable. As a fact, every person requires a certain quantity of sleep, and that may vary with change of health, age, &c. This is a matter of moment, for the devotee to early rising, merely as such, sometimes injures his health by denying himself the amount of physical rest which nature requires, and by extending the labours of the day beyond proper limits. On the other hand, many do harm to themselves by remaining too late or too long in bed. With respect to the measure of sleep needed in general, we must refer to the article SLEEP. Where early rising prevails, the whole round of household occupations and of personal employments is facilitated, while late hours in the morning retard all the work of the day. In the case of servants these are well-understood facts, and they are equally certain as regards a family as a whole. After enumerating the advantages to those who act up to the old aphorism—

> "Early to bed and early to rise,
> Makes a man healthy, wealthy, and wise"—

a writer on the subject concludes by saying:—"I cannot pretend to name a proper hour either for retiring or rising: these must differ in different states of society; what would be called early in one place would be deemed late in another. Early rising naturally disposes a person to retire early; and having ascertained the exact quantity of sleep which agrees best the health of body and mind, the hours of rest should be arranged accordingly, always taking care to secure as much daylight as possible for our waking hours, and giving to sleep the hours

of darkness." We need only add that the time for rising in summer may, and probably ought, to be somewhat earlier than that adopted in winter.

Earnest (from the Saxon word *eornest*).—A sum paid by the buyer of goods to bind the seller to the terms of the contract. By the Statute of Frauds, 29 Chas. II. c. 3, it is enacted that "no contract for the sale of any goods, wares, and merchandises for the price of £10 sterling or upwards shall be allowed to be good, except the buyer shall accept part of the goods so sold, and actually receive the same or give something in earnest to bind the bargain, or in part payment, or that some note or memorandum in writing of the said bargain be made and signed by the parties to be charged by such contract or their agents thereunto lawfully authorised." Any amount is sufficient to constitute earnest, but it must be given as a token of ratification of the contract, and it should be expressly so stated by the giver.

Earnings.—The profits acquired by any person in the performance of work or the practice of a profession; the word, therefore, denotes both profits in the ordinary sense and wages.

Earth-closets are those in which the sewage, instead of being conveyed away in drains by the assistance of a current of water, is subjected to a process of absorption and deodorising. For this, dry loam or clay, in a state of powder, is made use of, experiments having demonstrated that in its dry condition a comparatively small quantity of such earth will absorb all the obnoxious gas products and effluvia arising from ordinary sewage, and do this, too, repeatedly, if after each application it is re-dried. Where water is not immediately or easily procurable, one of these portable earth-closets is an indispensable domestic requirement; and even where it is, as an adjunct for occasional use in times of sickness or for old people, an earth-closet is an object of considerable utility and importance.

Earth-nut. (*See* PIG-NUT.)

Earth-worms, To Extirpate.—A solution of a pound of American pearl-ash, or of any other alkali, with four pounds of slaked quicklime dissolved in five gallons of water, will kill earth-worms in the ground or caterpillars on the leaves, without any injury whatever to the vegetables or flowers themselves. For very tender plants, a weak solution of aloes in water may be beneficially and safely applied. But where the destruction is not so rapid as to require instantaneous remedy, a simple and certain preventive will be found in the process of whipping strongly such plants as can bear it with the green leaves and branches of the elder-tree; after which insects will not attack them for some months. Where the plants are too tender to admit of this rather violent remedy, the flowers may be watered once or twice with a pretty strong effusion of the elder leaves, which course will be found equally efficacious.

Earthenware.—This term is very generally used to describe all vessels made of earthen materials, but there is a special distinction between porcelain, pottery and earthenware. Pottery is made of clay only; earthenware is composed of clay and flint. The white, yellow, and blue and white ware, characterised by its solidity and whiteness, is earthenware. Until the last century commenced, this was brought mostly from Holland, but since then great advances have been made in this country, and now the potteries of Staffordshire and Leeds send out immense quantities of earthenware to foreign countries. The compound is reduced to a thin consistency before being moulded into form; the patterns are imprinted by means of transfer-paper which have received their impressions from engraved copper plates. Since the great rise in the price of coal, some few years ago, the price of earthenware of all descriptions has advanced considerably.

Earthenware, Repair of.—As pieces of this ware are thick and heavy, it is not possible to join them successfully with cement. The only effectual method is that of rivets. Usually, 3d. per rivet is charged; but it is surprising how many of these are required to keep firmly together the broken parts of a dish. Unless the rivets are properly put in, *i.e.*, taken through the ware, the pieces will not keep together. Common utensils which are not brought to table may be joined by means of strips of calico and white paint; this method is secure unless boiling water be poured on or into the repaired ware.

Earwigs.—The earwig belongs to the family *Forficulidæ*, and is by some entomologists constituted into a distinct order. Its appearance is by no means attractive, and its mandibles and forceps are so constructed as to suggest unpleasant possibilities, which, however, have never been realised. The vulgar belief that the earwig after entering the ear bores a hole in its interior, through which it can penetrate into the brain, originates from the fact that the body of the insect terminates in a sort of pair of pincers; hence, doubtless, their French name of *Perce-oreille*. They are innocent insects and do little harm, only they are very voracious and multiply very rapidly, and thus make themselves a pest to the locality where they are found. Their legs are formed for running, not for leaping, and their wing-covers, which are very small, hide only a small part of the abdomen and are firmer than the wings of the other *Orthoptera*. There are two sets of wings. The shape of the hind wings when fully opened strikingly resembles the human ear, and from this circumstance it is highly probable that the original name of the insect was earwing. Earwigs have a habit of creeping into holes and avoiding the light, and are usually found in the chinks of trees, under bark, and under stones. The female hatches her eggs like the hen, and gathers her young round her with maternal solicitude, carrying them away when touched.

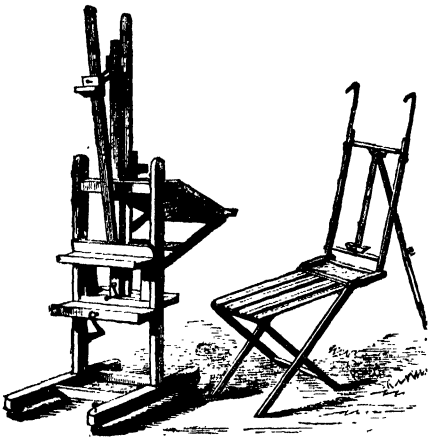


EARWIG.

Easel-picture.—This term is used in painting with respect to pictures painted on an

easel, in contradistinction to pictures drawn or painted upon walls or ceilings.

Easels.—Of the various kinds of easels in use by artists, the most common are those of large size, which are wooden stands of tripod form. The two limbs in front are flat, and a flat bar is placed across them; this is supported by means of movable pegs, which are fixed in holes in the stand, a series of them enabling the artist to lower or heighten the ledge; and on this ledge rests the painter's canvas or panel. These



EASELS.

easels are of great antiquity, and their form is but little changed. Another kind is the large one shown in our illustration, the smaller easel there given being one which forms also a seat, and can be folded into comparatively small compass by means of hinges and joints. There are also small easels for placing on the table.

Easement, in law, is a privilege or convenience which one neighbour has of another, whether by charter or prescription, without profit, such as a way through his lands, a right of passage of water, or the like. These in many cases may be claimed. An easement is an incorporeal hereditament, which from its nature can only be created by grant; hence the origin of all easements may be referred to a grant by the owner of the servient tenement, either express or implied.

East Indian Blackwood.—A kind of rosewood (the *Dalbergia latifolia*), chiefly found in Malabar, where it reaches a height of about fifty feet. The timber is much used in Bombay for ornamental furniture, and planks of four feet wide are sometimes cut. Owing to its increasing value, plantations of it, under Government control, have been established in the Madras presidency. The wood is of a dark-purplish colour, is very heavy and close-grained, and bears a high polish, but is destitute of the perfume and dark lines of the true rosewood. Another and a smaller tree yields a similarly valuable timber, and is also called blackwood or rosewood in Madras.

Easter Church Decorations. (*See* DECORATIONS, CHURCH.)

Easter Customs.—The season of Easter has always been celebrated as one of joy and special festivity. Before the Christian era it was celebrated as being the return of spring and the revivification of nature. Many customs were observed, slaves were set free, sports and dances were indulged in, bonfires were lighted. In our day these and many others have fallen into disuse, but the season is everywhere considered to be a festive holiday. In some parts, particular cakes and puddings are partaken; in others, persons are careful to provide a new article of dress to put on, it being considered unlucky if no new thing is worn. Some persons always wear white bonnet-trimmings at Easter. Churches are specially decorated, and it is a time when the performance of the rite of baptism is considered by many to be of special importance.

Easter Eggs.—The custom of giving eggs at Easter is old and wide-spread. An egg is considered to be an emblem of the resurrection and of future life, and as such was given as a token to one another by Christians. In some parts of Scotland it is customary for people to go out early on Easter Day in search of wild-fowl eggs, those who find the greatest number being deemed the most lucky. In Germany, at this season, eggs, after being boiled hard, are ornamented or have proverbs written upon them, and are then hidden behind bushes and shrubs in the garden by some member of the household, the rest then proceeding to find them, each trying to get the largest number. The custom of making presents of ornamented eggs at Easter has of late years revived in this country. These are beautified in various ways. (*See* EGGS, COLOURING OR DYEING.)

Easter Offerings.—It was long the custom in England for the parishioners to give sums of money to their parochial clergyman at Easter. The custom is not now universally prevalent, and the gift is an entirely optional one. Where it is in use, the churchwarden calls upon the members of the congregation, and asks for offerings for the personal use of their minister. These were formerly known by the name of dues.

Easter Sittings and Vacation are fixed by the Judicature Act, 1875. The sittings commence on the Tuesday after Easter week, and terminate on the Friday before Whitsunday. The vacations commence on Good Friday, and terminate on Easter Tuesday.

Easy-chairs.—Under the heading of ARM-CHAIR we have already pointed out the principles which make easy-chairs really easy to sit in; all we need add, therefore, to those remarks here is to point out that in the upholstering and stuffing of such chairs due attention should have been given to the angle of inclination in the back, the proper inclination of the seat in its depth, and sufficient depth to provide support for the thighs in their entire length. Springs should be of the best wire, and of sufficient thickness to enable them to retain, while yielding under pressure, the proper degree of elasticity without bulging at their sides. With regard to the various materials used for upholstering easy-chairs, these will be found in their

chief varieties under the heading of COUCHES. The invention of elbow or easy-chairs is traditionally ascribed to an alderman of Cripplegate:

"Burly and big, and studious of his ease."

Eating.—Healthy persons should eat at regular intervals, and not too much at one meal. The food should be properly masticated or chewed before being swallowed. This not only allows the salivary juice to act upon the starchy part of it and convert it into sugar, but leaves the stomach and the secondary digestion in the duodenum less to do. For those whose teeth are very bad, or altogether wanting, the food should be of a fluid or semi-solid character only, as soup, broth, milk, jellies, arrowroot, rice, sago, and other farinaceous viands. Three good meals in the day are sufficient, but delicate persons who can only digest a little at a time, and children, require food often. In fine, the good old maxim must not be forgotten, "that we should eat to live, not live to eat."

Eau de Bouquet.—Highly-concentrated, compound, odoriferous "esprits" and "essences," adapted for the handkerchief, are usually so termed by perfumers. Only highly-rectified spirit can be employed in their preparation, on account of the large quantity of essential oil and other odorous substances which many of them contain. No coloured ingredients producing stains should enter into their composition. There are two descriptions of this perfume, the "Eau de Bouquet" and "Eau de Bouquet de Flore." The first compound is made of the spirit of rosemary, essence of violets, orange-flower water, oil of bergamot, oil of jasmine, oil of lavender (Mitcham), oil of verbena, eau de rose, and rectified spirit. Various formulas are used. The second compound is made of spirit of roses, spirit of rosemary, essence of violets, oil of cedrat, essence of ambergris, orange-flower water, and rectified spirit.

Eau de Cologne.—Two kinds of this scent are usually sold in the shops, the German and the French. That prepared by Farina, of Cologne, is considered the best. It is principally used as a perfume, but it is likewise employed as a stimulant, sweetened with sugar. It has been found beneficial to headaches, when applied with a handkerchief to the forehead, as well as for temporary dimness or loss of sight from an affection of the nerves, likewise applied to the forehead, close above the eyes and on the temples. There are seven preparations of eau de Cologne, the first of which, by Farina, we subjoin:—Essences of bergamot and lemon, of each one fluid drachm; oil of orange, half a drachm; oil of neroli, twenty drops; oil of rosemary, ten drops; essence of ambergris and musk, of each one drop; rectified spirit, half a pint. Mix. It is essential that the spirit be of the purest, scentless and tasteless; the oils genuine and recently distilled; and the flowers, or tops of flowering plants, be freshly gathered. To produce the best quality of this perfume, distillation is indispensable. But much excellent (so-called) eau de Cologne is manufactured in England, by simple solution of the oils or essences in the spirit—provided they be new, pale in colour, and pure—without distillation.

Eau de Luce.—This is the "compound tincture of ammonia" and "succinated spirit of ammonia" of the old Pharmacopœias, excepting that, in the "*tinctura ammoniæ composita*" of the London Pharmacopœia of 1851, the oil of amber is omitted. The component parts of the eau de luce are as follow:—Powdered mastic, rectified spirit, digested until dissolved; and then liquor of ammonia (·882), oil of lavender, and oil of amber are added to the clear portion of the former ingredients after being decanted off. This mixture is regarded in the East Indies as almost a specific for the bite of the cobra di capello and other venomous reptiles, and of insects. It is both taken internally and applied to the wound. The dose is from ten to twenty or thirty drops, in water. It is an anti-spasmodic, antacid, and stimulant.

Eaux.—These, in perfumery, are either "solutions" of the fragrant essential oils in spirit, with or without any compound of other fragrant ingredients, or they are "distilled waters" considerably charged with the sweet-scented principles of flowers. As examples, amongst others, of the first-named, we may specify the eaux de Cologne, de lavande, and de bouquet; and of the last-named, the eaux de rose and de fleurs d'oranges. By English perfumers the name is sometimes improperly applied to perfumed spirits of their own manufacture purporting to be of foreign origin, but it is correctly restricted to articles imported from Italy or the south of France. There are thirty or forty different kinds of perfume bearing the prefix "Eau," the characteristic odours of which may be usually judged of by their respective titles. The principal mixtures are as follows:—Eau d'Ambre royale, d'Ambrette, d'Auge (of several kinds), de Myrte, de Beauté, de Bouquet, de Bouquet de Flore, de Cologne, de Carmes, des Framboises, d' Héliotrope, d'Hongrie, Eau Incomparable, de Jasmin, d'Ispahan, de Lavande, de Lavande ammoniacale, de Lavande de Millefleurs, de Maréchale, de Miel, de Millefleurs, de Mousseline, de Romaine, de Rosières, Eau Royale, Sans Pareille, de Violette, Eaux Distillées, Eau de Nappre (under this head come the Eau de Fleurs d'Oranges and de Lanquedoc).

Eavesdroppers.—Persons who stand under the eaves or at the doors and windows of houses to listen to what is said within. The same term is applied to those who endeavour secretly to overhear the conversation of others. By a statute passed in the reign of Queen Anne, eavesdroppers were punishable by fine, and could be compelled to find surety for their good behaviour, as disturbers of the public peace.

Ebonised Furniture.—This term is used to indicate furniture in which ebony plays a conspicuous part, either in the way of decorative inlayings of that wood, or in other ways. Woods dyed black are, in the cheaper kinds of furniture, substituted for the hard, dark, ivory-like, tropical ebony, which is so rich in colour, so durable, and takes so beautiful a polish. The stain used with pear or beech wood for

imitating ebony is a solution of copperas and logwood, containing a little powdered nut-gall. This, when applied and dry, is rubbed down with oil and polished with French polish made dark with indigo. Ebony is too brittle to be used alone, or solid, or in large portions for the manufacture of furniture; it is therefore mainly used as a veneer, and for inlaying.

Ebonite.—A hard black compound, somewhat resembling jet in appearance, and much used in the manufacture of necklaces, bracelets, lockets, &c. It is made by mixing caoutchouc or gutta-percha with sulphur in various proportions.

Ebony.—A hard black wood—the heart-wood of several trees of the species *Diospyros*. Mauritius ebony, Coromandel ebony, and the



SPRIG OF EBONY.

bastard ebony of Ceylon are among the principal varieties. Ebony admits of a very fine polish or gloss, and is a very useful and valuable wood. (*See* EBONISED FURNITURE.)

Ebullition.—The motion produced by the formation of bubbles of vapour in any liquid heated up to the boiling-point. The source of heat being generally below (as in a tea-kettle on the fire), the vapour is mostly formed at the bottom, and in rising through the liquid in order to escape creates a great disturbance in it, commonly known as boiling. As the vapour occupies a much greater space than the liquid from which it is produced, the overlying liquid is forced upwards, and the contents of the vessel often boil over in consequence; if, however, the boiler or other vessel is so closed down as to afford no means of escape for the vapour thus produced, it is liable to burst. Whatever be the intensity of the heat applied, as soon as ebullition commences the temperature of the liquid remains stationary, the added heat being all absorbed in the conversion of the liquid into vapour.

Écarté.—A game of cards not in good repute in private circles, and generally left to mere gamesters; it is said, however, to be in itself a good game, amusing and scientific. Another name for it is Discard. It is played by two persons, who discard from their pack the two, three, four, five, and six of each suit; hence its names. As it cannot be considered a social or family game, we must refer, for the rules and terms employed, to such books as Captain Crawley's "Handy Book of Games," and the handbook edited by Mr. Bohn.

Eccaleobion. (*See* EGG-HATCHING MACHINES.)

Ecchymosis.—This is the medical term for the mildest form of contusion or bruise. It is characterised by discoloration of the skin, owing to extravasation of blood into the tissue from the wounded vessels. The colour of ecchymosis varies from purplish-red to greenish-brown, and this variation is due to the changes taking place in the extravasated blood as it is being absorbed.

Ecclesiastical Commissioners for England.—A body corporate, constituted by the Statute 6 & 7 Wm. IV. c. 77, authorised and empowered to initiate measures conducive to the efficiency of the Established Church, to be ratified by Orders in Council. Church Estate Commissioners are appointed *ex officio* members of this corporation. (See 3 & 4 Vict. c. 113; 4 & 5 Vict. c. 39; 13 & 14 Vict. c. 94; 23 & 24 Vict. c. 124; and 36 & 37 Vict. c. 64.)

Ecclesiastical Courts.—The courts in which the ecclesiastical law (which is derived from the civil and canon law) is administered. They consist of the Archdeacon's Court, the Consistory Courts, the Court of Arches, the Court of Peculiars, the Prerogative Courts of the two Archbishops, the Faculty Court, and the Privy Council, which is the Appeal Court. Power is now given to the Crown, by Order in Council, to transfer the jurisdiction in appeals to the new Court of Appeal (Judicature Act, 1873, s. 21). (See Public Worship Regulation Act.)

Echo.—The repetition of a sound, caused by its reflection from a distant object. In mountainous countries natural echoes are very common: a high rock or cliff is sure to produce them if the experimenter can stand in such a position towards it that the sound shall be sent back to him either direct or from some second surface. All buildings presenting any large even surface will in like manner give rise to echoes. It is necessary in all cases that the reflecting surface should be large, or the sound will be too weak to be heard easily; and secondly, that it should be at a sufficient distance, because sound travels at the rate of 1,125 feet per second, and therefore a near object repeats the sound too promptly for the ear to distinguish it from the original utterance. If there are two large objects directly facing one another, with nothing intervening to break the sound, a series of echoes will be produced until they gradually die away; a sound is thus repeated in some instances twenty or thirty times.

Eclecticism.—Properly, a system of philosophy formed by combining a selection of the principles of different schools. There were eclectics in ancient ages; in later times the most famous have been Victor Cousin and his followers. The term has been extended in its application to the principle of selection in regard to art, science, religion, &c.

Eclipses.—There are two kinds of eclipses, the one caused by an intervening body prevent-

ing the sun's light from falling upon the one eclipsed; the other by two heavenly bodies coming into the same straight line with the observer, so that the more distant one is hidden by the nearer. Both kinds may be either partial or total, according to circumstances. *Eclipses of the moon* belong to the first-named. They can only occur at the full, when the moon is in opposition to the sun; and the earth is so much larger than the moon, that if the three are nearly in the same plane (the earth occupying the middle place), the shadow of the earth will be so large as more than to cover the whole of the moon's illuminated surface, and hence we shall have a total eclipse of the moon. It generally happens, however, that the sun, earth, and moon are not so nearly in the same plane, and so in most cases the earth's shadow does not fall upon any portion of the moon, and no eclipse takes place at all; but at other times the shadow falls upon a portion of the moon's surface, and then a partial eclipse is the result. The moon's orbit makes an angle to the plane of the ecliptic varying from 4° 57′ to 5° 21′; and thus the moon is generally more or less eclipsed twice or thrice in the course of the year, the full moon on these occasions being at a less elevation above the ecliptic than the semi-diameter of the section of the earth's shadow. The diameter of the earth's shadow is about three times that of the moon, and hence a total eclipse may last about two hours. Jupiter's satellites are eclipsed by that planet in the same way as the moon is by the earth. *Eclipses of the sun* belong to the second category. They can only occur at the time of new moon, when she is between us and the sun. For a similar reason to that whereby there can only be a limited number of eclipses of the moon in the course of the year, there cannot be less than two, nor more than four, of the sun; but as the moon is smaller than the earth, it is only a very limited portion of the earth's surface that can receive the moon's shadow, and it is only within this limited area that the eclipse of the sun will be visible. Most eclipses of the sun are only partial, but sometimes they are total, the moon completely hiding the sun for a time from the inhabitants of a certain portion of the earth. At other times, again, it happens that the relative distances of the sun, moon, and earth are such that the apex of the cone formed by the moon's shadow is at a point above the surface of our earth, and then, of course, the eclipse cannot be total, even though the moon may be in the right plane; nor will it be a partial one in the sense of concealing a greater or smaller segment of the sun's disc; but it will be what is called an annular eclipse, a portion of the sun being seen all round the moon, like a ring of light, when the obscuration is at the maximum. A total eclipse, under the most favourable conditions, can scarcely last four minutes, and can only be seen as such over a strip of the earth's surface 180 miles in width, though as a partial eclipse it will cover a space 4,900 miles in diameter. There will only be a few eclipses of the sun visible in England during the remainder of this century, and not one of these will be total. Many very curious phenomena manifest themselves when the sun is totally eclipsed, and these have furnished much information as to the physical constitution of our great luminary.

Ecliptic. — That portion of the heavens through which the sun appears to travel in his annual revolution. In consequence of the obliquity of the axis of the earth, the ecliptic cuts the equator at an angle of about 23° 28′. It is divided into twelve portions, distinguished by the signs of the zodiac from the names of the constellations through which it passes.

Economy. — A word which originally meant the management of one's house, but which in that sense is now usually preceded by the terms "domestic" or "household." As applied to State affairs, it is called "political economy," which includes the science of government and the organisation of civil society. When used alone, economy now commonly means the wise and thrifty management of expenditure, or frugality.

Economy, Domestic. (*See* DOMESTIC ECONOMY.)

Ecstasy.—This is a condition of wrapt absorption, apparently of a joyous nature, in some thought or object. It occurs in hysterical persons, and is allied to catalepsy (*which see*). It is also seen in those who are mentally afflicted, when it generally takes the form of religious enthusiasm.

Ecthyma.—This is a non-contagious skin disease of the pustular order, occurring principally amongst children and old people in a bad state of health. The eruption begins as red circumscribed spots, which soon have mattery heads; these in two or three days become scabs, and leave, when they have cleared off, a bluish discoloration of the skin, and sometimes, in bad cases, an ulcer. The treatment must be chiefly constitutional. The general health must be attended to; pure air, good wholesome food, and when practicable sea bathing, are essential. Mineral tonics, especially a combination of iron and nitro-muriatic acid, are useful. Troublesome ulcers must be touched with nitrate of silver (caustic), and dressed with either zinc ointment or basilicon.

Ectropium, or Ectropion. — This is an unsightly affection of the eyelid, which is turned outwards, and presents, as a rule, a red and inflamed appearance. It occurs very frequently to scrofulous children, but it may also be the result of a wound or burn of the face. In the former case the eye should be excluded from the light, whilst a suitable lotion is applied, and the child, if old enough, should be told to keep the eye closed as much as possible. In the case of wounds or burns, a surgical operation may be necessary.

Eczema.—This is perhaps the most common of all skin affections. The eruption first appears as a bright redness of the skin. This is followed by the appearance on the red surface of little vesicles, which shortly bursting become crusts or scabs. These generally look black or yellow, from the mixture of blood serum and dirt of which they are formed, and owing to the excessive itching which accompanies the disease, they are generally the result of scratching. Eczema may arise from exposure to excessive

heat, from contact with irritating matter, as friction with mercurial ointment, or from a blister; it is also the result of constantly handling any powder, as flour, sugar, &c., and hence is common amongst grocers, bakers, cooks, and others. The disease may occur in any part of the body, but it most frequently affects the head, receiving the name of scall-head, the edges of the lips, eyelids, nostrils, and ears, nipples, the genitals, the arms and legs, and wherever the skin is thrown into folds, as in the case of children and fat persons. The treatment consists in, above all things, cleanliness; next to this, perseverance in the application of remedies, as the disease is frequently of the most obstinate character. When scabs have formed, they must be poulticed and bathed with warm water until quite clean. The zinc ointment must then be freely applied over the whole part affected, and renewed night and morning until cured. If the head is the part affected, an oil-silk or india-rubber cap should be worn. If the eruption is painful, as it frequently is when it attacks the legs and feet, a lotion of Goulard water and opium applied warm, or an ointment of a similar kind, may be advantageously used; in these cases it is often necessary for the sufferer to take a grain of extract of opium (for an adult) every night at bedtime. As varicose veins also are usually present, it will be necessary that an elastic stocking should be worn when the part permits of it. Eczema being a disease of debility, the general health must in all cases be attended to. Iron in all its forms is useful, and may be advantageously supplemented with cod-liver oil. The bowels should be kept open with saline aperients; and good nourishing food, with pure air, especially sea air, will in most cases effect a cure. The disease is contagious.

Edges, or Edgings.—These are of lace or embroidery, very narrow in width, and are made specially and used for ornamenting the edges of cambric and muslin frills, or insertions of net. They are extensively used in the different articles of infants' clothing, that of lace especially so, it being not so harsh to the skin as those edgings which are embroidered. Edgings of real lace are made principally in Buckinghamshire, those of imitation valenciennes at Nottingham. The machine embroidery edgings are manufactured at Coventry, which is now famed for its cheap and plentiful productions. Neatness and regularity are required when fixing and sewing edgings.

Edgings for Gardens.—This term is applied to all plants and materials used for the purpose of dividing the earthy borders or beds from gravel paths or lawns. The plant most generally known and used is box, as it is less trouble, and when properly attended to looks clean and tidy; but to have this edging in a proper state, it should be re-planted every third year, as it grows too thick and large, and thus forms a home for slugs and snails. Thrift also makes a very good edging, and in the spring, when in bloom, looks remarkably pretty; this plant also requires re-planting every third year, and when doing so, the old roots must be divided and small portions placed in the earth about two inches apart. Daisies are frequently used, but these, if left too long in the same place, grow too thick. When beds are made on lawns, there is a variety of small plants which will look well. For kitchen gardens, parsley and strawberries are used. Of late years many varieties of ornamental pottery borders have been introduced; these are cheap and give little trouble.

Education.—Education may be defined as the art of drawing out (Latin *educere*, to draw out), developing, and cultivating the various human faculties—intellectual, moral, and physical. Naturally, therefore, the subject of education is primarily divided into three branches—intellectual, moral, and physical.

Intellectual education is that which has for its object the development and improvement of the powers of the mind, and the instilling therein of a general view of the various branches of human knowledge. As a natural corollary from the foregoing definition, intellectual education may be further defined as consisting of mental discipline and the acquisition of knowledge of actual and appreciable value in the business of life. As to the most advantageous curriculum of study for the purposes of mental discipline, educational theorists differ greatly. A principal bone of contention between them is as to the value of the study of the dead languages—Greek and Latin. It is, of course, well known that the study of these languages occupies the most prominent position in many of the higher-class schools in this country, and more especially in the public schools, such as Eton and Harrow; and that such prominence is naturally encouraged by the importance attached to a knowledge of classics by the universities. Although no one ventures to dispute the value of a classical training from a disciplinal point of view, still it is now the opinion of a very large body of men, whose views are entitled to all consideration, that other branches of knowledge may be equally well fitted for mind-trainers, while they are at the same time in themselves of far more real and tangible utility than the dead languages of Greece and Rome. Of such, it is argued, are comprehensive courses of English and other modern languages, logic, mathematics, and the various sciences, a knowledge of each of which has a practical commercial value to the student in after-life. And that this view is gaining ground is partly shown by the action taken of late years in the matter by the public schools themselves, which in times past were the centres of pure classical culture. Now, although the dead languages still occupy a most prominent position, room is found also for the study of almost all other branches of culture.

As to intellectual education from the utilitarian aspect, it is not needful to say much. From this point of view the training in early youth should be assimilated more or less to the requirements of later years. Thus to one who is intended for either of the learned professions, a knowledge of Greek and Latin has a direct value, in addition to that indirect value of which mention has already been made. Should literature be the goal in life, a thorough acquaintance

with ancient and modern languages and literatures, and the mastery of the mother-tongue and its literature, will be found of inestimable value. For the embryo man of science, the imbibition when quite young of the most important truths of elementary science, and the acquisition more especially of a sound knowledge of mathematics, will make his way much easier when the special work of life has commenced. And for the youth who is intended for commerce, facility with the pen, quickness in calculating, and a knowledge of book-keeping, modern languages, and shorthand are, perhaps, the most important acquirements of early education.

Moral education embraces all the various methods of training, cultivating, and regulating the affections of the heart. Thus under this head are included the induction or formation of habits of order, obedience, self-control, politeness, truthfulness, honesty, &c. These, however, it is almost impossible to teach directly; they must be inculcated by force of example and by the strength of affection. All that can be taught is the mere moral law, the outer husk, far within which lies the kernel of actual good—of right for right's sake. And for this reason is it that moral education must commence with the child directly he has begun to comprehend; and, indeed, even in later years it will be found that moral education is the silent work of the home rather than of the school—is more dependent on the care of the parents than on that of the schoolmaster. (*See* CHILDREN, EDUCATION OF; DISCIPLINE OF CHILDREN.) Of late years a large question has arisen as to the advisability of *religious education* in schools, and especially in the national schools, *i.e.*, those supported by State aid. Into the arguments on both sides of this vexed question it is impossible for us to enter; but some information as to the existing state of the case, as far as national schools are concerned, will be found under the heading of NATIONAL EDUCATION.

Physical education comprehends all that has to do with the training of the muscular and nervous systems. It would attempt, indeed, to accomplish that end which has been so well expressed in the trite aphorism—*mens sana in corpore sano*, a sound mind in a sound body. Physical education would enforce the strict laws of health, and more especially those of bodily exercise. The importance of the latter is now so universally recognised that drill and gymnastic exercises form part of the regular school curriculum at many of the best schools and colleges.

And now, having endeavoured to show to some extent what education is, it remains to examine how the education of the country is carried on.

First, then, comes the primary education—the voluntary schools, assisted by State aid, but principally supported by voluntary contributions, and the School-Board schools. In former times, reading, writing, and arithmetic were considered the very *alpha* and *omega*, the beginning and the end, of primary instruction. Of late years, however, it has been recognised that after all the three R's are rather instruments for the acquisition of after-knowledge than positive knowledge in themselves; and it is now considered advisable that primary education should embrace in addition such further useful knowledge as may be satisfactorily taught to and comprehended by the class of children who avail themselves of the advantages of national education. (*See* NATIONAL EDUCATION.) The secondary or higher education of the country is represented by the private schools, the grammar and high schools, and the large public schools and colleges. (*See* COLLEGES; GRAMMAR SCHOOLS; PUBLIC SCHOOLS.) And then there are the highest and most advanced centres of education—the universities. (*See* EDUCATION, TECHNICAL; UNIVERSITY.)

The comparative advantages of private and public, of home and school, education have often been discussed. It may perhaps be said without fear of contradiction, that to a strong, healthy boy—healthy in mind and body—a school offers the greater advantages. There he will learn to hold his own in the busy world of men; there he will gain valuable experiences of men and manners; there the sharp obtrusive angles, which might otherwise be constant sources of annoyance to himself and others in later years, will be removed, or at any rate toned down; there, if anywhere—for he will frequently be severely tested—he should learn to be brave, honest, and truthful in practice as well as in precept. And, on the other hand, many a boy who has distinguished himself greatly in after years has owed no small part of his success to the more varied and discursive reading of home education. Circumstances and temperaments must decide the matter; it is impossible to lay down a universal rule by which all parents may abide. With girls the case is different; and it is probable that for young girls the care and domestic training of home education render it the more advantageous. (*See* TUTOR; GOVERNESS.) To meet the demands for the higher education of women, there are at present several colleges specially instituted for the purpose, and several of the universities are now holding special examinations for women.

It remains to add a few words on what is a feature of the present age—self-education and improvement among the masses. Workingmen's institutes, literary and scientific institutes, evening lectures and classes—all of these have worked wonders of late years for those whose school education was meagre, and who have been compelled to embark on the sea of life in crafts but half-prepared for the work before them. And further and valuable aid in the same direction has undoubtedly been afforded by the many cheap and useful publications of late years, specially intended as helps to self-tuition. Of these, place in the first rank must in justice be given to "Cassell's Popular Educator," a work the practical utility of which has been proved by the fact that nearly a million complete copies have been sold.

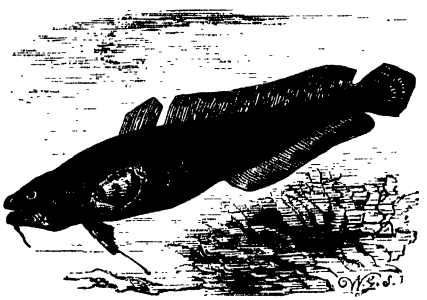
Education, Technical.—Sooner or later all education must have a tendency to become special—the preparation for future work in life must begin. Of course all general education forms part of this preparation, but it must be regarded rather as the foundation on which an edifice is to be con-

structed than as the edifice itself. As already stated, in the article on EDUCATION, this special education may, and often does, begin as soon as the merest elements of knowledge are mastered. But it is usually rather later in life that the attention of the student is turned to special rather than general branches of knowledge. Then it is that technical education commences: if law be the chosen profession, a university or an inn of court is entered, or both, or articles of clerkship are entered into with a solicitor; if medicine, a hospital course is commenced; if science, a scientific college forms the first remove from school; if agriculture, an agricultural college. And so is it through most occupations and professions. Technical colleges devoted to the various manufactures have of late years sprung up, and technical universities are already projected. Education itself has been advanced to the position of a science, and its theory must be thoroughly mastered by all who would satisfactorily teach others. Everywhere is it now fully recognised that the special work of life demands special previous preparation.

E. E., or E. and O. E. (*See* ERRORS EXCEPTED.)

Eel, Conger. (*See* CONGER EEL.)

Eel-pout, or Burbot.—A curious-looking fish found in some of the lakes and rivers of our country, but in greatest perfection in the Lake of Geneva. It is the *Lota vulgaris* of



EEL-POUT.

naturalists, and belongs to the natural family *Gadidæ*. It is a darkish-brown fish, with deeper marblings, and is much esteemed for the delicacy of its flesh. Its average weight is about two pounds or over.

Eels.—These constitute a family of fishes known to naturalists as the *Muræniдæ*, or *Anguillidæ*, easily known from the snake-like length of their bodies. They are covered with slime and appear to have no scales, the latter being small and deeply embedded in a soft thick skin. Unlike other fishes, they have the power of living for many hours out of the water, and even of making journeys over the land from one pool to another. Three species are found in the streams or lakes of our own country—viz., the sharp-nosed eel, the broad-nosed, and the snig. The first of these, the *Anguilla acutirostris*, has a narrow pointed nostril, the head being compressed and elongated. In colour it is a dark olive-green on top and a silvery-white on the belly. The eyes of this eel are very small. The broad-nosed eel is often found in the same pond. It is easily known by having a broader head and a proportionally thicker body, stronger teeth, and the eyes placed nearer the point of the nose than they are in the other eel. This is the *Anguilla latirostris*, and in some parts of England it is called the grig eel. The *Anguilla mediorostris* or snig, is more like the former of these two, especially in colour, while in comparative breadth of nose it is intermediate between them. The sharp-nosed eel attains a greater size, but the snig is considered the most delicate of the three for table use. Eels are supposed to migrate, before winter comes on, to warmer estuaries, or if they cannot leave the pond, they bore down through the mud to protect themselves from the cold. Eels are caught in a variety of different ways. They will greedily eat almost any kind of ground bait; hence night-lines of various devices are baited and sunk. Or they may be sniggled, speared, or caught by the bobbing practice, or baskets or pots may be set for them, which afford easy entrance but render exit impossible. (*See also* CONGER EEL.

Effeminacy.—We speak of the effeminacy of a man, or of society, or of the age. The term denotes the preponderance of such qualities as are supposed to characterise women—softness, delicacy, and weakness, the love of ease and luxury, and so forth. It indicates the absence of the more robust virtues of self-denial, firmness, courage, and energy in general.

Effendi.—This is a Turkish expression of distinction which is equivalent to the English Lord or Sir. The title is always placed after the name or office of the person honoured. Thus a Turkish historian of repute is designated Essaad Effendi, and one of the chief ministers Reis Effendi. This title is given to civil functionaries or ecclesiastics; to the names of military men of renown the term Aga is subjoined, as one of distinction.

Effervescence is caused either by the rapid escape of gas already contained in a liquid, or by the simultaneous production and disengagement of it through the chemical action of one body upon another. Thus aërated waters (*which see*) effervesce in consequence of the escape of gas. In the natural waters, and those made by forcing carbonic acid gas into them under pressure, the effervescence sets in as soon as the excess of pressure is removed, either by pumping it up from the well or removing the cork; in those made by mixing an aqueous solution of bicarbonate of soda with tartaric or a similar acid, the effervescence is due to the replacement of the carbonic by the stronger acid, and the consequent driving off of the former in the shape of gas. Effervescence will also be produced by dropping a little hydrochloric acid on a lump of chalk or marble, when the decomposition of the carbonate of lime will take place with such violence as to become covered with a mass of froth, swelling up from the accumulation of bubbles of gas below.

Effervescing Draughts, &c.—Effervescing draughts are extensively used as re-

freshing, invigorating beverages. They are very acceptable to the thirsty in hot weather, and also to invalids. Soda water and lemonade are among the most common, though very many new inventions have been introduced within the last few years, some of which are very excellent. The presence of atmospheric air is contained in all water, to a greater or less degree, and it is this that imparts that vivacity to the flavour which is always agreeable. In effervescing draughts the atmospheric air exists to an exaggerated degree. (*See* AËRATED WATERS.)

Effigy.—This term is derived from the Latin *effigies*, an image or portrait, and in its general sense denotes the image or likeness of a person. In painting and sculpture, an effigy is the representation of an individual; thus the full-length figures of persons standing in niches and alcoves in old churches are known as effigies. On coins the representation of the king, queen, &c., in whose reign the coins were struck, is the effigy. To *burn* or *hang in effigy* is a very common expression, and denotes the burning or hanging of an image or representation of some unpopular person; thus Guy Fawkes is burnt in effigy in this country as every successive 5th of November comes round.

Effluvia.—Various chemical processes, and the decay of animal and vegetable organisms, evolve noxious vapours and gases. These are injurious or dangerous to the health of those who come under their influence, and their removal or prevention is most urgent. The mischiefs of chemical works are to be dealt with by legal proceedings; as regards other cases, the evils may arise from allowing organic matter to decay in or near a dwelling, from open sewers, cesspools, &c., or from not having house-drains properly trapped. Sometimes the remedy must be sought in the removal of accumulated refuse, and by means of disinfectants; but generally the discovery of the source of the annoyance will indicate the steps to be taken. Efficient ventilation is useful, and indeed necessary, when the effluvia are within the house; but it is not always sufficient. Much disease and many deaths may be prevented by careful attention to the subject of this note; and its importance has been so thoroughly recognised of late years by legislation, that remedies are placed within the reach of almost every resident in our towns and cities. (*See* DISINFECTION AND DISINFECTANTS; VENTILATION.)

Effusion.—This means the pouring out of any fluid, as blood, matter, or serum, into any part of the body. Thus we have effusion of blood under the skin, causing the well-known appearance of a bruise. Again, we have effusion from some broken blood-vessel in the brain, causing apoplexy. Then there is effusion of matter from inflammation, constituting what is called abscess; and lastly, there are effusions of serum into the various cavities of the body, including the joints, and constituting the various forms of dropsy.

Eft. (*See* NEWT.)

Egg Collecting.—A well-illustrated book descriptive of eggs is a great and necessary help to the collector, but it will not suffice without careful observations being taken also. One of the most necessary is that of noticing the situation, the materials, and the construction of the nest when the egg is taken from it. The marks and measurements are further guides to identification; but both these often differ so materially, even when the eggs are laid by birds of the same species, that these tests may mislead in the classification if depended upon alone. Eggs in the same nest often exhibit disparity in size, and the spots and marks frequently vary in size, number, distinctness, and tint; therefore everything connected with them should be investigated before the final decision is made. Eggs should be blown and dried at once, for empty shells are more safely carried, and their contents are more easily discharged when fresh. Small holes should be punctured very neatly with a strong pin, one at the small end, and another near but not close to the large end of the egg. When empty, water should be drawn into it and expelled several times; the egg should then be dried by being blown into at intervals, and then reared up in a dry but not sunny place. A hard steel instrument should be used for puncturing large eggs—a penknife is apt to slip and splinter the shell. Should the hole be too visible, a piece of tissue paper wet with white of egg will hide it. White of egg proves a good varnish; but eggs should not be varnished unless perfectly clean, and they should never be rubbed hard when dirty, as this will alter the marks and colour. They can be mounted on cards with strong gum, or placed in little wooden nests lined with wool, and put into drawers. Neatly-written or printed labels should be gummed on the eggs.

Egg, Easter. (*See* EASTER EGGS.)

Egg-hatching Machines.—From a remote period the custom of hatching eggs by artificial heat has prevailed in Egypt and China, and during the last century it was introduced into France. It has also been practised in England. Various processes have been invented, which, however, it is scarcely within the scope of this work to describe in detail. One way is to place the eggs on shelves in a wooden structure warmed by means of hot-water pipes, the air being kept sufficiently moist by the evaporation from open dishes filled with water. The temperature is maintained at a uniform degree, and the eggs are turned every twenty-four hours. When hatched, the chickens are removed to a cage, where they nestle under a fleecy sheepskin called an artificial mother. Modifications of this plan exist, one being called an "eccaleobion;" but all incubators, as they are styled, require much care and attention, and only pay when carried on upon a large scale as a trade speculation.

Egg-ladle.—This is a small wire utensil, in the form of a ladle, used for lifting eggs after they are cooked from one receptacle to another. It may be purchased at a trifling cost, and is very convenient for preserving the eggs in an unbroken condition.

Egg-plant.—Called also Mad Apple, or Jews' Apple, and by botanists *Solanum melongena*, belonging to the natural family *Solanaceæ*.

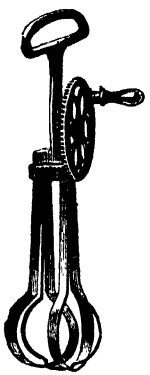
It is indigenous to the East Indies and to some parts of Arabia. The plant bears large berries, somewhat in shape like a hen's egg, and nearly as large. Usually these berries are white, but in some varieties they may be red, or purple, or black. The plant in this country may be reared in the hothouse, or in some situations even out of doors. The fruit of the *Solanum melongena esculentum* is used in French cookery both in soups and stews. There are many other varieties of egg-plants, notably the Dead Sea apple, the outside of which is so fair, while the inside, having been destroyed by insects, is only dust. There is also the Indian egg-plant, and the Palestine, or holy egg-plant.

Egg-slice.—An egg-slice is made of perforated metal, and is used to lift eggs from the pan after they have been poached. It is also useful in preserving any article unbroken which needs to be carefully passed from the pan to the dish.

Egg-spoons.—Small spoons are to be obtained which are intended exclusively for eating eggs. They are made in both bone and electro. Many prefer the bone spoons, as the sulphur in the egg stains the metal ones. This discoloration may, however, easily be removed by the application of a little damp salt.

Egg-varnish, Albuminous. (*See* VARNISH.)

Egg-whisk.—In cookery, the beating of eggs is such an essential point of consideration, that it is very necessary to be supplied with a good egg-whisk. Our grandmothers used knives, forks, and spoons for beating eggs, and these were quite as effectual as many of the new inventions that have been offered to the public, some of which prove very useless. The egg-whisk ordinarily used consists of a number of strong wires fastened together, which can be made broad or narrow by means of a wire ring which encircles them. Another one, which we have engraved, has been introduced of late years, which is a very great improvement upon it, and which is calculated to save hours of labour in the whisking of eggs and beating of cakes and puddings. This little utensil needs only to be placed in the centre of a bowl containing whatever is to be beaten, and to have the wheel turned round by means of the handle which is attached to it, and in an incredibly short time the work is done perfectly, rapidly, and almost noiselessly. The batter is smooth and creamy, the yolks of eggs are velvety and thick, and the whites of eggs are worked into a compact mass, firm enough to be cut into pieces with a knife. The little instrument is an American invention, and though very expensive a few years ago, may now be obtained at a comparatively trifling cost.



EGG-WHISK.

Eggs as Food.—Eggs of various kinds are largely used as food for man, and it is scarcely possible to exaggerate their value in this capacity, so simple and convenient are they in their form, and so manifold may be their transformations. They are exceedingly delicious, highly nutritious and easy of digestion, and when the shell is included they may be said to contain in themselves all that is required for the construction of the body. It has been claimed for them that they may be served in about 600 ways, although it is generally found that the more simply they are prepared, the more they are approved. Although other eggs than those of birds are eaten—for instance, turtles' eggs—it is generally agreed that the eggs of the common fowl and of the plover possess the richest and sweetest flavour. The eggs of ducks and geese are frequently used in cookery, but they are of too coarse a nature to be eaten alone. The eggs of the turkey and of the pea-hen are highly esteemed for some purposes. The weight of an ordinary new-laid hen's egg is from one and a half to two and a half ounces avoirdupois, and the quantity of dry solid matter contained in it amounts to about 200 grains. In 100 parts, about 10 parts consist of shell, 60 of white, and 30 of yolk. The white of the egg contains a larger proportion of water than the yolk. It contains no fatty matter, but consists chiefly of albumen in a dissolved state. All the fatty matter of the egg is accumulated in the yolk, which contains relatively a smaller proportion of nitrogenous matter, and a larger proportion of solid matter, than the white. Therefore, in an alimentary point of view, the white and the yolk differ considerably from each other, the former being mainly a simple solution of albumen, the latter being a solution of a modified form of albumen, together with a quantity of fat. When eaten by persons in health the yolk and the white are generally taken together, but invalids take the yolk only on account of its digestibility. Raw and lightly-boiled eggs are easy of digestion. It is said that raw eggs are more easily digested than cooked ones; but this may be doubted if the egg is not over-cooked. A hard-boiled egg presents a decided resistance to gastric solution, and has a constipatory action on the bowels. A very favourite method of serving eggs to the bilious and dyspeptic is to have them beaten up with wine or brandy, and this renders them very digestible and nutritious. They are also mixed with hot tea or coffee, and in this form constitute an excellent article of diet. It is said that raw eggs may be taken instead of cod-liver oil, whenever the latter is required.

Eggs, Choice of.—The quality and flavour of eggs vary according to the food upon which the fowl is kept. The egg of a stray fowl on an Irish bog is far less rich than that of a well-fed barn-door fowl, or of a hen which has been plentifully supplied with grain and kitchen scraps. Therefore it is an advantage, when purchasing eggs, to choose those which have been laid by well-kept, healthy birds. Eggs should be used as fresh as possible. Their condition may be easily known by their translucency when held up to the light. A fresh egg has a transparent appearance, and the light passes clearly through it.

A stale egg has a distinct cloudy look opposite some portion of the shell. There is a little instrument which is used for testing eggs. It is made in the form of a small square box, and has a hole at the top to receive the egg, and another at the side to look through. There is an arrangement of mirrors within, and these are so contrived that when an egg is placed in the hole and a strong light is thrown upon it, its image is reflected. If fresh, it looks clear; if stale, it is dark. A solution of salt is also occasionally employed for ascertaining the condition of eggs. An egg when exposed to the air loses weight day by day, and the diminution in its density shows the length of time it has been kept. Therefore if eggs are put in brine made in the proportion of one ounce of salt to ten ounces of water, it will be found that the fresh eggs will just sink, and stale eggs will swim. Bad eggs will sometimes float even in pure water. An easy way of testing eggs is to place the large end against the tongue: if it feels cold, it is freshly laid. When eggs shake they are stale.

Eggs, Colouring or Dyeing.—The eggs of domestic poultry can be easily stained, as they readily take almost any dye. The aniline dyes are useful for the purpose. A simple plan is to place the eggs in coloured water and to boil them in it. Cochineal will do for red, ultramarine for blue, saffron for yellow, &c. Mottoes, monograms, &c., may be produced in this way: draw upon the shell, with simple oil and a camel's-hair brush, whatever letters or device it is wished to display; then place it in the colouring liquid, and the portions touched with oil will remain white, while the remainder will be dyed. In a similar manner the ground may be left white, while the designs may be coloured. Stripes are made by wrapping threads of wool steeped in any dye which water will discharge upon the egg-shell when placed in boiling water. (*See* EASTER EGGS.)

Eggs, Preservation and Care of.—Many methods have been adopted for the preservation of eggs, some of which apply when the eggs are intended to be kept a long time, and others when they are to be kept for a short time. Before proceeding to preserve eggs for keeping, it should be ascertained for a certainty that they are newly laid. The shells of eggs are porous, and easily admit the passage of gaseous substances; consequently the object to be accomplished is to exclude them from the air. When wanted to be kept a long time, one of the simplest methods is to place them, with the small end down, in dry salt, and put them in a cool dry place. Eggs thus preserved will retain the flavour of fresh ones for twelve months. The same effect is produced by placing them in milk of lime or strong brine, or rubbing them over with butter, lard, or gum-water—all these preparations act by making the eggs impervious to the air. When eggs are meant to be kept for a short time only, they should be placed carefully in a net made of strong string, and suspended from the ceiling. The net must be moved every day, in order that the eggs may be turned, as the whole surface of the shell must be exposed to the action of the air. The daily moving will also prevent the yolks from sticking to the shells.

Eglantine is the pretty and somewhat poetic name given to the common sweet briar; it belongs to the natural order *Rosaceæ*. It is an excellent climber; its single rose flowers bloom all the summer; its scarlet naked berries look pretty even in November; and the scent from its dark-green leaves never fails to perfume the garden air every time a shower falls.

Egyptian Ornaments, Style of.—Egyptian art is of a purely conventional character, simple in its principles and uniform in kind, without the slightest pretence to picturesqueness, and, mainly, symbolical. In decorative Egyptian work we find the asp, flail, and crook used as emblems of royal power and dominion; the winged globe supported by asps personifies the god Agathadaemon, or good genius, under whose protection piety and religion were supposed to flourish; royalty is symbolised by a reed, life by the tau, truth by the feather of an ostrich, and Egypt under the form of a fig-leaf or fig-tree. The lion represented physical strength, and when represented with a man's head, intellectual strength, and under other conditions the Nile river, &c.

Egyptian Ware.—This ware is now frequently seen; it is coloured red, pale yellow, blue, and French grey, and its surface is glazed and usually adorned with figures. The articles made are principally for ornamental purposes, such as vases, spill-pots, &c. The Egyptians were the first to make pottery, which in its earliest stage was of the coarsest description, being merely clay sun-dried Eventually that country became famed for its ware, which was coloured and glazed. Imitations of these specimens have of late years been successfully made in England, under the superintendence of Mr. Wedgwood, who has introduced so many improvements into the manufacture of earthenwares.

Eider-down.—This down, being extremely light, warm, and soft, is especially valuable. Its cost is from 12s. to 14s. per pound. It is obtained chiefly from Iceland, where large numbers of the eider ducks congregate. The female plucks the down from her breast to line her nest and cover her eggs; if the nest is robbed of the down she will bare her breast in order to re-line it; and should it again be stripped, it is said that the bird will take the down from her mate to replace it. The down thus taken from the living bird possesses elasticity, but from the dead bird it is found to retain little or none of this property. Various uses are made of this warm substance, which is especially adapted for the coverings of invalids.

Eider-down Quilts, &c.—These are used as winter over-covers on beds, and are a great acquisition, especially to invalids, owing to their extreme lightness of weight and greatness of warmth. A quilt containing real eider-down (for goose-down is often substituted) costs several pounds, its price varying according to its size and the quality of its cover. Under-petticoats are made with eider-down, and are

valued for being light and warm. The down is placed between cover and lining of Turkish cotton; should the slightest hole be made in this, it should be repaired at once, for the down soon makes its way out, and cannot be collected again.

Eider Ducks. (*See* Ducks.)

Ejectment.—This was the form of action by which real estate (*i.e.*, land and houses) was formerly recovered. It originated in the reign of Edward III. From that period down to the passing of the Common Law Procedure Act, 1852, there were numerous fictions mixed up with the proceedings, the plaintiff and defendant (the notorious John Doe and Richard Roe) being imaginary persons. The declaration stated that a lease of the premises in question for a term of years had been made by the party claiming title (who was the real plaintiff) to John Doe, who entered upon the land by virtue of such demise, and that afterwards Richard Roe, the casual ejector, entered and ousted John Doe during the continuance of his term. Appended to this declaration was a notice, signed by Richard Roe, addressed to the tenant in possession (who was the actual defendant), informing him of the action brought by the lessee and that Richard Roe had no title to the premises, and advising him to appear at a certain time and defend his title, otherwise he, Richard Roe, would suffer judgment by default, by which the actual tenant would be turned out of possession by the sheriff under a writ of *habere facias possessionem*. This action is now abolished by the Common Law Procedure Act, 1873, and an action for the recovery of land substituted, the proceedings therein being with some few exceptions the same as in other actions.

Elastic Fabrics.—Certain fabrics have been so manufactured as to furnish them with the quality of elasticity; but there are some substances which, by means of the form given to them, such as steel wire in coils or springs, become more or less so. Modes of weaving have also been adopted so as to produce this quality in a greater or less degree, as in linen, cotton, woollen, and silk materials; ribbed stockings may be specified as an example. But the most perfectly elastic fabrics are made of india-rubber, which is more properly called caoutchouc—the Indian name, by which it is always known in France—and gutta-percha. (*See* Gutta-percha; India-rubber.) An officer in the Austrian army discovered a method of producing threads from caoutchouc, and weaving them into cloth without dissolving the substance. It is necessary to deprive the threads of their elasticity by stretching them, for if woven in their elastic condition the fabric would be puckered; a smoothing iron is then passed over its cloth, which restores the elasticity. In elastic stockings, surgical bandages, bands, braces, and garters, the warp only is of india-rubber. These fabrics were first made at Vienna; the inventor removed to Paris, and erected a great factory for their manufacture at St. Denys. Caoutchouc, or india-rubber, was not known in England till the beginning of the eighteenth century, when it was brought, as a great curiosity, from South America. Manufactories for its conversion into elastic fabrics are now to be found all over the country.

Elasticity.—The property which bodies possess of resuming their original form or volume when, after having been compressed, bent, twisted, or pulled, the force which so acted upon them is withdrawn. Gases and liquids are perfectly elastic. Solid bodies present different degrees of elasticity; and in all of them the degree varies with the time during which the body has been exposed to the disturbing force. There is a limit, too, to the elasticity of solids, beyond which they either break or become incapable of regaining their original form and volume. Caoutchouc is highly elastic, and this is one of its most valuable properties. It is on account of their elasticity that corks are used for closing the mouths of bottles. The action of the springs in carriages, in cushions, watches, clocks, &c., depends upon the elasticity of the steel of which they are made.

Elbow.—The position and functions of this joint of the arm need no explanation. When injured in any way, as by dislocation, or when attacked by disease, no delay should be suffered, and professional advice should at once be sought. The word has various other applications, as to the arm of a chair, hence an elbow-chair; the sudden bend of a river is also sometimes called an elbow. The vulgar phrase "elbow grease" denotes energetic action in rubbing anything. To be "up to the elbows" in anything is to be very busy. To elbow is to jostle or thrust people aside. Elbow-room is space to move in freely. An elbow-joint is a joint which moves and is shaped like an elbow. The upright sides which flank panelled work are sometimes called elbows in architecture.

Elbow-chairs. (*See* Arm-chair; Easy-chairs.)

Elder-flower Ointment is made by boiling the flowers of the common elder in lard till they are crisp, then straining the fat with pressure through a linen cloth. This ointment is reputed to be both emollient and cooling, and has always been very popular with the poorer classes. It is very agreeable, and keeps well. It is best preserved when put into a stone-ware jar and covered with tinfoil. It should be kept in a cool place.

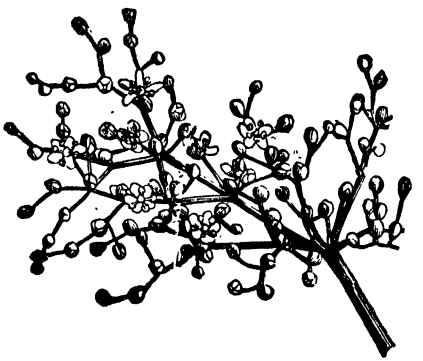
Elder-flower Vinegar is used both in cookery and perfumery. It is made from fresh and dried leaves, though fresh leaves are, of course, the better suited to the purpose. It is prepared like other flavoured vinegars—that is, by infusing the leaves in vinegar for several days, then straining and bottling the liquid.

Elder-flower Water benefits the skin by cooling and refreshing it. The flowers themselves have a rather sickly smell, but the distilled water made from them (*Aqua Sambuci*) has a very agreeable odour, and is used both in confectionery and perfumery. Fresh elder-flowers which have been separated from the stalks are required for elder-flower water.

Elder-tree.—The elder (*Sambucus*) is a shrub or small tree of the natural order *Capri-*

foliaceæ. It is indigenous to Europe, the north of Asia, and the north of Africa. It has large leaves and cream-coloured flowers, which are followed by black and occasionally whitish berries. The leaves diffuse a narcotic odour, so much so that it is believed to be unsafe to repose under their shade. The elder has long been valued for its medicinal properties. The leaves and flowers are used for making a distilled water, an aromatic vinegar, and an ointment. They are also employed for flavouring currant wine and jelly. The berries are used to make wine, and a rob is also made from them which is purgative and diuretic, and which, when diluted with water, is useful as a cooling drink in inflammatory complaints. The inner bark of the elder-tree has a bitter acrid taste. It possesses purgative and emetic properties, and is used in dropsy. The wood of old elder-trees is hard and tough. It is of a yellow colour, and will take a fine polish. It is frequently used instead of boxwood for making mathematical instruments. The young shoots contain a large pith; as this is very light, it is used to make pith balls for electrical experiments, and children's toys are also made of it.

Elder Wine.—The juice of fresh elder-berries is largely used for making wine. These berries possess a peculiar flavour. They are sub-acid and deficient in sweetness, but they appear to be rich in the principle necessary for fermentation, and the wine made from them is very rich in colour. It is said that elder-



ELDER-BERRIES.

berries are used to no small extent in the adulteration of port wine and in the manufacture of factitious port wine. Elder wine is one of the most popular of home-made English wines. In country places it is offered in winter-time, and especially at Christmas, "mulled," and is highly appreciated. In some parts of Kent there are large plantations of elders grown especially for the purpose of supplying berries to make wine.

Elecampane is called by botanists *Inula helenium*, and belongs to the natural order *Compositæ*. It is a native of various parts of Europe, but grows well in our own country. Its stem is about three feet high, branched and downy at top, the leaves large, veiny, and downy at the back. Its flowers are a bright yellow, and its large branching roots are bitter and aromatic. It is a great favourite in many gardens in the country, owing to the virtues its boiled roots are supposed to possess in stimulating the organs of secretion, and acting generally upon the skin, kidneys, and bronchi. It is also a tonic, although by modern practitioners it is very little used. The decoction is made by boiling half an ounce of the root in a pint of water; and an ounce of this, taken thrice a day, has been found to do good in some cases of dyspepsia.

Elector.—A person who has a right to elect or choose another to an office, honour, &c. The term "elector" was particularly, and by way of eminence, applied to those princes of Germany who had the right of electing the Emperor, they being all Sovereign Princes and the principal members of the Empire.

Electoral Franchise, or the right to elect Members of Parliament, is now regulated by the Representation of the People Act, 1867 (30 & 31 Vict. c. 102), voting by ballot being established by 35 & 36 Vict. c. 33. The following is the qualification of electors for *Borough members*:—Every person duly registered as a voter, and who is of full age and capacity, who has for twelve months preceding been an inhabitant occupier, either as owner or tenant, of any dwelling-house within the borough, and who has been rated for the same for the relief of the poor, and paid such rates; or who as a lodger has occupied in the borough, separately and as sole tenant, for twelve months preceding, the same lodgings in a house of the clear yearly value of £10 at the least. For *Counties*. Every person duly registered as a voter, and who is of full age and capacity, and who is the owner of lands or tenements, of freehold, copyhold, or any other tenure whatever, for his own life or another's; or for any larger estate of the clear yearly value of not less than £5; or who is entitled, either as lessee or assignee, to the unexpired residue of a term of years, which was originally for a period of not less than sixty years, determinable or not on a life or lives, of the like clear yearly value; or who has occupied for twelve months lands or tenements within the county of the rateable value of £10, and has been rated for the same for the relief of the poor, and has paid such rates.

The manner of proceeding on election petitions is at the present time regulated by the 31 & 32 Vict. c. 125, and the orders of Michaelmas Term, 1868, founded thereon. Such petitions must now be presented to the Common Pleas Division of the High Court instead of to Parliament, and are tried before a judge of the High Court instead of before a Committee of the House.

Electric Battery. (*See* BATTERY, ELECTRIC.)

Electric Bells are now in ordinary use, though principally to act as alarm bells in railway carriages, or in houses for protection from burglars. Small office bells are sometimes made electric, the advantage being that they continue to ring as long as the knob at the top is kept pressed down.

Electric Clocks. (*See* CLOCKS.)

Electric Light.—A most intense light can be easily produced by means of electricity, and it is commonly used in those scientific institutions that possess a sufficiently powerful battery for throwing illustrations upon an illuminated screen in a darkened lecture theatre. It has been tried as a substitute for street-lamps in lighting up a town, one such light being sufficient to illuminate brilliantly all the objects exposed to its range, even at a great distance; as, however, all the light emanates from one point, every object illuminated by it throws a very deep shadow, rendered apparently all the deeper by contrast. This practical inconvenience makes it unsuitable for use on land, but is not felt when the electric light is applied to lighthouse illumination. For this purpose it succeeds admirably, and it is now adopted in some of the best lights on both sides of the English Channel.

The apparatus used in scientific experiments consists of a lantern containing two charcoal points connected by wires to a powerful galvanic battery. The charcoal points are held in a mechanical arrangement, by which they can be brought and kept in proper position. While the points touch one another the circuit is complete, and no light is produced; but upon their being withdrawn slightly from one another, the points become intensely heated, and a shower of incandescent and vaporised particles of carbon pass from the one to the other, emitting at the same time an intense light. If the points are withdrawn too far apart, the electricity will no longer pass through the intervening air, and the light will go out. The length of the voltaic arc that it is possible to obtain depends upon the power and intensity of the battery; it is usually about one-tenth of an inch. The carbon point which forms the positive pole gradually gets worn away, and the negative lengthens by the accumulation of the particles that fall upon it. If these opposing processes went on with perfect regularity, a continuous steady light would be kept up; but it is not so in practice, and hence it is often unsteady. Self-acting regulators upon various principles have been devised to overcome this difficulty; and the beautiful apparatus which is adopted in the great lighthouses secures a constant and steady light. In these establishments the employment of a galvanic battery as the source of electricity would be inconvenient; a magneto-electric machine is therefore used instead, which is driven by a small steam engine.

Electric Machines are used for the production of electricity by means of friction. The two forms in general use are the plate and cylinder machines. The first of these consists of a circular glass plate, about a yard in diameter, suspended between two wooden supports upon an axis passing through the centre, and turned by means of a glass handle. The plate revolves between two sets of rubbers of leather or silk, which can be pressed against the glass plate as tightly as may be desired, and by the friction of which the plate becomes electrified on both sides. The plate also passes between two brass rods, provided with a series of points on the side opposite the glass, called combs or rakes; these rods are fixed to larger metallic cylinders, which are the conductors to be charged. The latter are insulated by being supported on glass standards, and are connected

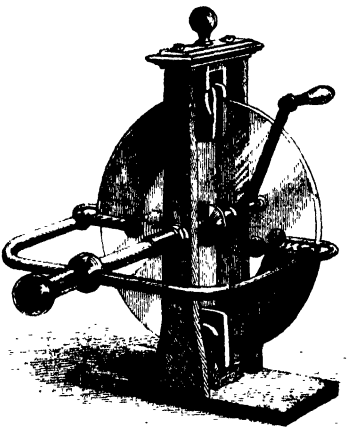


PLATE ELECTRIC MACHINE.

with each other by a brass rod. Vulcanite is now much used instead of glass, both for the disc and the standards, with considerable advantage, both in regard to strength and the maintenance of good insulation. The cylinder machine consists of a glass cylinder, which is made to revolve rapidly on its axis by means of multiplying wheels, and against which on one side rests a cushion, with a silk flap, and on the other is the comb or rake communicating with a brass cylinder forming the conductor. In both machines, if the rubbers or cushion and flap are in connection with the earth, positive electricity will be accumulated on the surface of the cylinder or disc, and then drawn from it by the points of the combs, which should approach it within about a quarter of an inch; and it will be carried from them to the conductors, which should present as much surface as can conveniently be had, and be terminated with large round knobs.

In damp weather all experiments with the electrical machine are difficult to perform. All parts of the apparatus must first be warmed, and the supports and plate rubbed with hot cloths. If these precautions are not taken, there will be a constant loss of electricity. The insulating pillars or feet, if made of glass, should be coated with lac varnish. A film of dirt as well as damp reduces the insulation, and therefore both must be guarded against. A glass support is best cleansed by being washed with distilled water, and dried at a fire without being wiped. Ebonite or vulcanite should first be washed with water, and then rubbed well till dry; afterwards it should be treated with anhydrous paraffin oil, which preserves the surface from decay.

Electric Telegraph.—An instrument by which signals can be transmitted to great distances, and with enormous velocity, by means of voltaic currents conveyed by metal wires.

Every electric telegraph consists essentially of the following parts—a circuit, consisting of a metallic connexion between two places; a galvanic battery, or electro-magnetic apparatus, for producing the current; a communicator, for sending the signals from the one station; and an indicator, for receiving them at the other. There are so many modifications in the practical carrying out of these that we have no space to describe them in detail. They may, however, be divided into three groups—the needle telegraph, the printing telegraph, and the dial telegraph. The *needle* telegraph is a familiar object at railway-stations. It is essentially a vertical galvanometer, the magnetic needle being suspended vertically in a coil of insulated wire. To the needle is attached an index, which is seen in the front of the apparatus. The signs are made by transmitting the current in different directions through the multiplier, by which the needle is deflected either to the right or left at pleasure. This is done by means of keys, which make contact when pressed down. The index can only deflect a short distance on either side, being checked by stops, according as the positive or negative key is struck; the letters and numerals are represented by different combinations of these right and left movements, the code generally adopted being that of Morse, and corresponding to the dots and dashes of his printing alphabet. Though these rapid deflections of the index are very confusing to an unpractised eye, facility of reading them off is soon acquired. The *printing* telegraph is more elaborate in its arrangements. The indicator, which receives the message, consists of an electro-magnet which, whenever the current is transmitted, attracts an armature of soft iron fixed at the end of a lever, which is thus raised, and, carrying a pencil, writes the signals. For this purpose a long riband of paper, rolled round a drum, passes between two rollers turning in contrary directions, and is wound on to a second drum, which is turned by hand. While the paper is thus in motion, whenever the electro-magnet works the pencil touches the paper and makes either a dot or a dash, according to the length of time that the armature is held down, the lever being furnished with a spring which raises it whenever the current ceases. Thus the length of contact of the transmitting key at the one end of the line will be represented by the dots or strokes on the riband at the other, and these are read off by the receiver. In the *dial* telegraph, an electro-magnet causes an index to move over a dial provided with the letters of the alphabet, the letters being spelled out as the needle stops in front of one and another. The sender in moving the handle of his instrument round to the desired letters has to make and break contact for every letter passed over, and hence it cannot be worked as rapidly as the needle instrument; but it is found very convenient in large private establishments and factories, as little practice is needed by the parties using it.

The communicating wire is sometimes carried through the air, supported on poles, sometimes underground, and at others under the sea. It is necessary that this should be insulated as thoroughly as possible, or the electricity will escape, and the signals become so weak as to be useless; and the ends of the wire must be in connection with the earth, in order that the latter may serve to complete the circuit. If the earth were not thus used, two wires would be needed to do what is thus accomplished by one. With this object the telegraphic apparatus at either end of the wire is connected with a copper wire, to which a copper plate is attached, the lattor being sunk in water or buried in the earth. The insulation of the wire is not so easy a matter, as there are many practical difficulties in supporting a long length of wire without loss of power. As the poles which support the land wires are conductors, the wire cannot be directly fixed to them, and hence the use of stoneware insulators, to which the wires are attached—well-glazed stoneware being, all things considered, about the best material that can be used in situations exposed to the weather. The wires used above ground are usually made of galvanised iron; those which are carried underground are much thinner, and made of copper, coated with gutta-percha or india-rubber, a whole bundle of them being generally put within the iron piping in which they are buried. Submarine telegraphs are also made of copper wire, covered with gutta-percha and other insulating compounds, and the whole surrounded with strands of hemp and iron wire, making together a solid rope. Daniell's battery (*see* Battery, Galvanic) is usually the source of the electricity; but when long lines of wire are used it is often found desirable to have relays, by which the strength of the current is reinforced, or the signals are re-transmitted from a fresh battery. In connection with the telegraph stations there is usually a bell or alarum, the hammer of which is worked by an electro-magnet, so that before sending the message the attention of the clerk at the receiving station is called by it. The alarum continues to sound until the clerk, thus warned, lets the current pass directly into the indicator without passing through the alarum. This he does by means of an instrument called the shunt.

Electricity.—A term derived from the Greek name for amber, which the ancients knew to have the power of attracting light substances after it had been excited by friction. A piece of glass and a piece of gutta-percha or other resinous body, after being rubbed together, will be found to attract one another slightly. One piece of resin thus rubbed repels another similarly treated piece of resin, and one piece of rubbed glass repels another piece of rubbed glass; it is also found that either the rubbed resin or the rubbed glass attracts any light body in its neighbourhood. The stick of resin or glass, while retaining these properties, is said to be electrified or charged with electricity; it carries electricity with it if moved from place to place. If these electrified bodies are wiped with a wet cloth, a damp hand, or with metal foil, they cease to be electrified. The electricity is thus said to have been conducted away, and the bodies which cause it to run off the glass or resin are called conductors of electricity. The air is evidently a non-

conductor, or it would have conveyed away the electricity as well as the damp cloth. Similarly the resin and glass themselves are non-conductors, for when they are touched by a conductor they do not lose all their electricity, but remain electrified for some time in those parts which are not in the immediate neighbourhood of the conductor that is in contact with them. Non-conductors are also called insulators. (*See* CONDUCTORS OF ELECTRICITY.) As the glass and the resin have an attraction for one another, while either repels its like, it has been found convenient to classify the electricity as positive and negative, or, as it is sometimes called, vitreous and resinous; and then the action may be defined in the term—two bodies charged with the same electricity repel each other, two bodies charged with opposite electricities attract each other. The two conditions are always co-existent; thus when glass is rubbed with silk, the glass becomes positive and the silk negative; resin rubbed with flannel will become negative, while the flannel at the same time becomes charged with positive electricity. Frictional electricity is usually produced by electric machines (*which see*); but the kind commonly called galvanism, or voltaic electricity, is generated by the chemical action of the galvanic battery. (*See* BATTERY, GALVANIC.) For some purposes the one kind, and for other purposes the other, will be found to present special advantages. Electricity is employed in scientific experiments and investigations, in telegraphy, metallurgy, for lighting, in the fine arts for making metal casts, for driving clocks, in medicine, in mining and quarrying for firing charges of gunpowder and other detonating compounds, and in many other processes.

Electricity, Conductors of. (*See* CONDUCTORS OF ELECTRICITY.)

Electro-bronzed Ware.— Depositing a coat of bronze upon objects of an ornamental character by the aid of electricity has placed within the reach of the masses objects of *vertu* which would otherwise have been far too costly for the homes of any but the wealthy, such cheaper objects differing from the most expensive but little in their appearance, but very largely in their cost.

Electro-magnetism.—If a bar of soft iron or steel be surrounded by a coil of wire through which an electric current is passed, the bar will be converted into a magnet. Very powerful instruments are made in this way. The effect will be all the greater if the coil of wire is manifold, provided always that the wire is not allowed to be in contact with itself or with the iron. In such case, therefore, the wire is generally wrapped round with cotton and coated with shellac varnish. Such a magnet will exert an attractive force far exceeding that of the most powerful permanent magnets. If the bar is of soft iron, it will cease to be magnetised immediately the electric current is broken; but steel will retain the property to some extent for a time. Such temporary magnets are of great practical utility, as they adapt themselves very conveniently to automatic apparatus, the regular working of which may be thoroughly relied upon.

Electro-plate is the name given to articles for domestic use, such as forks, spoons, cruet-frames, &c., which, though formed of brass, copper, bronze, or nickel silver, have been coated with silver, and thus have the same appearance as solid silver. The best electro-plated goods are made of nickel silver, which is chosen because its silvery whiteness, resembling as it does that of silver itself, preserves the article from looking shabby when the coating with which it is covered begins to wear away. The art of electro-plating metals calls for both skill and experience. The articles to be plated need to be carefully cleaned and prepared before they are suspended in the solution of silver. Iron, zinc, lead, and Britannia metal need to be electro-coppered before they can be electro-silvered, because silver will not adhere to the bare surfaces of these metals. When ready, the articles are suspended in the bath by copper wires, and are allowed to remain until a sufficient quantity of silver has been deposited upon them. When taken out they have a dull white appearance, and they need to be cleaned and polished before they are ready for sale. Electro-plated goods are largely and increasingly used. The costliness of silver places it out of the reach of ordinary people, besides which, it is too valuable to be thrown about and lost by careless persons. On this account it is customary for wealthy housekeepers to preserve their silver for state occasions, and to use electro-plated goods for ordinary purposes. One advantage that electro-plate possesses is that when it is worn and old it can be placed again in the bath and be brought out as good as new.

Electro-plate, Cleaning of.—Plate of all kinds needs to be very carefully used. Great pains should be taken to preserve it from being scratched, and on this account it should never be placed in the same basket with knives. As soon as it is brought from the table it should be washed in a strong lather of yellow soap and boiling water, and it should afterwards be rinsed, wiped quite dry with a soft cloth, and polished with a chamois leather, kept exclusively for the purpose, or with a plate-rag. If this is done daily it will be sufficient to clean the silver thoroughly once a week. Nothing adds so much to the good appearance of a table, or is such a certain indication of a well-managed house, as plate which has been properly cleaned and polished. Preparations of varying value are recommended for cleaning plate. Many of these are objectionable, because they contain quicksilver in some form, and this wears away the silvering. All mercurial preparations should therefore be avoided. Whiting is usually employed. It is very good, but as it is rough and liable to scratch the silver it must be finely powdered, and even sifted through coarse muslin, and then moistened with water, or, better still, with gin or spirits of wine, before being used. It should be laid on all over the silver with a piece of flannel, left for awhile, and when dry rubbed off with a piece of flannel. A plate-brush should be used for the orna-

mental and embossed portions of the plate. Last of all, the article should be polished with the leather. Rouge is, perhaps, used more than anything else for cleaning plate. It is excellent, and imparts a bright dark polish, but it needs to be used by a careful housemaid who has plenty of time to spend over it; for if not thoroughly brushed out of the nooks and corners, its red colour makes it plainly visible, and gives the silver a very bad appearance. Silversmith's soap, too, is highly recommended. It is used instead of yellow soap for washing the silver. Hartshorn is, perhaps, to be preferred to any other ingredient for cleaning plate, as it gives a brilliant polish to the silver, and is not at all injurious; it should be used just as whiting is. Excellent plate-rags for daily use may be made as follows:—Take some rags of a suitable size (old chamber-towels or the tops of cotton stockings will answer excellently for the purpose); boil these for five minutes in a mixture of hartshorn and water, made in the proportion of three ounces of powder to a pint of water. Take the rags out, rinse them for a moment in cold water, dry them before the fire, and they are fit for use. Plated goods which are to be put aside after being used should be rubbed with spirits of ammonia and water, and then rinsed in plain water. This will destroy the corroding effect of any salt that may have been left on the surface. Plate which has become stained should be soaked in soap and water for some time, then covered with whiting which has been moistened with vinegar. This when dry should be rubbed off, and the plate may be afterwards rubbed with dry bran. As damp has a very injurious effect upon plated goods, particular care should be taken to wash and dry forks, spoons, and similar articles as soon as possible after they have been used.

Electrotyping, or Electro-metallurgy.—The various applications of that which we call electricity only serve to show the vastness of its power, and to suggest the extensive variety of applications of which it may yet be susceptible. It is known under two distinct forms, to which scientific writers have given the names of positive and negative electricity, and it can be produced in many ways. In electrotyping, or the art of depositing upon different surfaces metals held in solution, it acts by what is termed decomposition in a way first practised in 1836 by Mr. Bessemer, who deposited a coating of copper on lead castings, so as to produce imitations of antique heads in relief. This process was first described in print by Mr. J. C. Jordan in 1839. Amongst the earliest investigators of the properties and powers of the electric fluid were Boyle, Otto Guericke, Dr. Wall, Hawksbee, who first noticed the electrical power in glass and the light and peculiar noises proceeding from it, and Mr. Stephen Grey, who first demonstrated how electrical native power might be communicated to other bodies not in themselves capable of its production or excitement. By decomposing zinc with an acid we can produce electricity, of which, copper being one of the best known conductors, particles of this metal in solution will attract the electricity so excited through the sides of a porous cell, and by transmitting the power from one to another particle, the whole of the copper becomes separated from the liquid and deposited upon a prepared plate or mould. This is the principle, told briefly, upon which what is termed electrotyping depends.

Without entering into the details of electrical action with regard to the depositing of metals, we need only add it is the electricity given off by the zinc plate which is known as positive electricity, and the electricity received by the copper and transmitted from one particle to another which is called negative electricity. The applications of this modern and beautiful art-process has resulted in an endless variety of productions for domestic adornment, in gilding, in plating, and in the manufacture of articles of greater solidity. Medallions are coated with copper by this process, as may also fruit, small twigs, leaves, seeds, insects, lace, and ornamental articles in a variety of cheap materials. Our space will not permit us to detail fully the practice of electrotyping, but the reader may obtain a series of thoroughly practical and carefully explained lessons in the art, as applied to domestic ornaments, &c., in "Cassell's Popular Recreator."

Electrum.—An old name for amber; also an alloy of gold and silver, which is of a pale yellow colour, and was much prized by the ancients, who used it for coins and ornamental purposes. Mineral electrum was a chemical preparation, the elements of which were gold, copper, tin, antimony, rectified spirit, &c. It was in the form of a tincture, to which extraordinary virtues were ascribed, but is now obsolete. German silver is sometimes improperly called electrum.

Electuaries. — These are simply the vehicles for administering bulky and disagreeable medicines, and are composed chiefly of raisins, honey, sugar, or treacle, thoroughly mixed with the medicinal ingredients intended for use. The most important electuaries are those of senna and sulphur. They are similar in composition and use to confections.

Eleemosynary.—Anything given in the way of charity or alms is eleemosynary; and the term is also used of charitable institutions for the relief of the poor, sick, and helpless, and for the free instruction of the ignorant.

Elegit.—A judicial writ of execution, first given by the Statute of Westminster II. (13 Edw. I. c. 18), by which the sheriff is empowered to deliver to a judgment creditor, if the debtor's goods and chattels be insufficient to satisfy the debt, the lands and tenements of the latter, to be occupied and enjoyed until the money due on such judgment be fully paid. During the time the creditor so holds them he is called tenant by elegit.

Eleme Raisins. (*See* RAISINS.)

Elements, Chemical. (*See* CHEMICALS.)

Elemi, Gum. — Improperly so called, being, correctly speaking, a resin. It is the produce of different species of the *Amyris*

elemifera, a small tree or shrub of South America and the West Indies, originally brought here from Ethiopia. It exudes from incisions made through the bark, and is called *elemine;* it is of a crystalline appearance, has a strong aromatic odour and a hot spicy taste. This resin is used in making lacquer. It is imported in cylindrical cakes covered with palm-leaves. The whole is not soluble in alcohol—only two-thirds. It is not a pure resin, as it contains extraneous matter; when boiling it takes up more than four-fifths. *Elemi* is sometimes adulterated with the common resin of the fir-tree—a fraud easily discovered by its complete solubility in cold alcohol.

Élite.—Literally, the select, and hence the chosen representatives of society, of art, science, literature, &c.

Elixir de Spa. (*See* LIQUEURS.)

Elixirs.—The most important and best known of these are:—1. *Daffy's Elixir.* (*See* DAFFY'S ELIXIR.) 2. *Baum de Vie*, or the elixir of long life. The original Swedish form of this is as follows: of aloes nine drachms, of rhubarb, gentian, zedoary, saffron, treacle, agaric, each a drachm, and proof spirit two pints. 3. *Elixir of Vitriol.* This is almost identical with the aromatic sulphuric acid of the Pharmacopœia, and is composed of sulphuric acid, proof spirit, ginger, and cinnamon. Chemists prepare a cheaper form, adding cardamoms to give it colour. The elixir of life, the taking of which was to make people live for ever, and the discovery of which was the desire of the old philosophers, still remains a secret.

Ell.—The standard or measure at one time commonly used in the measurement of cloths, stuffs, &c. It is of various lengths, the principal being the English ell of 45 inches, the Flemish ell of 27 inches, and the French ell of 54 inches.

Elm-wood.—Elm-trees vary in species, and the timber they supply has the repute of



ELM-TREE.

being tough and strong, but coarse, that which grows in the most fertile English counties being inferior to that which we obtain from the midland counties of Scotland. The finest kind of elm-wood—that which is hardest and closest in grain, and consequently takes the highest polish—is largely used for furniture. This wood has varied uses, according to its qualities or kinds. It is found useful for mill-work, pumps, water-pipes, the keels of vessels, coffins, casks, presses, &c.

Elocution.—In its original sense (Latin *elocutio*), elocution signified the fit and proper choice and arrangement of words and sentences. It is now, however, more frequently used to designate the correct utterance of words in public speaking, accompanied by fitting management of countenance and gesture.

Elopement.—Running away or escaping; a departure from just restraint—usually applied to the case of a runaway couple of opposite sexes.

Emaciation.—This is the absence, more or less marked, of fat in the tissues of the body. It is a condition which characterises certain diseases, as consumption, dysentery, protracted fevers, severe and continuous loss of blood, &c. The treatment of emaciation must be directed to the cause from which it arises. As a general rule, the diet of the emaciated, unless contra-indicated, should largely consist of those matters which make fat, as fat meat, bacon, butter, eggs, oatmeal, Indian meal, milk, cheese, &c.

Embargo.—A restraint or prohibition on ships, imposed by the authorities of a country, preventing vessels from sailing either into or out of port for a fixed period. Embargoes are usually imposed only in time of war, or during the prevalence of an epidemic.

Ember Days and Weeks.—Ember days are certain days in the Church calendar originally appointed for special fasts by Pope Calixtus, A.D. 220. They occur four times a year, being the Wednesday, Friday, and Saturday in the week after Quadragesima Sunday, Whitsunday, Holyrood Day or the Festival of the Holy Cross (September 14th), and St. Lucia's Day (December 13th). Each of the weeks in which these days fall is termed an ember week. According to some authorities, the title is derived from the *ashes* or *embers* which in olden times were strewed on the head at solemn fasts. Others, however, derive the word *ember*, by corruption, from the Latin *tempora;* and one argument in favour of this derivation is to be found in the fact that the ember days were formerly termed *quatuor anni tempora*, the four seasons of the year, or periods when the seasons changed.

Embezzlement.—The stealing or appropriating to their own use of money or chattels by servants, clerks, agents, or the like. It differs from larceny, that offence involving a taking without the owner's will, which cannot be said in regard to a clerk or servant. But the interception and misapplication of the money or chattels constitutes this offence, under the Statute 24 & 25 Vict. c. 96, s. 68—72. It is a felony, and punishable as larceny. Any number of distinct embezzlements, not exceeding three, committed within a period of six months, may be joined in the same indictment. (*See* LARCENY.)

Emblazon.—The correct meaning of this term denotes a description in heraldic language, or the representation—accurate in form, arrangement, and colour—of armorial figures, devices, or compositions. In olden days, when a knight entered the lists of a tournament, his arrival was announced by the blast of a trumpet, and then his armorial insignia was proclaimed. The word *blasen* in German signifies "to blow a horn;" and in this way the term blazon came to denote heraldry in general.

Emblements.—The growing crops of those vegetable productions of the soil which are annually produced by the labour of the cultivator which are upon the ground and unreaped when the tenant leaves, his lease or tenancy having expired; and the right to emblements is the right in the tenant to take away the away-going crop, and for that purpose to come upon the land and do all other necessary things thereon. There are numerous distinctions as to the right to emblements, founded upon the various classes of tenants (as, for life, at will, at sufferance, &c.), which are of too legal and technical a nature to be here detailed.

Emblems.—These are certain devices employed as symbols of various persons, objects, and qualities. They are almost innumerable, and are found in connection with ancient mythology, Christianity, ethics, politics, &c. A dog is an emblem of fidelity; an eagle of empire; a fox of cunning; a lamb of innocence and meekness; a lion of courage; a wolf of rapacity; a serpent of craft and malice. Some of these have other emblematic meanings. Again, crossed keys are an emblem of St. Peter; a sword of St. Paul; an **X** cross of St. Andrew; a gridiron of St. Laurence; a wheel of St. Catherine, &c. Colours also are used—white is an emblem of purity, &c.; red of love, &c.; blue of heaven, &c.; violet of sorrow and suffering; black of darkness and grief. Precious stones, flowers, and geometrical figures have been similarly used; and, indeed, what is called the language of flowers (*which see*) consists wholly of emblems. (*See* SYMBOLS.)

Embolism.—A term occurring in medical circles to describe a dangerous obstruction, the character of which can alone be indicated here. In embolism a particle of fibrine in the heart or other large vessel has been dislodged, and conveyed to some distant part by the circulation. It may arise from disease of the heart, &c., and it may exist in various degrees of intensity; but the symptoms and treatment are such as non-professionals would not understand.

Embossing is the art of forming or fashioning of works in rilievo, whether by raising, by carving, or by depression; wherein, according to the prominence of the figures, they are said to be in *alto*, *mezzo*, or *basso-rilievo*. Wood, stone, and other inflexible substances are embossed by carving; silver and electro-plate, &c., by the pressure of a hydrostatic press upon the patterns; leather, paper, cloths, &c., by revolving cylinders, on which the required patterns are engraved. The pattern is usually produced by forcing the face of the material against an engraved die in which the design is cut; and sometimes, when the article to be embossed is in the form of a thin sheet, a counterpart to the die is applied at the back to aid the process. Leather is capable of being embossed in a beautiful manner by being pressed into metallic moulds while in a very moist, soft, and pliable state. When large surfaces of textile fabrics, such as table-covers, &c., have to be embossed, the fabric is compressed between rollers, one being of metal, upon which the device is sunk like a die, and the counter-roller, or bed-cylinder, of paper covered with felt; this yields sufficiently to allow the fabric to be pressed into the die-cylinder. A third smooth metal roller is commonly used to press out again the impression made upon the bed-cylinder; this acts upon the bed-cylinder on the side from which the fabric emerges.

Embossing Presses are of various kinds, and those used in manufactories are of very elaborate and beautiful construction. For embossing the name of a business firm or private address on paper, a small screw-press is used, the lever of which is turned with one hand, while the work is placed under the die and removed by the other.

Embrocations.—These are certain remedies which, when rubbed into the skin, stimulate the minute blood-vessels, and cause an increase in the flow of blood to the part. They are useful in chronic rheumatism, chronic swelling of joints, sprains when the acute stage has passed, and indolent enlargement of glands. Those best known are the camphor and soap liniments (the term liniment and embrocation are now used promiscuously), the turpentine and olive oil, and the belladonna liniment. There are certain embrocations or liniments which, when rubbed into the skin, produce an eruption. Of these, the most important are croton oil, and one containing potassio-tartrate of antimony. They are highly serviceable as counter-irritants in certain diseases of the lungs, liver, &c., and in old-standing diseases of joints.

Embroidery.—This term really includes every kind of ornamental work which can be done with a sewing-needle; but usually work on canvas is not classed under this designation. In every country the art of embroidery is followed, executed with various materials and styles. The Chinese are famed for the neatness and regularity which their work displays. The Indians embroider with gold thread, feathers, and spangles. The Canadians exhibit work broidered with their own hair. The Turks are clever in embroidering on gauze; the women of Senegal on the skins of animals. In England, cotton, wool, silk, chenille, and gold and silver threads are brought into use, to adorn velvet, cloth, silk, satin, muslin, cambric, and other materials. There is open and close embroidery; the former is not worked so much as the latter at the present time. In open work the holes should be regular in size and shape, and the stitches should be even and close alongside one another. In close work the pattern should be thick and

raised, and the stitches should not be long or far apart. The best white embroidery comes from Madeira, in which island it is worked by nuns. Much is done in Scotland and Ireland, but the work is not so finely executed. Swiss embroidery is the least expensive of that done by hand. Machine embroidery is still less costly.

Embroidery, Chinese.—The Chinese are specially famed for their Canton crape shawls, on which they often work very beautiful silk embroidery. Their skill in embroidery is equal to that of the natives of India, which it much resembles. It is usually executed in silks, and these are of rich bright colours; but the designs cannot be compared in elegance and taste to those made by Europeans, as most frequently the grotesque element prevails, and their ideas as to perspective and relative size are faulty in the extreme. Wonderful specimens of their skill in embroidering on fine gossamer gauze have been brought over to this country.

Embroidery Frames.—These are of various kinds, each of which has its advocates. One of the simplest is that composed of two cross-pieces of wood, on which a series of hooks are fixed, the canvas being stretched tightly on these. Another, less costly, is that of two wooden rollers to which thick white galloon is affixed; the canvas is sewed to this with strong pack-thread, and the rollers are held apart by means of laths at the side fastened by pegs. In a third kind the canvas is held by blunt points attached to the sides, and the whole is held together and can be altered by means of screws. This is considered to be an improvement on the former, because the thread which holds the canvas is very liable to stretch and slacken. The frames best adapted for muslin embroidery are formed of two hoops, one a size larger than the other: these are bound with velvet. The material is put over the smaller one, and the larger hoop is slipped over it, and thus the muslin is held stretched without undue strain on the thin fabric. Some workers prefer hand-frames, and others find that frames which stand on the ground are less fatiguing. Frames of one or other kinds are essential for the execution of fine or large pieces of embroidery.

Embroidery, Gold and Silver.—This can be either flat or raised. One effective method is that of placing gold or silver thread in small loops, and in this way covering the forms of leaves and flowers; each loop must be firmly secured by silk which matches exactly the thread, and even then the stitches should not be visible. When the interior of flower or leaf is finished, a thicker thread should be carried round the outline, thus reversing the plan observed in chenille embroidery, where the outline is followed first. The stems and tendrils are worked with the thread in back-stitch or chain-stitch. Another style is that usually adopted for altar-cloths, in which the gold or silver thread is carried backwards and forwards over a raised surface composed of layers of linen, and secured at each side with silk, a thick thread or fine cord being afterwards sewed round the outline of patterns. All this work is expensive, for gold and silver thread is sold by the yard according to its degree of thickness. When finished, this embroidery should be damped with weak gum-water on the wrong side, because it is liable to wrinkle.

Embroidery Needles, &c.—For work on canvas the needle should have a blunt point and long open eye; for embroidery on cloth, and other such-like materials, the needle should have a sharp point and long eye, resembling a darning-needle, but not being so thin and long; for cambric and muslin embroidery, an ordinary sewing-needle, known as a "between," is the best adapted for the work.

Embroidery on Canvas.—What is known by this term was formerly a favourite kind of work. It is only adapted for the old-fashioned canvas, namely, that in which the threads are not divided, and also for the finer kinds of that canvas. The stitch is simple, and managed thus:—The wool having been brought up, is taken over four threads in an upward direction; it is brought back to the right side in the middle of the last stitch, that is, two threads higher than at the beginning; as it is to go again over four threads it will go back two threads higher than the ending of the first stitch. Four threads are always passed over in the length of a stitch, and two threads in the width. The work is always done from left to right, and the stitches which are next neighbours never begin on the same line of thread: they are always, one or other, two threads higher up or two threads lower down. The work is quite close, and when the canvas is very fine and the pattern vandyked and shaded, the effect is good.

Embroidery, Raised.—The surface of the embroidery can be raised in two ways. One is by satin-stitch, by placing stitches close together, and varying their length and the directions they shall follow. The whole surface of flower or leaf must, in spite of this irregularity of movement or action, be even and smooth, and be entirely covered. This style can be executed with soft cotton, flourishing thread, wool, or filoselle. Another plan is that of placing a padding on the surface of the pattern before beginning to work: this is more suitable for patterns on a large scale. Cotton-wool is used, and answers the purpose, except when gold or silver thread; then layers of thick linen must be cut out the form required, and placed on. Whichever is used, the further work is the same, namely, to carry the silk, wool, or golden thread backwards and forwards over the padding, taking care that the covering is close and regular. This style may be further varied by diapering or *couched work*.

Embroidery, Shaded.—This is more difficult to attain successfully than other kinds of embroidery, for in this style the embroiderer's aim is to copy nature, and so faithfully to represent the numerous and delicate shadings of the object to be imitated. Only very skilled workwomen are capable of doing this without a pattern, therefore it is not advisable to make the attempt unaided. If the embroidery is to be on canvas, the pattern should be one designed

for that material, where each stitch can be distinctly seen. Sometimes patterns are sketched on the canvas itself, the shades being roughly coloured. This is an expeditious plan, but not satisfactory, except for decided patterns requiring marked lines and colours.

Embroidery, Silk.—Embroidery in silk looks well on cloth, on satin, and on silk materials, and has a much better effect than wool has upon these fabrics. Mantelpiece borders, table and cushion covers, mouchior cases, and aprons can thus be ornamented either with filoselle, floss or purse silk. Stiff patterns, and those with not many shades, are effective. There should be needles threaded with every colour required, so that it will not be necessary to cut off the silk in use until it is entirely finished, and therefore the needle should be run in the edge of the work until again wanted. Silks are soon soiled, so those parts of the work which are finished should be covered over with white tissue paper.

Embroidery, Tambour.—The stitch for this embroidery is similar to chain-stitch. The patterns best suited to the style are formal designs, the outlines of which are continuous and distinctly set forth the design, such as Arabesque designs, Grecian patterns, &c. Cloth embroidered with silk, and muslin with cotton, are rapidly worked, and effective when completed. A short sharp-pointed needle with an open eye is the one best fitted for this work.

Embroidery with Chenille.—This is expensive work, because chenille is sold by the yard, and yards are soon used. It is wise to choose patterns which have not many shades, and then fewer varieties are required. Flowers in chenille can be made on canvas or on silk. In both instances the materials should be stretched, the former in a lath frame, the latter by means of hoops (*See* Embroidery Frames.) For the canvas work particular needles should be used; the chenille should be cut in short lengths, as it is soon spoiled when often passed to and fro, and the stitch should not be crossed. When the groundwork is silk, the pattern is executed thus: the chenille is taken along the outlines of leaves and stems, and secured at each extremity with silk the same colour; if the form is not covered the chenille is again taken along it; the ends are then fastened by tying strong thread round them, and by means of a needle bringing the two through to the wrong side where the chenille is fastened. For flower petals small loops are made and mounted on fine wire, the loop being held by silk; a second loop to the same wire is then made. A series of these are made and arranged on the silk, and then sewed down. For the centre of the flower small loops are formed on the ground material, which represent stamens.

Emerald.—This beautiful gem is of a rich green colour, and when bright and clear fetches a high price. It is closely allied to the aquamarine and beryl in its composition, but is less common and more costly. Being seldom perfectly free from specks and other defects, and varying in its tint, its value varies very considerably, but depends less upon size than diamonds, rubies, &c. Mr. Emanuel says it ranks next in value to the ruby; but this is true only of fine specimens, inferior stones being comparatively cheap. Owing to its pleasing effect, as well by artificial as by natural light, it is a popular favourite, and is more expensive than it once was. The ancients knew and prized it highly. It is found in several different countries, Burmah, Siberia, Peru, and New Granada being among them. When the Spaniards conquered Peru they captured immense quantities, many of which they destroyed, though many more were sent to Europe. Not a few of the emeralds sold are doublets (*see* Doublet); others are probably green garnets.

Emerald, Artificial.—The emerald has been imitated most successfully, and in consequence factitious stones are very common. Owing to their softness they can easily be detected by skilled jewellers. (*See* Artificial Gems.)

Emerald Green. (*See* Green, Emerald.)

Emery. — A variety of corundum, the hardest substance known excepting the diamond. It is brought to this country in lumps from the island of Naxos, in the Archipelago, and is bruised in a powerful stamping-mill till reduced to powder, and then sifted into various degrees of fineness. It is employed as the most powerful medium for grinding down and removing defects from surfaces, for which purpose it is moistened with either oil or water; for removing rust from metal; and it is sold in very small cushions for the work-box, to brighten and remove any dampness from needles. It is an expensive substance.

Emery-paper.—Paper coated with sifted emery-powder, thus enabling the latter to be utilised for the purpose of polishing utensils of iron and steel, grates and fenders, &c. But paper is so brittle that it has been almost, if not altogether, superseded for this purpose by cloth, which is strained on stretching frames, after being wetted with warm size. When dry, a second coat of stronger size is to be laid on, and while wet the emery is to be sifted upon it. When dry once more, the loose particles should be brushed off, and a third coat of size being laid on, another sifting of emery completes the process of manufacture.

Emetics.—These are certain agents which, upon entering the stomach, excite vomiting, and cause that organ to expel its contents. The emetics most convenient in an emergency, as, for example, when poison has been taken, are mustard and common salt; a dessert-spoonful of the former, or from one to two table-spoonfuls of the latter, may be taken in half a pint of hot water, and will usually be followed by vomiting. If a stronger emetic is required, then from a scruple to half a drachm of sulphate of zinc in half a pint of warm water may be taken. This will seldom fail. For children, a tea-spoonful of ipecacuanha wine in a little warm tea or milk is the best emetic when suffocation is threatened from croup or mucus in the respiratory passages. The dose may be

repeated in half an hour if the first produces no effect. If there are signs of collapse, a few drops of brandy may be given with it. The effect of an emetic may be produced by tickling the back part of the throat with a feather or the finger.

Emigration.—In ancient times, colonies were sometimes founded by the removal of large bodies of people from one locality to another. At present emigration is a matter of special importance in some European nations, particularly our own, and various laws have been made to facilitate and to regulate it. Emigrants from our shores chiefly proceed to North America, Australia, and South Africa; not a few have gone to the eastern states of South America, but with more uncertain prospects. Next to the United Kingdom, Germany has sent out the largest number of emigrants; France, Italy, &c., have also furnished their contingents, but on a smaller scale. The legislation of the colonies to which our emigrants principally resort, and that of the United States, has of necessity been much influenced by the immense influx of people from other countries. The whole subject is, however, too wide to be discussed within the limits at our disposal.

Emollients.—These are remedial agents which, when applied to an inflamed or irritated part, not only soothe and heal it, but also protect it from the action of the air, which is frequently charged with matter hurtful to this condition. The most common and useful emollients are poultices of flour, bread, linseed-meal, figs, and starch; dressings of glycerine, and of olive, linseed, and almond oils; ointments of lard, spermaceti, and wax; and applications of warm water. White of eggs and isinglass are also frequently used for emollient purposes.

Emoluments.—This word usually denotes the gains or profits accruing to persons who fill certain offices, whether in the form of salary, or of fees and perquisites. It is distinguished from profits gained by trade, and from ordinary wages, though in a certain sense these may be called emoluments.

Emotions.—These are the feelings produced by anything which powerfully affects the mind. They may be pleasant or painful, or may consist in mere excitement. Affection, anger, wonder, and fear are emotions, and even the consciousness of pain may be included, as well as joy and grief. The influence of emotion upon the muscular system may be illustrated by reference to its effects upon the expression of the countenance; its influence upon certain functions, such as the digestive, lachrymatory, and respiratory, is also well known. The action of the heart and the circulation of the blood are sometimes seriously affected by emotion, and in various diseases freedom from excitement is of the greatest importance. Either for good or for harm we are much influenced by our emotions; their proper regulation, therefore, is a matter of individual duty and interest.

Empalement (Heraldry).—This is a simple process, adopted in the fourteenth century, for the purpose of joining and at the same time distinctly dividing coats of arms. The division line extends down the depth of the shield. On the left side, or dexter half, are placed the arms of the husband; on the right side, or sinister half, those of the wife. The dexter half only of a shield thus empaled is hereditary.

Emphysema.—This is a dilatation of the air-cells of the lungs, frequently present in chronic bronchitis. In one form of the disease, called interlobular emphysema, the air bursts through the cells and escapes into the surrounding connective tissue. Emphysema is generally due to obstruction in one part of the lungs, causing the air to rush in greater force and volume into some other part, by which the cells of that part become so much distended as to be unable to expel it in the act of expiration. The portions of lung affected by emphysema are generally bloodless, and are dryer than natural; they are also very buoyant, floating more lightly in water than healthy lung. The symptoms of this disease are principally shortness of breath, and a feeling of fulness and oppression at the chest. The latter is also found to be more rounded than natural on the affected side, and does not, when a deep inspiration is taken, contract during expiration. As emphysema, after a time, generally reacts upon the heart, producing dilatation and enlargement of that organ, certain other symptoms soon manifest themselves, as palpitation, swelling of the feet and legs, and general dropsy. The last-named is usually the precursor of a fatal termination. Treatment is of little avail in this disease. The chronic bronchitis or asthma which usually accompanies it must be attended to (*see* BRONCHITIS), and the heart complication may also be relieved by suitable remedies. The paroxysms of difficult breathing which so frequently occur may, however, be much benefited by dry-cupping between the shoulders, by emetics, and by such purgatives as the compound jalap powder. Spirits of ether, aromatic spirits of ammonia, tincture of valerian, tincture of lobelia, tincture of Indian hemp, &c., will also be of service.

Empire, Emperor, Empress.—In political geography an Empire is a large extent of land under the jurisdiction or government of an Emperor or Empress. In ancient history we read of four great monarchies or Empires—viz., that of the Babylonians, Chaldeans, and Assyrians, that of the Medes and Persians, that of the Greeks, and that of the Romans. The first subsisted from the time of Nimrod, who founded it in the year of the world 1800, according to the computation of Usher, to Sardanapalus, the last king in 3257, and consequently lasted above 1,450 years. The Empire of the Medes commenced under Arbace, in the year of the world 3257, and was united to that of the Babylonians and Persians under Cyrus in the year 3468, and it closed with the death of Darius Codomannus in 3674. The Grecian Empire lasted only during the reign of Alexander the Great, 3674—3681, his conquests being divided among his captains. The Roman Empire commenced with Julius Cæsar, when he was made perpetual Dic-

tator, in the year of the city 708 and of the world 3956—forty-eight years before Christ. The seat of the Empire was removed to Byzantium by Constantine in the year of our Lord 334; the east and west were then united, under the title of the Roman Empire, till the Romans proclaimed Charlemagne Emperor, A.D. 800. This word, used absolutely and without addition, signified at one time the Empire of Germany. It had its beginning with the ninth century, Charlemagne being created first Emperor by Pope Leo III., who put the crown on his head in St. Peter's Church on Christmas Day in the year 800. The title of Emperor of Germany was given up by Francis II., who in lieu of it assumed the title of Emperor of Austria. The title of Emperor of the French was assumed by Napoleon I., and was again assumed by Napoleon III. The Sovereign of Russia is also styled Emperor. In 1870 the King of Prussia acquired the title of Emperor of Germany. In 1876 Queen Victoria was constituted Empress of India.

Empiricism.—This word formerly denoted experimental science, but it has come to denote mere pretence and quackery. Hence an empiric is usually a man who prescribes remedies without sufficient knowledge; in other words, a quack. It is perfectly well known that remedies cannot be administered effectually without an acquaintance, not only with a disease, but with the constitution of a patient, his habits, &c. Advice which does not take into account modifying circumstances is empiricism.

Employers and Employed. (*See* DUTIES OF MASTERS TO SERVANTS; DUTIES OF SERVANTS TO MASTERS.

Employments in relation to Health.—That some employments are more favourable to health and longevity than others is an indisputable fact, and one which should influence parents and guardians when choosing a trade for young people. The comparative healthiness of certain occupations will be inferred from the examples which will be given under the heading of LONGEVITY, to which the reader is referred.

Empyema.—This is an accumulation of matter in the cavity of the chest, due either to pleurisy or to the bursting of an abscess of the lung. The phenomena usually present are a considerable displacement of the heart and a flattening of the lung backwards. The breathing is oppressed, and there is hectic fever. Tapping the chest is the only treatment of any use in empyema; if this fails to relieve, death must soon end the patient's sufferings.

Emulsions are milky and mucilaginous fluids, produced by the admixture of balsam, resin, or oil, with water, by means of some other substance possessing the property of combining with both. There are many preparations of this kind in pharmacy and medicine, which in the latter have received the name "mixtures." There are likewise many emulsions used as cosmetics, either alone, or as vehicles for other ingredients. "Milk" is the common term employed for them, although in some cases incorrectly so. The principal emulsions are as follow:—Emulsion, or milk, of almonds, of gum-arabic, of bitter almonds, oil of almonds, balsam of Peru, balm of Tolu, egg emulsion, and spermaceti milk, or emulsion of spermaceti or wax. Some of these are for internal, some for external use, and are of a healing and softening character. That procured from bitter almonds was used prior to the time of Celsus for removing freckles. Unlike the others, it is poisonous, and must not be swallowed, nor used, except sparingly, on any raw surface.

En Cabochon.—A term used to denote gems which are cut with a rounded top, as carbuncles, opals, cats' eyes, and sometimes emeralds and rubies. The same style is often called "tallow topped."

Enamel-paints.—Enamel is painted by means of the admixture of metallic oxides, by which every colour can be produced clear or blended, subdued or brilliant, through a process of fusion with the vitreous, transparent varnish called frit, flux, or paste. These oxides being finely ground, and mixed with some vegetable oil, can also be painted upon the surface of the enamel and baked in. Fire being one of the chief agents with which the painter in enamel has to work, the ultimate success of his most careful labours must always be uncertain. The compounds for painting on a gold base may be either transparent or opaque; those on silver or copper must be opaque, as the oxides change when in contact with these metals, or may oxidise them, and any mischief done is concealed under opaque colours. The enamelling of slates in colours to resemble marble, or malachite, was first practised at Boston, U.S.

Enamelled Iron-ware.—A patent was granted, in 1799, to Dr. Hickling, and in 1839 to the Brothers Clarke, for enamelling iron-ware. The best enamel for the purpose consists of one hundred and thirty parts of powdered flint-glass, twenty and a half parts of carbonate of soda, twelve of boracic acid, fused together to form a glass, and reduced to very fine powder. The article having been cleaned with an acid, is then brushed over with gum-water, and dusted with the enamel powder. The coating being dried, it is heated sufficiently to fuse the powdered glass, and so run together as to produce an even surface of enamel. The action of sudden heat will expand the metal more than the enamel, causing the latter to peel off; and acids will find their way through imperfections in the coating, and produce the same effect. This enamel being free from lead, according to the modern recipe for its manufacture, the vessels to which it is applied are fitted for preparing pharmaceutical decoctions and for culinary purposes.

Enamelling.—Enamel, according to a French writer, is a species of glass composed of various kinds of borax and silicates, fusible at a low temperature. It is in itself colourless, but under the influence of heat it easily blends with nearly all the metallic oxides. It is more easily fusible than ordinary glass, and differs from it in having a large proportion of earth, or else of metallic oxide, combined with the flux, to produce opacity. There are

various preparations of this substance, but the basis is a pure, crystal frit, flux, or paste, ground together with a fine calx of lead and tin, with a small proportion of salts of tartar. Their opacity is chiefly produced by the oxide of tin. As they vary in fusibility, the amount of heat requisite for each enamel must be regulated by the experience of the artist. To the mixed oxides, ten parts of powdered quartz or flint, and two parts of ordinary salt, should be added, and all be mixed in a crucible. A white enamel will thus be produced, metallic oxides being added at the first to give the colour required.

Enamels (Art).—The art of enamelling dates back to the time of Justinian, and has assumed different styles, of which there are six leading varieties—viz., the Eastern, or Byzantine; the Early Limoges; Early Italian; the Benvenuto Cellini; the Léonardo Lemousin, or Late Limoges; and the Petitot, or Miniature style. The celebrated artist-monk Theophilus executed much in the Byzantine style in the eleventh or twelfth century. A species of gold filagree was prepared as a foundation, into which the enamel was poured. The Early Limoges will be better known as the *Cloisonné*, dating from the eleventh to the twelfth century. The idea was borrowed from the East; but instead of cells of applique filagree-work, in which to receive the enamel, the copper plates were simply engraved for that purpose. Ugolino Veri was the most distinguished artist of the Early Italian style, known best as having executed the shrine in the cathedral of Orvieto, A.D. 1338. It consisted of first engraving in relief on silver, and floating it over with transparent and variously-coloured enamels. About the beginning of the sixteenth century an improvement in the art was manifested, under the auspices of Benvenuto Cellini. Water in which the pips of pears had been steeped was used with the glass powder employed to cover small objects in silver or gold (in the round or high relief). This paste was held in its place until vitrification was effected. In the time of Francis I., paintings were made on an opaque paste—covering the whole surface of the metal—in transparent colours; and silver-leaf was applied when a translucent ground was desired, and fixed with a glaze of coloured enamel, which was then painted. Amongst the finest works in the Miniature style were those produced by its originator, Petitot. Japanese enamelling is of the *Cloisonné* style.

Encaustic Painting.—A term applied to fixing colours on objects by burning them in. This art is mentioned by Pliny, Marcianus, and Julius Paulus. There are four methods of this painting. The ancient consisted in the use of waxed crayons, in which colours were embodied, and used upon a heated surface, the outline of the design having been previously traced. The whole was then covered with a varnish of wax, melted in and polished. That of Count Caylus, about the middle of the last century, consisted in melting and rubbing wax into the panel or canvas, then coating it with Spanish white, and painting on this in water-colours. By warming the picture, the colours are absorbed into the wax and preserved. Munz recommends waxing only one side of the canvas, painting on the reverse side with water-colours, and melting the wax through to fix them. Miss Greenland dissolved gum-arabic in water, and then added gum-mastic, dissolved by stirring and boiling, and when at boiling heat she added the wax. Having painted the picture, she coated it thinly with melted wax with a hard brush, and then passed an iron, moderately heated, over the surface. When cool, it was rubbed with a fine linen cloth. The German method was somewhat similar.

Encaustic Tiles.—Tiles in which any design has been produced by fusing in other colours than such as form that of the groundwork or substance of the tile. The Roman *tesseræ* were often formed of natural stones, but generally of baked clay. Strictly speaking, the name only applies to tiles with a pattern produced by layers of different coloured clays. Tiles of one colour are composed of dried "slip," or the powder of carefully mixed and prepared clay. These "dry tiles" are made by placing the coloured clay powder in strong steel moulds, and under a pressure of several hundred tons, by means of a plunger fitting accurately into the mould. A depth of three inches of powder is compressed into a tile of one inch in thickness. It is then removed, heated in a hot chamber, fired, and glazed. Figured tiles are made in a different way. The clay is worked in a moist state, but very stiff, and into square blocks, cut with a wire. A facing of fine clay, of the colour of the proposed ground, a layer of a different kind, is laid underneath, to prevent warping. It is then placed in a mould, with a plaster of Paris slab forming the top, on which is the pattern in relief. The slab is pressed down to form a deep impression of the pattern, to be produced in another colour. The coloured clay to form the design is poured into the depression in a semi-fluid state and allowed to overflow the whole tile, and then it is allowed to dry sufficiently to be scraped and smoothed on a whirling table, till the two colours of clay form a smooth surface. The tile is then dried and fired. By Malkin's process with "dried slip," the pattern is produced by brass plates one-eighth of an inch thick, a separate one for each colour. These plates are perforated in patterns, through the openings of which the several coloured clay powders are filled in, and when all are added, the tile is placed in a screw press and fired. This method was adopted from the twelfth to the fifteenth centuries, and the modern manufactures are only improvements on the ancient.

Enclosure.—1. The act of enclosing or environing anything. 2. The separation of common grounds into distinct possessions. 3. The appropriation of things common. 4. The state of being shut up in any place. 5. The space enclosed. 6. Ground enclosed; ground separated from the common.

Endemics.—This is the term used to signify the continual prevalence of certain diseases in certain countries, districts, or localities. Thus goitre is said to be endemic in Switzerland, and ague in marshy districts, as the Fens of Lincolnshire. When fever of any kind

occurs frequently in one particular locality, subsiding for a time only to break out again with fresh vigour, it is said to be endemic.

Endirons.—A name sometimes given to andirons (*which see*).

Endive.—Endive has long been in cultivation as a garden vegetable, and is used for salads and soups. It is said to be a native of China and Japan. It is slightly narcotic, has a rather bitter taste, and resembles sea-kale in flavour. It is not so tender as lettuce, and is extensively used as a winter salad. Among the many varieties, that with the curled leaves is



ENDIVE AND FLOWER.

preferred for its appearance, though the dwarf white Batavian endive is more delicate in flavour. The broad-leaved, or common Batavian, is a very hardy plant, and can be tied up and blanched very conveniently. French green endive has a very nice flavour and is beautifully curled. On account of its bitter taste, some persons dislike this vegetable very much, while others who like it call it a fine bitter. Endive was introduced into England in 1548.

Endless Screw.—A so-called endless screw is one which, instead of advancing as it is turned round, never changes its place. The thread of a screw wound round a piece of shafting will exercise a continuous action upon a toothed wheel placed in position to work into the thread, causing the wheel to rotate. This is often a very convenient arrangement for altering the direction of the motion; and also of gaining mechanical power by a reduction of velocity, one entire revolution of the toothed wheel being equivalent to many revolutions of the shaft bearing the endless screw.

Endogenous.—A term applied by the older botanists to such trees as the palm, from the idea that the young wood was formed or grew in the inside of the tree, thus pushing, as it were, the older bundles of woody fibres outwards.

Endorsement.—Anything written on the back of a note, bill, deed, or other written instrument, such as the endorsement on a bill of exchange. (*See* BILL OF EXCHANGE.) When a person transfers a bill of exchange to another person he endorses it, *i.e.*, writes his name on the back, thus rendering himself liable for the payment of the money in case the drawee and acceptor both fail to pay it. The person who endorses a bill is termed the "endorser," and the person to whom it is endorsed is known as the "endorsee."

Endowment.—1. Wealth bestowed upon any person, or for any particular use. 2. The bestowing or assuring a marriage portion. 3. Appropriation of revenue. 4. Gifts of nature. Endowment, in legal signification, denotes the settling a dowry on a woman; though sometimes it is used figuratively, as settling a provision upon a parson on the building of a church, or the severing a sufficient portion of tithes for a vicar when the benefice is appropriated.

Enema.—This is some fluid which is injected into the bowels, by means of a proper instrument, generally intended to excite peristaltic movement, and cause them to act. Those most frequently used are cold water, soap and water, thin gruel, with or without salad or castor oil. Turpentine and tobacco are also sometimes used in this way. But there is another and very important purpose to which enemata can be applied, viz., in the administration of liquid nourishment by the bowel when it cannot be swallowed, or, if swallowed, cannot be retained by the stomach. Beef tea, milk, and even brandy may be given in the form of an enema; but as the object is that these should be retained, and not expelled, they must be given in small quantities at a time, to avoid the peristaltic movement previously mentioned. An enema was formerly called a clyster.

Enfranchise.—To admit to the privileges of a freeman; to set free from slavery; to free or release from custody; to invest with the privileges of a denizen; also to incorporate any one into a society. (*See* COPYHOLD.)

Engaged Ring. (*See* BETROTHMENT.)

Engagements.—These are of many kinds, but it will suffice to mention two or three. In business, an engagement is any arrangement for the fulfilment of a contract, or for the payment of money at a fixed date. In ordinary life, an engagement is a promise to comply with some invitation, or any arrangement which is to be carried out at a time determined. The agreement of a master with a servant, or of a servant with a master, is an engagement, and when properly settled is legally binding. As for engagements voluntarily entered upon in social life, their fulfilment is not merely obligatory, on the ground of consistency and propriety, but on moral grounds. They should not be rashly entered upon, but when determined, every effort should be made to keep them punctually and systematically. Evidently a due regard to the making and keeping of engagements is highly conducive to personal respectability and comfort, to the permanence of friendships, and to good order in every way.

Engagements, Matrimonial.—Engagements between young people differ very greatly in their manner and method in this

country and on the Continent. Here great latitude and freedom of choice are allowed, as a rule, to the persons most closely concerned; but abroad, parents almost universally choose for their children, and marriages are not the results of previous mutual affection, but rather depend upon the business and family relationships of the parents, and other purely worldly considerations. According to English custom, a gentleman, having ascertained the state of a lady's feelings towards himself, and having proposed to and been conditionally accepted by her, must undergo the ordeal of applying to the lady's father or nearest relative for sanction of their union. In some cases, such as when the lady inherits a large fortune, it is considered a more honourable course for the suitor to seek the parent's or guardian's consent before venturing on a declaration of his love to the lady herself. In every case the interview between the suitor and the father (or he who stands *in loco parentis*) must be an eminently practical and business-like one. Present settlements and future prospects must be fairly looked in the face and thoroughly discussed, so that no room may be left for disagreement in after time. When the lady is possessed of a fortune of her own, it is a generally-observed custom that some portion, if not all of it, should be settled on herself, for her own especial use and benefit—at her death the interest on the principal thereof usually devolving on the husband, and at his decease the principal itself being divided amongst the children that may issue from the marriage. But such matters as these can only be spoken of generally, as they are bound to vary for individual cases and circumstances.

All preliminaries having been satisfactorily arranged, the young couple are considered engaged, and a betrothment ring is usually exchanged between them. (*See* BETROTHMENT.) It may here be remarked, that should any delay (in consequence of settlements, &c.) arise after the first declaration, and before the final sanctioned engagement, it is not usual for the lady and gentleman to meet during the interval. As soon as the engagement is made known, it is customary for the gentleman's relations to seek an introduction to his *fiancée*, in order that they may express to her their good wishes, and may welcome her as a future member of the family. If neighbours, or living near at hand, they call upon her and her parents; while if they live at a distance, they may invite her to pay them a visit, when her lover introduces her to his family.

In good society engaged people are subject to certain restraints, which, although often irksome, should be cheerfully endured. Thus it is altogether unusual for them to appear together in public, at entertainments, or places of general resort, unaccompanied by a chaperon. Lovers must also endeavour not to be so entirely absorbed in one another as to ignore or neglect the company in which they may happen to be, neither should the gentleman's attention to the lady be ever so pointed as to give cause for smiles, comments, and perhaps ridicule.

The length of a matrimonial engagement must of course depend on the position and inclination of the engaged couple. Many arguments may be adduced against both long and short engagements, and there is no doubt that, when practicable, an engagement of moderate duration—say twelve to eighteen months—is to be preferred. Should it happen that from any untoward circumstances an engagement once entered into is afterwards broken off, it is usual to return all letters and presents (other of course than articles of apparel) which may have been exchanged between the two persons.

The arrangements for the wedding-day and other similar matters are discussed under the heading of MARRIAGE.

English Lace. (*See* LACE.)

Engraving, in its widest sense, is the art of producing, by incision or corrosion, drawings and designs on hard substances, such as wood, metal, and stone, from which hard substances so engraved impressions on paper may be taken by the ordinary methods of printing. *Wood-engraving*, or *xylography*, seems to have been the earliest form of the art, but its origin is unknown; it is, however, probable that it was invented by the Chinese. It made its first appearance in Europe about the thirteenth century, the earliest engravings of which anything certain is known having been produced in Italy in A.D. 1285. In wood-engraving the drawing is made by the artist in pencil or Indian ink on a block of box or pear-wood; all those parts of the block not drawn upon are then cut away by the engraver with graving tools, so that the lines representing the picture alone remain. Wood-engraving was afterwards followed by *copper-plate engraving*, supposed to have been invented by a Florentine sculptor and goldsmith, named Maso Finiguerra, about the middle of the fifteenth century. Engraving in copper is executed by means of a steel graver, with which the lines of the picture are cut out on the copper-plate. A great master of this art was Albert Dürer, of Nuremburg in Germany, who was also the inventor of *etching*. This last is a species of engraving on copper or steel by means of corrosion. The metal plate is first covered with a preparation enabling it to withstand the action of aquafortis. The picture to be etched, having been drawn on paper with a black-lead pencil, the paper is damped and pressed on the prepared plate, leaving thereon an impression of the drawing. The lines are next scratched out in the prepared surface with a sharp-pointed instrument termed the etching-needle, and aquafortis is then poured over the plate (bordered with wax to retain the acid), and allowed to remain there until it has literally bitten out all the lines traced by the needle. *Aqua-tinta engraving*, invented by a Frenchman about A.D. 1662, is a mode of etching producing an effect somewhat similar to an Indian-ink drawing. *Etching on glass* is effected by the action of sulphuric acid sprinkled over with pounded Derbyshire spar. *Mezzo-tinto engraving* is another species of etching, by which various tints are produced. (*See also* LITHOGRAPHY.)

Engravings, Cleaning and Care of.—One of the best ways to clean an engraving is to place it on a smooth board, and cover it thinly with common salt finely pounded; pour or squeeze lemon-juice upon the salt, so as to dissolve a considerable portion of it. Elevate one end of the board so that it may form an angle of about 45°. Pour on the engraving boiling water from a tea-kettle, until the salt and lemon-juice are all washed off. The engraving will then be perfectly clean and free from stains. It must be dried on the board or on some smooth surface gradually. If dried by the fire or sun it will be tinged with a yellow colour. Engravings are best preserved under glass.

Engravings, Copyright in.—The duration of copyright in engravings is twenty-eight years from the day of first publication. It is provided by Act of Parliament that the date of publishing and the proprietor's name must be engraved on the plate, and printed on every copy of the engraving. (*See* COPYRIGHT.)

Engrossing.—The legal term for the copying of a document in fair and legible characters, as shown by the following Shakesperian quotation:—

> "Here is th' indictment of the good Lord Hastings,
> Which in a set hand fairly is *engrossed*."

Enigmas.—Riddles or propositions in obscure terms, requiring the exercise of much ingenuity before their meaning can be discovered. The term *enigma* in modern times is used to denote a variety of word-puzzles, differing greatly from one another in nature.

Enlistment.—The voluntary agreement of a free person to serve in the army or navy. When a man undertakes to serve her Majesty in this way, he declares himself to be free, able, and willing, and accepts of a small sum by way of sealing the contract. If an apprentice enlists he is not free, and his master may take steps to recover him; but if he states before a magistrate that he is not an apprentice, he may be punished for fraud, and be compelled to serve when his time is out. Other limitations of freedom are also recognised. In ordinary cases, no recruit can withdraw without payment of what is called "smart money," which is a fine. A recruit who is subject to some kinds of physical ailment when he enlists is rejected, on examination by the doctor, if his unfitness is discovered. Those who enlist when they are aware of their physical unfitness for service can be punished. As service is voluntary, any one can enlist into any regiment, &c., which he chooses, provided he has the requisite qualifications. (*See also* FOREIGN ENLISTMENT.)

Enrolment.—The transcription of a deed on to a roll of parchment according to certain forms and regulations. Deeds are enrolled for safe custody. The enrolment of a deed does not make it a record, but it thereby becomes a deed recorded. There is a distinction between a matter of record and a thing recorded to keep in memory. A record is the entry on parchment of judicial matters controverted in a Court of Record, and whereof the Court takes notice; but the enrolment of a deed is the private act of the parties concerned, of which the Court takes no cognisance at the time when it is done. The copy of an enrolled deed of bargain and sale is by the Statute 10 Anne, c. 18, s. 3, made good evidence of the deed itself. By the Statute of Enrolments (27 Hen. VIII. c. 16), every bargain and sale of a freehold interest is to be enrolled in Chancery within six (lunar) months after its date. No assurance by a tenant in tail, under the 3 & 4 Wm. IV. c. 74, will have any operation, unless it be enrolled in the Court of Chancery within six calendar months after its execution, which enrolment will be sufficient in itself even where the conveyance is by bargain and sale within the Statute of Enrolments. This provision does not apply to copyholds, the enrolment of which is on the court rolls of the manor.

Ensigns are the flags which denote the nationality of ships. They are hoisted on an ensign staff, a long pole erected over the poop, or at the gaff when the ship is under sail. The English ensign has for a groundwork one of three colours—red, white, or blue (the use of one of these colours indicates a particular squadron of the English navy)—and bears the union double cross of St. George and St. Andrew or Union Jack in the upper corner next the mast. The *white* ensign is also divided into four quarters by a red cross of St. George. The ensign is the same colour as the pennant. Merchant vessels are only allowed to carry the *red* ensign; but yachts, if of clubs acknowledged by the Admiralty, are permitted to use the three colours. In the military art, an ensign is a flag or banner under which soldiers are ranged, according to the different companies or parties to which they belong. Ensign is also the designation of the officer who carries the colours.

Entail.—1. An estate entailed or settled as regards the rule of its descent. 2. The rule of descent settled for any estate. (*See* TENANT IN TAIL.)

Entering Short.—When bills not due are paid into a bank by a customer, it is usual not to carry to his credit the amount, but to "enter them short," *i.e.*, to take down the receipt of the bills, their respective amounts, and the times they become due, in a previous column in the account book, and the amounts, when received, are carried forward into the usual cash column. Sometimes, instead of this practice, credit is given to the customer for the bills as for cash, and interest charged in account on any advances made thereon. In case of the bankruptcy of the banker, where the bills are entered short the customer is entitled to them, if they remain in his hands, and not the assignees of the banker; this is, however, subject to any lien that the banker may have on them.

Enteritis.—This is an inflammation of the mucous or lining membrane of the intestines. It is not, as a rule, widely diffused, but is limited to certain parts or patches, where ulcers frequently form, which may perforate the bowels and cause death. (*See* BOWEL COMPLAINTS.)

Entozoa.—These are animal parasites or worms which infest the human body. There are said to be at least thirty varieties of these

creatures. They enter the body through the food, water, and air, as well as by piercing the skin. In an immature and non-sexual condition they enclose themselves in a sac or cyst, multiplying by the development of their own ova; these are called hydatids. The result of this development is a progeny somewhat different from the parent; but curiously enough, when these in their turn produce ova, which proceed to development, the offspring are found to be identical with the original stock. As long as these entozoa or worms remain encysted they cannot mature, but as they multiply very fast, and generally locate themselves in some internal organ, as the liver, spleen, brain, heart, &c., or in an enclosed organ, as the eye, the sacs or cysts which envelop them become so large as seriously to interfere with the functions of the organ in which they have domiciled themselves, and death may ensue from this cause. These encysted entozoa, to become mature, must migrate into some open cavity of the body, as the alimentary canal or the passages of the lungs. Here they can develop into their perfect condition, as tape, round, thread, or other worms, and can reproduce themselves to any extent, their fertility being remarkable. Indeed, we are apparently only saved from dire consequences from these creatures from the fact that they are themselves infested by parasites, and that they perish in great numbers in their infancy. Entozoa were formerly believed to originate spontaneously in the human body; but this theory has been proved to be incorrect, and it is now known that the hydatid cysts previously mentioned are merely undeveloped tape-worms which have passed into the body. It is also well known that these parasites, both animal and vegetable, are communicable from animals to man, and from man to animals. (*See* WORMS.)

Entrance Hall.—There is a conventional mode of furnishing an entrance hall which in town is almost universally followed, principally because there is rarely space in the halls of modern houses for carrying out original ideas. What is wanted is merely room for one or two chairs, the hall-table, the hat and umbrella stand, and the weather-glass, with perhaps a few additional pegs for hats and coats. Good taste can only exercise itself upon the pattern of the floor-cloth, and its harmony with the paper on the walls and the carpet on the stairs. But in old country-houses the hall is a very different place; there the walls may be hung with pictures, principally old family portraits, and may also be adorned with various trophies—the fox's head and brush, the head and antlers of deer, or warlike weapons brought from foreign lands by travelled ancestors. In winter-time a large fire may be kept blazing cheerily, the space which it occupies being filled in summer with ferns or evergreens. In the various niches may be seen dark oak cabinets containing all sorts of curiosities, and wonderful old chests elaborately carved, and fit to be the depositories of hidden treasures; while over all there may be thrown a dim warm light from the stained glass window beyond. Surely, in a hall like this, the guests may be pardoned if they linger awhile, and hesitate to draw aside the heavy draperies which lead to the pleasant rooms beyond.

Entre-deux. (*See* INSERTION.)

Entrées.—In common terms entrées are what are called made dishes, and they comprise cutlets, fricassees, scallops, salmis, sweetbreads, pâtés chauds, chartreuses, and similar dishes. They are usually served before the joint, and as a mark of their distinctive character are accompanied either by a good sauce or a vegetable garnish, tastefully arranged. They belong exclusively to the first course. They need to be carefully dished and with a due regard to effect, and should be served exceedingly hot. Cold entrées are appropriate for suppers and breakfasts. They consist of cutlets, ham, tongue, poultry, salads of poultry, fish, or shell-fish, boars' heads, potted meats, &c.

Entremets.—What entrées are to the first course at dinner, entremets are to the second course. Strictly speaking, they are *entre-mets*, things put between, and they come between the main dishes of the second course, just as entrées come between those of the first course. They consist of dressed vegetables, dressed eggs, cold entrées, and scolloped shell-fish; and of various sweet dishes, such as puddings, cakes, pastry, jellies, and creams. Entremets are, as a rule, more delicate in character than entrées, and adapted to the condition of the appetite at an advanced stage of the dinner.

Entresol.—A low-roofed storey between the basement storey and that above it, called by the Italians a *mezzanine*. It is considered as an intermediate storey, not interfering with the enumeration of the principal ones.

Entropium, or Entropion.—This is a turning-in of the eyelid. It is a painful affection, as the eyelashes irritate the tender eyeball, exciting a copious secretion of tears, and frequently producing inflammation. The condition is the reverse of ectropium (*which see*), where the lid is turned outwards, and when severe can only be relieved by a surgical operation.

Entry, in law, is the deposition of a deed or document in the proper office or place; the taking possession of lands or tenements by entering upon the same. When any one has wrongfully taken possession of land, the party entitled may make a formal but peaceable entry on such lands, declaring that thereby he takes possession, which is equivalent to a feudal investiture by the lord; or he may enter on any part of it in the same county, in the name of the whole; but if the estates lie in different counties, he must make separate entries. An action must be brought within twenty years next after a right of entry first accrued, ten years being allowed for the determination of disabilities, provided it be not more than forty years in all. (See 37 & 38 Vict. c. 5, by which, from the 1st of January, 1879, twelve years has been substituted for twenty; six years for ten; and thirty years for forty.) No continual or other claim upon or near any land shall preserve any right of making any entry or dis-

tress, or of bringing any action. With a few exceptions, all writs of entry and real actions by which lands might have been formerly recovered are abolished (3 & 4 Wm. IV. c. 27). By 8 & 9 Vict. c. 106, s. 6, a right of entry may be disposed of by deed. In Scottish law, this term refers to the acknowledgment of the title of the heir, &c., to be admitted by the superior.

Entry, in commerce, is the act of entering in account books the details of business transacted.

Envelope Cases are usually made of Russia or Morocco leather, and are divided into numerous partitions. Some envelope-cases are fitted with a secret spring, on touching which an A B C letter-case comes out, or an inkstand, with pen-tray, &c.

Envelopes are the covers that enclose letters or notes. They came into general use shortly after the establishment of the penny postal system in 1840, and are now not only shaped but folded by machinery. Considerable mechanical ingenuity is displayed in the process, which is as follows:—A web of paper is unrolled, laid upon a bed or plate, and a series of fine knife-edges descend and cut out a piece the proper size and shape for an envelope. This same piece of paper, before it is removed, is creased into an oblong quadrangular form, and the four corners turned up. The roughly-shaped envelope falls out of this machine, and is placed in another, where the subsequent processes are carried on. By one movement a die is brought down and made to stamp on the seal-flap; by another movement two bits of sponge, moistened with some kind of gum or cement, and held at the end of small cylinders, are passed lightly over the edges of the two end-flaps; by a third movement the sponges are brought back again; by a fourth movement another bit of sponge, moistened with adhesive composition, is made to touch the inside of the seal-flap; by a fifth movement the three flaps are pressed down, leaving the seal-flap, with its adhesive composition, untouched; and by a sixth movement the finished envelope is thrust out of the machine.

Envoy.—A diplomatic agent sent by one State to another, and inferior in rank to an ambassador.

E. O.—A gambling game, the reason for the name of which will be seen in what follows. A circular table about four feet across is provided, and is constructed in a peculiar manner. The outer portion is divided into forty compartments, in which are placed alternately the letters E and O. The circular space adjacent is a sort of gallery for a ball to roll in, and the centre of the table moves round an axle. This centre is divided into forty niches, marked alternately E and O. The player bets on one of these letters; a ball is set in motion in the gallery, the turn of a handle moves the table centre, and the wager is decided by the niche in which the ball lodges. The proprietors of the table add a couple of bar holes, into which the ball may roll, and this gives them an advantage of 5 per cent. over the player. The game is not, however, one for the household, and we give these details only as sufficient to explain the sort of thing intended by E. O.

Eolian Harp. (*See* Æolian Harp.)

Eolipile, or Æolipile, is named after Æolus, the god of storms. It is a metal vessel with a narrow orifice, to illustrate the conversion of water into steam. The vessel being filled with water, is put upon a fire, and the steam, as fast as generated, rushes out of the small vent with great violence.

Epaulette, or Epaulet, signifies an ornament worn on the shoulder. It originated in the time of Louis XIV. from the riband by which the belt sustaining the sword was kept from slipping from the shoulder. In some armies every officer wears them; but there is a sufficient difference between those worn by the various ranks to enable a lieutenant or a captain to be distinguished immediately from a major or a colonel, and these again from the generals. The same distinctions apply to officers in the navy. Shoulder knots are also worn by the footmen of nobility.

Epergne.—Epergne is generally understood to be a French word, though it is not known in France. With us an epergne signifies



EPERGNE.

an ornamental stand with branches, intended for the centre of the table, and constructed to hold flowers and fruit. Epergnes are made in silver, glass, and electro, many of them being specimens of artistic beauty and design.

Ephemera.—A genus of insects belonging to the great class *Neuroptera*, which are possessed of four wings, the upper and under ones being generally similar, being membranous, naked, and diaphanous or transparent. The word ephemera is from the Greek, and signifies living but for a day, as these insects were formerly supposed to exist but for twenty-four hours. This, however, may be disputed. Their bodies are long, soft, and tapering, and end in two or three long bristles. In their larval state, Westwood tells us, they live in the water or in wet places, and may continue there for

years; but when they obtain their perfect form, their ultimate metamorphosis, their life is very fleeting. They propagate their species in a few hours, then die. They may be seen in myriads on beautiful summer evenings floating in the air like gad-flies, often appearing in clouds quite suddenly. They are also called May-flies. The word ephemera is likewise used by some medical men to denote a fever that lasts only one day.

Ephemeris.—Originally, any almanac containing notes for each day of the year. The word is, however, chiefly used to denote such almanacs as contain astronomical tables, which indicate the positions day by day of the sun, moon, and planets, with other data suitable for navigators and astronomers. The "English Nautical Almanac" is the most important work of the class published in this country, but others are issued in America, France, Germany, and Italy.

Epic.—A narrative poem descriptive of the actions of a single hero, or of some one event or series of events combining to make one perfect whole in the history of a nation. In this way epic poetry differs greatly from lyric and dramatic. Among great historic epics in ancient times must be accounted the "Râmâyana" and the "Mahâbhârata" of the Hindus, the "Iliad" and "Odyssey" of Homer, and the "Æneid" of Virgil. In more modern times the epic is represented by the "Divina Commedia" of Dante, and the "Paradise Lost" of Milton.

Epidemics.—When a disease of a communicable nature prevails to a great extent in a country or locality, incapacitating a large number of people and killing others, it is said to be epidemic, and such attacks are called epidemics. Thus small-pox, cholera, and influenza are occasionally epidemic in this country, whilst scarlet fever, diphtheria, typhoid fever, &c., are frequently so. The laws which influence epidemics are shrouded more or less in mystery; there appears at times, however, to be developed in certain individuals a tendency to receive a specific disease, and this may be either of a low or of an inflammatory type. The existence of an epidemic influence complicates other diseases; as, for example, if cholera is epidemic, a person suffering from, say, inflammation of the lungs will probably suffer also from disordered bowels; if, on the other hand, influenza is epidemic, diseases of a totally different character will be affected by it, and symptoms of catarrh will be present. Epidemics may last for years, but as a rule they attack with great violence and gradually subside. Some of them appear, however, to run in cycles or waves; this is particularly so with regard to scarlet fever, the advent and course of which can usually be foretold.

Epidermis.—This is the scarf-skin which covers the body. It is composed of epithelial cells or scales. (*See* CUTICLE.)

Epigastric.—This is one of the divisions of the abdomen, which anatomists, for the sake of description, find it convenient to make. As the name implies, the region lies directly over the stomach, and contains within its boundaries not only the greater part of that organ, but also the pancreas, part of the liver, and certain vessels and nerves.

Epiglottis.—This is the leaf-shaped cartilaginous plate or valve which, placed behind the tongue, protects the entrance to the windpipe. In its ordinary position during respiration it is pointed upwards, but in the act of swallowing it is pressed downwards and backwards by the drawing up of the windpipe beneath the base of the tongue, and thus completely closes the entrance to the air-passages, preventing food and other matters from passing that way. If by mischance anything does pass before this organ can close the opening, then a violent fit of coughing ensues, until the objectionable matter has been expelled, and we are able to ejaculate that "something has gone the wrong way." The epiglottis is subject to both disease and accident. When edema or swelling occurs from either of these causes, there is danger of death from suffocation, and it may be necessary to open the windpipe.

Epigram.—A short piece of verse strictly confined to one subject, ending with some unexpected *point* or ingenious turn of thought. Greek epigrams were, however, as the word itself shows, merely inscriptions, such as on tombs, statues, triumphal arches, &c., and were in fact simple monograms. It was with the Romans that the modern epigram originated, the most famous being the *Epigrams* of Martial. Among modern nations the French have perhaps shown the greatest ingenuity in the construction of epigrammatic verse.

Epilepsy, or Falling Sickness, is a disorder of the nervous system, with or without actual disease of the brain, and characterised by the following phenomena—viz., a loud cry or sudden suspension of consciousness, violent convulsive movements of the body, frothing at the mouth, turgid face, and heavy breathing. After a period of time, which varies from three or four to twenty minutes, or even longer, the paroxysm begins to subside, the convulsions are less violent, the breathing and expression of countenance become more natural, and at last the sufferer returns to consciousness with a start, expressive of alarm or astonishment. This is generally succeeded by drowsiness and the sleep of exhaustion. These phenomena constitute what is called the typical epileptic fit. Epilepsy may, however, attack with different degrees of violence. In some epileptics there is loss of consciousness only, coming on with startling suddenness, but disappearing with almost equal rapidity, so that persons have been known to have had an epileptic fit on horseback, and to have recovered consciousness and presence of mind without falling, resuming conversation, it might be, as if nothing had happened. On the other hand, an epileptic attack may last for a considerable time, may be most violent, the tongue may be bitten through, and severe personal injury inflicted. Or the epileptic, at the outset of his attack, may fall into the fire and be burnt to death, or into water—sometimes a very small quan-

tity—and be drowned. Epilepsy is common during childhood, and is generally the result of teething, irritant matter in the bowels, or worms. It also occurs occasionally during the period of pregnancy. The treatment of this formidable disease does not rest upon any satisfactory basis; certain medicines, as nitrate of silver, valerian, zinc, bromide of potassium, assafœtida, iron, quinine, and turpentine, appear to do good for a time, but soon apparently fail in their effect. Cupping, bleeding, and blistering have all been tried, but with doubtful efficacy. All that can be done is to remove any known cause of irritation, as worms, constipation, &c., by suitable medicines. Epileptics are, as a rule, voracious eaters, and therefore a strong purgative will often prevent an attack. The head should be kept cool, the feet warm, and early rising and regular exercise are essential. The diet should be light and unstimulating; that of children should be chiefly farinaceous. During a fit, nothing can be done but to give the sufferer plenty of air, freely exposing his neck and chest, from which the clothing should be removed; he should also be placed in such a position that, if violent, he cannot injure himself. A towel should be put between the teeth, to prevent him from biting his tongue. If the headache which generally succeeds the attack is violent, iced vinegar and water may be applied to the head, and a sedative draught, followed in a few hours by an aperient, will do good. In some cases it is advisable to apply leeches to the temples. Children in an epileptic fit should be put immediately into a warm bath, cold water applied to the head, and a dose of calomel or castor oil administered. In bad cases a mustard plaster along the spine of the back has been found useful. Epilepsy is frequently imitated by impostors to obtain money from the charitable; to detect this imposition various methods are in vogue. The police constables' tests are either to drop hot wax upon the suspected person, or, which is much better, to forcibly press the thumb-nail under his. It is a good test also to suggest, in the person's hearing, that boiling water should be poured upon his legs. Another plan is to blow snuff up the nostrils, which has no effect upon the true epileptic, but causes the impostor to sneeze violently. In addition to these practical tests it may also be observed that the impostor does not bite his tongue, as the epileptic almost invariably does, neither does he in any other way injure himself. Moreover, he has usually only one eye open, to mark the effect upon the bystanders; the eyes of the epileptic, on the contrary, are generally open, and the pupils both insensible to light. Lastly, the skin of the impostor is generally perspiring from his exertions, whilst that of the epileptic is generally cold.

Epilogue.—In dramatic poetry and the drama, a speech or short poem addressed to the audience at the conclusion of the play.

Epiphany.—A word of Greek origin, meaning an appearance or manifestation. In the early Church it often denoted the coming of Christ into the world; next it was applied to His nativity; then to His baptism. The feast of the Epiphany, which is now observed annually on the 6th of January, commemorates the coming of the Magi, under the guidance of the star, to worship the child Jesus, who was then manifested to the Gentiles. As a separate festival the Epiphany is said to date from A.D. 813.

Epiphyta, or Epiphytes, is a name given to plants that grow and flourish upon the trunks and branches of trees without actually extracting the juices therefrom; in other words, although they live upon the tree they are not parasitic. They differ in this respect from the *Loranthaceæ*, such as our own mistletoe, which exists by piercing the tree's bark with its roots, and sucking therefrom the sap itself. There are many beautiful Orchidaceous epiphytes found clinging to the stems of trees in the tropical regions of Africa. They have long tendril-like roots, and are at times called air-plants, and live from the moisture they absorb from the air, or from the moisture and small portion of soil that trickles down the stem. Strictly speaking, the term Epiphyta might be applied to lichens and mosses, &c., but it is usually meant to denote the air-plants or epiphytic orchids.

Episcopacy.—That form of Church government in which diocesan bishops are established, as distinct from and superior to priests or presbyters. It has been very much controverted whether the distinction be of divine or human ordinance—whether it were settled in the Apostolic age or afterwards. This controversy commenced soon after the Reformation, and has been agitated with great warmth between the Episcopalians on the one side, and the Presbyterians, Baptists, and Independents on the other. Among the Protestant Churches abroad, those which were reformed by Luther and his associates are in general episcopal, whilst such as follow the doctrine of Calvin have for the most part thrown off the order of bishops as a corruption of Popery. In England, however, the controversy has been considered of greater importance than on the Continent; for it has been strenuously maintained by one party that the episcopal order is essential to the constitution of the Church, and by others that it is a pernicious encroachment on the rights of men, for which there is no authority in Scripture.

Epistaxis.—This is the medical term for bleeding at the nose. (*See* Bleeding, To Stop.)

Epitaph.—An inscription on a tomb, the term being derived from the Greek (*epi*, upon, and *taphos*, a tomb). Among the ancient Greeks epitaphs were only allowed to heroes, and those who died in battle. The Romans, however, inscribed epitaphs, usually consisting of eulogies in prose or verse, on the tombs of all their relations; and it is almost certain that the use of monumental inscriptions was introduced in this and other countries from Rome. Modern collections of epitaphs show every variety of thought and sentiment, and several interesting volumes have from time to time appeared, dealing solely with the "literature of the churchyard."

Epithalamium.—In its original sense, and as used by the Greeks, a nuptial song, in honour of the bride and bridegroom, sung in chorus before the bridal chamber. The term is often used of a wedding song or ode conveying good wishes to the newly-married couple.

Epithelium.—This is a delicate cell membrane, which upon the skin receives the name of epidermis. It is also found in different forms in almost every part of the body, lining the various cavities and vessels, and contributing largely to the functions of secretion and excretion. The most common form is the tesselated or pavement epithelium, found chiefly on the skin and in the upper part of the alimentary canal as far as the stomach, and in the conjunctiva of the eye. Another variety is the cylindrical epithelium, which extends from the commencement of the stomach along the whole of the digestive canal as far as the anus. This form is also found in the bladder and urinary passages. A third variety of epithelium, called ciliated or vibratory, lines the whole respiratory tract, and is found also in the uterus.

Epochs.—In chronology, fixed points of time from which periods or eras are reckoned, or from which a new computation of time has commenced. (*See* ERAS.)

Epsom Salts.—This popular medicine is the sulphate of magnesia of the Pharmacopœia. It was formerly obtained from the bitter purging waters of Epsom, hence its name. It was also procured from the residual liquor left in the process of crystallising common salt from sea-water. It is now generally prepared from dolomite, or magnesian limestone (a substance which appears to be composed of a combination of lime and magnesia), by treating it with sulphuric acid. Epsom salts are too well known to require description. From their mild and safe aperient power they are largely in request, and are a most useful medicinal agent in feverishness, in disorders of the liver, and in constipation. In poisoning by lead these salts act as an antidote, forming a harmless and insoluble sulphate of lead. The dose for an adult is from one to two table-spoonfuls. They may also be given as an enema, either in thin gruel, or mixed with olive oil, mucilage, or thin starch.

Epulis.—This is a tumour which springs from either the upper or lower gum, loosening and displacing the adjoining teeth. It appears as a red smooth tumour, which is at first semi-elastic like the gum itself, but soon becomes soft and ulcerated. As it develops, the cheek bulges considerably, causing some disfigurement. Epulis may be either of a harmless fibrous character, or it may be malignant. It generally results from the irritation caused by decayed stumps of teeth. The only treatment is removal by a surgical operation.

Equations, in algebra, are propositions expressing in algebraical characters the equality existing between one quantity or set of quantities and another, or between different expressions for the same quantity. This quality is denoted by the sign = expressing "is equal to."

Equator.—The imaginary circle round the earth, equidistant from either pole, and which thus divides the earth into the northern and southern hemispheres. The equator is divided into 360 degrees (°), and each degree into sixty minutes (′) or nautical miles, and each minute again into sixty seconds (″). The nautical mile is equal to 2,028 yards, or 1·152 English statute mile. The latitude of any place on the globe is calculated according to its distance north or south of the equator. Thus Greenwich lies in 51° 28′ 40″ north latitude.

Astronomers apply the term equator to the plane extending through the whole celestial sphere, of which the earth's equator forms a part, and calculate the position of the heavenly bodies from the celestial equator in the same way; declination, in astronomical language, being equivalent to latitude amongst geographers.

Equerry.—An officer in the service of nobles and princes, who commit to him the care and management of their horses. The chief equerry of the Queen is the next officer to the Master of the Horse, and in his absence presides over all affairs belonging to the royal stables.

Equestrianism.—Riding is of great value as an agreeable and healthful exercise, and as an art it is not difficult of attainment, but it is one which should not be acquired by practice only. A good and careful teacher should be selected, with whose aid the rider may acquire an easy and becoming seat without rigidity in the limbs, and with his or her body erect and square to the front, yet yielding freely and naturally to the movements of the horse. The seat should be so taken that the weight of the body comes full into the centre of the saddle, the head be held perfectly upright without stiffness, the shoulders kept slightly back, the arms bent at the elbows and lightly touching the hips, the hands and wrists turned a little outward with the thumbs opposite each other. The hands are kept parallel while the horse travels forward in a direct line, but when turning to one side or another, the hand on the side to which the horse turns should be slightly lowered. If the seat be properly taken upon that part of the horse which, when in action, is the centre of motion, the chances of unseating the rider are greatly decreased, and the body of the rider can be accommodated to the various paces with the greatest degree of comfort, ease, or certainty, and, consequently, with the greatest safety. A badly-seated rider by any sudden or violent movement of the horse is liable to be thrown backwards or forwards, according to the kind of jerk received. In bad riders the most prominent faults are a bad, insecure seat, and the want of an erect carriage of the body. In the event of a horse stumbling—no very uncommon occurrence—he will recover himself at once if the rider retain his seat; but if, in addition to the stumble, a weight be suddenly thrown upon its shoulders, the beast will have a new difficulty to contend with, and this will be sure to follow if the rider at the time of the accident were leaning forward instead of being erect. Amongst ladies, the practice of sitting too much to the right or left, and in

attempting to balance themselves by leaning to the left or right with the shoulders, is very common. This is generally due to nervousness, or the want of efficient teaching at the commencement of their riding practice. The seat is, in this case, a very insecure as well as an ungraceful one. Proper instruction at starting and practice can alone give the figure that proper balance on horseback which makes riding a real pleasure and perfectly safe, the body being readily varied to preserve its equilibrium in every change of position the horse may assume. In leaping, and all the more violent movements of the horse, the body has to be kept well back, and the eye should be directed to the ears of the horse. The reins are held in the left hand, separated by the third and fourth fingers, and coming through the hand flat, one upon the other, near the middle joint of the forefinger, and the thumb is so placed upon them that the ends fall just in front of the knuckles, which are immediately above the neck of the horse. If the rider wish to advance, the thumb is brought towards the body until the knuckles are up with the nails over the neck of the horse, and the reins are thus slackened. When the horse is in motion, the hand returns to its first position. If the desire be to turn to the left, the thumb is turned to the right, the little finger to the left, and the back of the hand brought upward. This movement slackens the left rein only. The reverse action slackens the right rein and turns to the right. To stop the horse, or back him, the nails should be turned from the first position upwards, the knuckles be reversed, and the wrist rounded as much as possible. The reins are to the horse what the rudder is to a ship. If a horse rear, the reins should be slackened and the rider lean forward; for if the rider retained the former erect position, he or she would lose his or her balance and fall, and then, if the horse reared high and the reins were tight, the rider would probably pull the horse over upon him or herself.

Equinoctial Gales. — Violent storms which generally prevail in the temperate regions about the times of the two equinoxes. These are due to the general atmospheric disturbance attending the change in the direction of the great aerial currents, consequent on the sun passing from one hemisphere to the other. In the neighbourhood of the British Isles the equinoctial gales generally blow from the south-west.

Equinox. — The period when the sun passes from the north to the south of the equator, and *vice versâ*. This occurs twice a year, about the 20th of March and the 23rd of September, at which time the length of day and night is equal all the world over; hence the name equinox. They are respectively called the vernal and autumnal equinoxes. The points where the ecliptic or sun's path crosses the equator are the first points in the zodiacal signs Aries and Libra.

Equipage signifies, in private life, the retinue or whatever is necessary for a journey, and includes horses, attendants, attire, &c. In military matters it means the furniture of an officer, particularly arms and their appendages, or the requisites for an army on its march, such as tents, baggage, &c.

Equity. (*See* CHANCERY, COURT OF.)

Equity of Redemption, in mortgages, is that right which a mortgagor—*i.e.*, the borrower of the money—has of redeeming or getting back his estate upon payment of the money borrowed to the mortgagee—*i.e.*, the lender. No agreement between the parties at the time of the mortgage is available to destroy the mortgagor's right to redeem. If where money is due on a mortgage the mortgagee be desirous to bar the equity of redemption, he may oblige the mortgagor either to pay the money or be foreclosed of his equity, that is, prevented from redeeming his estate by proceedings in the Court of Chancery (now the Chancery Division of the Supreme Court of Judicature); or, when the amount is under £500, in the County Courts throughout the country, these tribunals having had a jurisdiction in Chancery in this respect conferred on them. The Court cannot shorten the time for payment of the mortgage money, where it is limited by express covenant, though it may lengthen it, and then, upon non-payment, the practice is to foreclose the mortgagor's equity of redemption. If the mortgagee take possession of the estate, this right is barred at the end of twenty years from the time of his entry, unless, in the meantime, a written acknowledgment of the mortgagor's title be given to him or his agent, signed by the mortgagee (3 & 4 Wm. IV. c. 27, s. 28). After the year 1878, twelve years has been substituted for twenty by Statute 37 & 38 Vict. c. 57.

Equivalents.—In chemistry, an equivalent is a number which shows the proportion by weight in which one elementary substance combines with another. Chemical equivalents, or atomic weights, as they are also called, are of special importance to the chemist, and to various manufacturers who resort to chemical processes.

Equivocation.—The use of ambiguous language with an intention to keep back the truth by disguising facts. Any expression is equivocal which has a double and uncertain meaning; but the word is generally used in a bad sense, and denotes the common and petty vice of prevarication.

Eras.—Periods of time reckoned from some particular date or epoch, the commencement of the era. Some of the more important eras are the Roman, Julian, Christian, and Mohammedan. Of these the Roman era dates from the year of the building of the city, B.C. 753; the Julian era commenced with the reformation of the calendar by Julius Cæsar, B.C. 45; the Christian era dates from the birth of Christ; and the Mohammedan from the flight of Mohammed from Mecca to Medina (thence termed the Hegira), A.D. 622. The eras of Salwanah and Yezdegird—in common use, the former in a great part of India, and the latter in Persia—date from A.D. 78 and A.D. 632

respectively. In the accompanying table are given most of the more important eras, with the dates of their commencement as compared with the Christian era, and the abbreviations by which they are commonly known :—

Eras.	Abbreviations.	Year of Commencement.
Julian Period . . .	Jul. Per.	B.C. 4713
Year of the World: Constantinopolitan account	A. M. Const.	,, 5509
Alexandrian account	A. M. Alex.	,, 5492
Jewish account . .	A. M. (*Anno Mundi*).	,, 3760
Olympiads	Olymp.	,, 776
Roman	A. U. C. (*Anno Urbis Conditi*).	,, 753
Babylonian Era of Nabonassar . . .	Ær. Nab.	,, 747
Egyptian	A. Aeg.	,, 746
Macedonian Era . .	A. Mac.	,, 311
Julian Era	Jul. Ær.	,, 45
Christian Era . .	A. D.	—
Era of Sâligâhana, Salivahana, or Salwanah	Saca.	A.D. 78
Era of Diocletian, or of Martyrs . . .	Ær. Dioc.	,, 284
Armenian Era . .	A. Arm.	,, 552
Bengalee Era . . .	A. Beng.	,, 593
Hegira	A. H.	,, 622
Persian Era of Yezdegird	A. Pers.	,, 632

Ergot.—This is the *Mycelium* of a species of fungus of the Gymnomycetus division, which attacks and exists upon the grain of rye and many other of the grasses. There is, however, a difference of opinion among learned authorities as to what the substance really is. Ergot forms a valuable medicine, for the purpose of accelerating delivery at child-birth. Its use, however, is attended with danger, and should not be resorted to except under proper advice.

Eringo, or Eryngo.—Sea-holly is called by botanists *Eringium*, and belongs to the natural order *Umbelliferæ*. The stem of the sea-holly is about a foot high, and is branched and leafy. It grows by the sea-shore not only in England, but also in Ireland and in Scotland, and is sometimes called sea hulme or sea hulver. The leaves when chewed are warm, sweet, and aromatic; the roots too are sweetish. It is supposed by many to possess medicinal virtues, and has been used successfully as a tonic, as well as a diuretic and aperient. The roots of sea-holly are candied, and may be bought in some London confection shops, being sold as a sweetmeat.

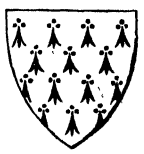
Ermine.—This fur can be obtained from various countries, but undoubtedly the best skins are those brought from Russia, Norway, and Sweden. The animal which affords them is a weasel or stoat, some ten inches long. In snowy countries the fur of this little creature becomes pure white in winter, the tip of the tail only retaining its jet black; the older the animal, the better is the fur. At one period the use of this fur in this country was restricted, and only royal robes might be adorned by it. It is still the royal fur used for the trimmings of the State robes of England, Russia, Germany, Spain, &c.; but the black spots which occur in every square inch are not the tails of the ermine, but the paws of the black Astracan



ERMINE.

lamb, which are introduced for greater effect. Ermine fur is very serviceable; it wears well, and can be cleaned many times. It is not an expensive fur, and it looks particularly well for children's wear.

Ermine (Heraldry).—There are now eight furs represented in heraldry, of which ermine is one of the principal. Black spots are marked on white for its representation; and these spots are not restricted in number. During the epoch when heraldry was considered to be most correct, ermine was more frequently represented than any of the other furs, some of which do not appear at all during that period.



ERMINE.

Errata.—Errors or mistakes in writing or printing. The word is the plural form of erratum, introduced from the Latin. In printing, errata are those faults in the composition of a book which have escaped the notice of the author and printer's reader until after the printing is completed. A list of errata is then usually inserted, either at the beginning or end of the book.

Errhines. — These are certain medicinal agents which are administered in the form of snuff. They may be useful in bleeding at the nose, in nasal catarrh, &c. Alum, iron, catechu, morphia, and opium are the substances most frequently used in this form. The term is not now in general use.

Error, Writ of.—Error, in law, was that species of defect in the proceedings of an inferior Court which entitled a litigant to have recourse to the Court of Exchequer Chamber for the rectification thereof, or to the House of Lords in regard to error in the Exchequer Chamber. This was done by his issuing a writ of error. By the Judicature Act, 1875, proceedings in error are now abolished, except in criminal cases, the practice of appealing being substituted therefor.

Errors Excepted.—When signing accounts and invoices, merchants commonly prefix the letters E.E. (for errors excepted), or E. and O.E. (for errors and omissions excepted), to

their signatures. The absence of these letters is, however, no bar to the subsequent correction of mistakes.

Eructation.—This is the belching or breaking up of wind from the stomach. If excessive, it is due to indigestion, and must be treated accordingly. A little prepared charcoal after full meals, or a pill of aloes, strychnine, and iron before dinner, will in certain cases be found serviceable. (*See* INDIGESTION.)

Eruptions. (*See* SKIN DISEASES.)

Ervalenta.—This is properly the flour or meal of the lentil (*Ervum lens*), but the name is given to prepared foods containing other ingredients, such as bean flour, Indian corn meal, millet flour, salt, sugar. Revalenta arabica, which is another name for a similar thing, consists of red lentil flour, barley flour, and sugar or salt.

Eryngo. (*See* ERINGO.)

Erysipelas, or, as it used to be called, St. Anthony's fire, is a contagious and infectious inflammation of the skin, commencing in one spot, and spreading rapidly over a large extent of surface. It frequently implicates the cellular membrane beneath the skin, when it receives the name of phlegmenous erysipelas. This disease is the scourge of our hospitals, its presence often necessitating the closing of a ward, and sometimes of the whole building. So tenacious is it of its existence as a poison, that even when the building in which it has prevailed has been pulled down and rebuilt partly with the old materials, the latter have carried the infection to the new building, and the disease has re-appeared. The symptoms of erysipelas are feverishness, shivering, nausea, rapid pulse, and a white moist tongue. These are soon followed by the appearance of a bright red spot upon the skin, which rapidly spreads, and is accompanied by considerable swelling and a burning sensation in the part. This, in mild cases, may subside gradually, the skin simply peeling off, or vesicles having the appearance of a blister may form, which soon break, discharging a straw-coloured fluid, and in a few days the patient recovers his strength. An example of this mild form of erysipelas is seen frequently in the face. In more severe cases the fever assumes a low or typhoid type, the inflamed part deepens from bright red into a purple tinge and often feels doughy, and there is muttering delirium, frequently followed by insensibility and death. This is the form of erysipelas which generally attacks the head, extending to the membranes of the brain, and even down the spinal cord. These two forms of erysipelas are called idiopathic, or constitutional; they are, in fact, the result of a poison more or less virulent taken into the body, and producing the condition just described. There is another form of erysipelas which receives the name of traumatic, from the fact that it begins at a wound or ulcer, which may have been progressing favourably until attacked by the erysipelatous poison. This is the danger so dreaded by hospital surgeons, as under the influence of this lurking enemy the simplest cut may become the seat of erysipelas, and life may be endangered thereby, whilst the success of operation, whether simple or severe, becomes much more uncertain, because of this additional risk. The treatment of erysipelas consists in thoroughly unloading the stomach and bowels by means of an emetic, followed by a calomel and colocynth pill and a saline draught. Diaphoretic medicine (*see* DIAPHORETICS) should be given, and the inflamed part kept constantly bathed with hot poppy and camomile fomentations. If the disease is of a low type, bark and ammonia must be given, as well as wine and brandy—in fact, everything that will sustain and strengthen is necessary. It will also probably be advisable to puncture the inflamed part to relieve the tension, fomenting well afterwards, as just described. When the disease extends into the cellular tissue, incisions will do good. Erysipelas is very liable to what is called metastasis; that is to say, it shows a disposition to flit about from one place to another. In this way the throat may be attacked, and serious consequences may result. The best treatment for this condition is to scarify the throat, to inhale hot water, and to apply leeches externally, followed by warm poultices. The throat should also, after a few hours, be well sponged out with a strong solution of nitrate of silver (a drachm to the ounce of distilled water). Simple erysipelas of the face in middle-aged and elderly people is frequently very much benefited by a course of iron—the tincture is the best—in from fifteen to twenty drop doses, three times a day, in cold water. The bowels should first be well relieved as previously directed. Whitlow (*which see*) is a form of erysipelas.

Erythema.—This is a mild form of inflammation of the skin somewhat resembling erysipelas. It is generally seen in the form of red oval patches, more or less swollen, on the legs and arms of unhealthy children and delicate females. The treatment consists in keeping the bowels well relieved, and in administering iron or quinine and cod-liver oil; a little Goulard water may also be applied to the red patches. These, however, generally disappear in from ten days to a fortnight.

Escalier. (*See* LACE.)

Escalop. (*See* SCALLOP.)

Escapement.—The escapement is that portion of a clock from which the pendulum obtains its motion. It consists of the crutch connecting the pendulum with the escapement, the swing wheel, and the pallets. In a watch the escapement consists of two distinct parts—one on which the wheel locks, or rests, while the balance is in motion, and another which gives the balance its impulse when unlocked. The form of escapement commonly in use for ordinary clocks is that known as the anchor escapement, so called from its partial resemblance to an anchor. Another form of escapement is known as the dead-beat, the peculiarity of which resides in the form of its pallets, the surfaces of which are composed partially of a circle and partially of an inclined plane.

Escharotic.—This is a powerful caustic which, when applied to a part, produces an eschar, or slough. (*See* CAUSTICS.) Escharotics are chiefly employed in the removal of morbid growths, as tumours, &c.

Escheat, in law, signifies that incident of feudal tenure under which the land reverts back to the lord upon the failure of the tenant to do the services. Escheat arose from two causes—(1) *Propter defectum sanguinis*, i.e., on account of the failure of blood (heirs of the grantee); or (2) *Propter delictum tenentis*, i.e, on account of the felony or attainder of the tenant. But by the Statute 33 & 34 Vict. c. 23, no confession, verdict, inquest, conviction, or judgment of or for any treason, felony, or felo-de-se is to cause any attainder or corruption of blood, or any forfeiture or escheat. So that now escheat can only arise from the failure of heirs of the grantee. The following estates escheat—viz., a fee simple; an estate tail, where the tenant entail has in himself the reversion in fee, otherwise the estate would pass to the reversioner; and a copyhold estate. The following interests do not escheat—viz., gavelkind, *propter delictum tenentis;* a rent charge; a right of common, free warren, and any kind of inheritance which does not lie in tenure; a trust estate, for where the beneficiary dies without heirs the trustee has the right to retain the land for his own benefit; an estate given to a corporation and its successors; an equity of redemption; and money directed to be laid out in land.

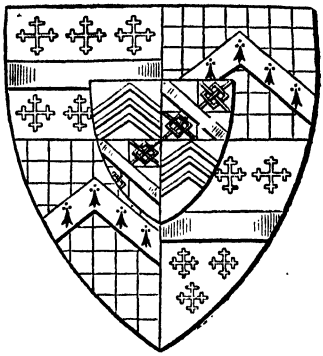
In modern times the law of escheat is seldom acted upon, the Crown usually waiving its prerogative by making a grant, so as to restore the estate to the family of the attainted person, or to carry into effect any disposition of it which the former tenant may have contemplated.

Escritoire.—A kind of writing table, desk, box, or case, containing all the materials for letter-writing compactly arranged for immediate use.

Escrow.—A writing under seal delivered to a third person, to be delivered by him to the person whom it purports to benefit, upon some condition. Upon the performance of this condition it becomes an absolute deed, but if the condition be not performed it never becomes a deed. It is not delivered as a deed, but as an escrow, *i.e.*, a scroll or writing, which is not to take effect as a deed till the condition be performed.

Esculents. — Esculents are substances which may be safely used as food. The word is derived from the Latin *esca*, food.

Escutcheon.—An heraldic shield is also termed an escutcheon. An escutcheon of pretence is that shield which appears upon the field of another shield larger in size, and bears a different coat of arms. Thus the husband of an heiress marshals the arms of his wife upon a shield, and places it on his own instead of empaling them: this smaller shield which is thus introduced is called an escutcheon of pretence. A good example of the latter is in the shield of Richard Beauchamp, Earl of Warwick, engraved in the next column, on which the shield of his countess Isabelle, daughter



SHIELD OF EARL RICHARD BEAUCHAMP.

and heiress of Thomas le Despencer, Earl of Gloucester, appears.

Esparto.—This is a kind of sedge or rush, the *Stipa tenacissima* of botanists, belonging to the tribe *Stipaceæ* (*Graminaceæ*). It is very abundant in the southern portions of Spain, where it is used to make mats, baskets, ropes, cordage, &c. Belonging to the same genus is the *Stipa pennata*, a very beautiful plant, and common enough in gardens, as well as growing wild in some rocky parts of our coast.

Espionage.—A French term signifying the employment of spies or other means for ascertaining the words and actions of people. It is applied particularly to the opening and reading of private letters by post-office authorities—a practice once resorted to in this country under exceptional circumstances, but very unpopular. It is still not uncommon in some foreign states.

Esplanade signifies, in fortification, the glacis of the counterscarp, or the sloping of the parapet of the covered way toward the country, or the void space between the glacis of a citadel and the first houses of the town. In gardening, esplanade means a grass plat. The term is also applied to any open level, public walk, or drive near the sea.

Espousals.—A formal contract or celebration of marriage; most commonly a betrothal or promise of marriage; but the term is often used of the marriage itself.

Esquire was one who attended a knight in time of war and carried his shield, whence he was called *escuyer* in French, and *scutifer*, or *armiger*, i.e., armour-bearer, in Latin. No estate, however large, conferred this rank upon its owner. The younger sons of peers and knights, and their eldest sons respectively, the chiefs of ancient families, and those by creation or office as justices of the peace, the higher naval and military officers, doctors in the several faculties, barristers-at-law, &c. &c., are entitled to



ESQUIRE'S HELMET.

the designation; but it is now commonly given, as a matter of courtesy, to any above the rank of a tradesman or artificer.

Essay.—In literature, a short dissertation on any subject; a minor treatise, not pretending to treat fully of every point in the subject, but rather to give a series of special remarks, propositions, &c. Of such are Bacon's *Essays*, Steele's papers in *The Tatler*, Addison's in *The Spectator*, and Samuel Johnson's in *The Rambler*. In some cases, even extensive works have been styled essays by their writers, to indicate their unpretentious nature and their non-completeness. As an instance of these may be mentioned John Locke's "Essay Concerning Human Understanding."

Essences.—The word essence is derived from the Latin *esse*, to be, in the sense of to set, to fix. It has been applied rather indiscriminately to various preparations which are supposed to contain the essential qualities or virtues of any substance refined from its grosser matter. Correctly speaking, an essence is the volatile essential oil of any plant or drug obtained by distillation, or it is a mixture of that oil with rectified spirit. A large number of effusions are sold under the name of *concentrated essences*. These differ considerably from the essential oils and from each other. They are mostly prepared by powdering or bruising the active ingredient in rectified spirit, with or without water. During the whole of the period of infusion frequent agitation is required. These preparations would be more properly denominated "fluid extracts."

Essences used in Cookery.—Culinary essences have rapidly multiplied of late years, and when good are articles of very great convenience. There are many varieties, and the following are amongst the best known:—Essence of anchovies consists of anchovies boiled till soft, then beaten, bruised, and crushed in a mortar, with proper seasoning. This essence, when manufactured at home, will not be either so bright in colour or so thick in substance as that offered for sale, the latter being generally thickened with starch and coloured with Venetian red. Essence of coffee is a substance of about the consistency of treacle. It is highly concentrated, and is mixed with chicory and burnt sugar. Though very convenient for immediate use, it is not equal in flavour to good home-made coffee. Much of that which is sold as essence of coffee is nothing but chicory and burnt sugar flavoured with coffee. The other essences, such as essence of ham, beef, truffles, chicken, fish, and many others, are supposed to contain as much as possible of the flavour of the meat concentrated into a small space, and are very valuable for flavouring sauces and soups. They may occasionally be purchased at eating-houses where large joints are daily cut up.

Essences used in Medicine.—The only essences used in medicine are those of anise, peppermint, ginger, and almonds.

Essences used in Perfumery.—The principal of these are the following:—The essences of almonds, ambergris, d'ambrette, bergamot, cassia, cinnamon, civet, cloves, eau de Cologne, frangipani, jargonelle pear, jasmine, jonquil, lavender, lemon, musk, musk-root, myrtle, myrtle blossoms, neroli, nutmeg, d'œillets, orange, patchouli, pear, peach-blossoms, peach-kernels, pimento (allspice), pine-apple, rondeletia, rosemary, roses, storax, tuberose, vanilla, violet, vittie-vayr; also curious essence, essence of nosegay, essence royale, volatile essence, volatile acetic essence, odorata, and essential odorifera.

Essential or Ethereal Oils are obtained from various parts of aromatic plants, flowers, leaves, bark, wood, and roots, and sometimes—but rarely—from the seeds. When existing in a great quantity in any plant, the oil is contained in cells near the surface, as in the case of the orange and lemon, and this can be obtained by simple expression; but the majority of oils are procured by distillation as they rise, or are converted into vapour at the same heat as water—212°; hence the name "volatile," by which they are also known. The principal essential oils are the following:—Rosemary, fennel, sassafras, caraway, tansy, anise, thyme, pennyroyal, lavender, camomile, wormwood, peppermint, hops, coriander, parsley, savine, saffron, cloves, juniper, turpentine, orange, lemon, neroli, almonds, nutmegs, cinnamon, bergamot, roses, mace, pepper, &c. These are expensive articles, especially the oils of almonds, bergamot, cinnamon, lavender, neroli (or orange-flower), and attar of rose.

Essex Cheese. (*See* CHEESE.)

Essoign, or Essoin, in law, is an excuse for a person summoned to appear and answer to an action on account of sickness or other just cause of absence. The first day of term was called the essoin day, or day for hearing excuses. But by 1 Wm. IV. c. 70, the essoin day has been abolished altogether, the practice of alleging such excuses, *i.e.*, of casting the essoin, having been discontinued even previously to that Act.

Essonite.—Another name for the cinnamon-stone; a variety of garnet, of a reddish-yellow or cinnamon tint, and chiefly derived from Ceylon.

Estate, in law, signifies such inheritance, freehold, term of years, tenancy by statute, merchant staple, elegit, or the like, as any one has in lands or tenements. Estates of lands, tenements, &c., are real, while those of goods or chattels are personal. Estates are otherwise contradistinguished into freeholds, which descend to the heir; and chattels, which go to the executor. Freehold estates are divided into "fee-simple," which is the highest estate known to the law; "fee-tail," which is where an estate is limited to a particular issue; and "estate for life." Estates less than freehold are estates for years, estates for will, and estates at sufferance.

Estates of the Realm.—The three branches of the Legislature—viz., The Lords

Spiritual, the Lords Temporal, and the Commons. The Sovereign is generally reckoned one of the estates of the realm; but Hallam, in his "Middle Ages," says: "A notion is entertained by many people, and not without the authority of some very respectable names, that the King is one of the three estates of the realm, the Lords Spiritual and Temporal together forming the second, as the Commons in Parliament do the third. This is contradicted by the general tenor of our ancient records and law books, and indeed the analogy of other governments ought to have the greatest weight, even if more reason for doubt appeared upon the face of our own authorities. But the instances where the three estates are declared or implied to be the nobility, clergy, and commons, or at least their representatives in Parliament, are too numerous for insertion." The term "fourth estate" is popularly applied to the newspaper press of this country.

Esthetics. (*See* ÆSTHETICS.)

Estimates for Expenditure.—It will be readily acknowledged that whoever would prosper must live within his income, whatever that income may be. Notwithstanding this, there are hundreds—nay, thousands—of people in this country who are honest in intention, who by no means desire ruin, but who, as a regular thing, spend each year a little more than they actually possess or have any certain prospect of earning. This they do because they do not possess the strength of character which would make them look facts fairly in the face, and would enable them to impose on themselves voluntarily that self-denial which their own course of conduct will in time force them to practise.

Mr. Micawber, of pleasant memory, was quite right when he said, "Annual income, twenty pounds; annual expenditure, nineteen, nineteen, six; result, happiness. Annual income, twenty pounds; annual expenditure, twenty pounds, ought and six; result, misery." There are a great many people at the present moment whose lives are a burden to them, and who are being dragged down to the dust with the grinding worry of daily anxiety about money, who might be comparatively free and happy if they could only solve this difficult problem, and make their income come within their expenditure.

Any one who is determined never to get into this condition, or who, being in it, is resolved to escape from it, will need not only to make a vague resolve and a feeble endeavour to spend money judiciously, but also to make a stern determination to this end. As an assistance in carrying this out, it will be well to draw out an estimate of outlay which must not be exceeded. If it is to be a thorough success, this estimate must be *within* the limit, thus allowing a certain margin for unforeseen expenses. It is the want of this margin which renders worthless many of the estimates drawn up by thoughtless but well-meaning persons. They arrange for the outlay of every halfpenny, and then there is nothing left for the something "which is sure to turn up." It is not enough to draw out a plan by which both ends shall be made to meet. As a matter of safety, the ends should lap over a little. If the provision prove unnecessary, if the expected strain do not come, so much the better. The only result of the precaution will be that there is a small sum secured which may be put aside as a nest-egg for future savings.

An authority in matters of household expenditure has recommended that, in apportioning the income, one-half should be appropriated to housekeeping, one-eighth given to rent and taxes, and the remainder be distributed amongst the other expenses of the household. This rule is perhaps as good as any. It is, however, obviously impossible to lay down one plan for all sorts of circumstances. But of the wisdom of forming an estimate of expenditure there can be no doubt. Money difficulties arise, to a large extent, from ignorance of what the rate of expenditure should be; and to have taken pains to find out what the sum is which may be safely spent, is to have gone a long way towards acquiring that self-control, without which it is impossible to live within one's income.

Estimates for Furnishing.—The task of furnishing a house is rather a bewildering one. So many articles are now regarded as essentials that were a few years ago looked upon as superfluities, that the question of providing the home has become quite an important one with people about to marry and set up house.

There is a good old proverb which says, "Cut your coat according to your cloth," into the spirit of which those who have to furnish would do well to enter. Young housekeepers have, of course, a perfectly natural desire to possess a handsomely-appointed home, and this often leads them to make the mistake of furnishing their houses in a style which is not suited either to their habits, their position, or their expectations. Before making any purchases it will be well for them to remember that nothing will give lasting satisfaction that does not possess suitability and quality. If the rooms are small, large massive furniture will always look out of place in them. If the means are limited, and, consequently, if efficient service is difficult to obtain, costly and elaborate furniture will in the course of years either prove a great care, or be neglected and so deteriorate in value. But a few well-made, well-shaped good articles will be easily kept in order, and if well cared for will improve with keeping. If prosperity come, they will not disgrace the pretty things that are sure in time to gather round them. If adversity come, they will stand wear and tear, and be good to the last. In furnishing a house, what is wanted is good taste even more than ample means. Good taste is most valuable when much is to be made out of little. Bad taste nullifies the effect of so much that is good. Bad taste shows itself in the over-crowding of furniture, in the want of harmony, in too much gilding, in a stiffness of arrangement, and, more than all, in a gaudy jumble of tints. Good taste, however, is not possessed by every one; and when it is absent, the best thing that can be done is to put oneself in the hands of a first-class upholsterer, or of a friend who can be trusted to advise judiciously.

Estoppel.—A legal term indicating that the person whom it affects is estopped, *i.e.*, stopped or hindered from saying anything different to what has been already said, even though what he wishes to say be the truth, and the thing already said error. It is of three kinds—(1) estoppel by record or verdict of the court; (2) by deed; (3) by matter in *pays*, as by acceptance of rent, &c.; the principle throughout being that a man shall not aver the contrary of what by his previous conduct he deliberately led other persons to infer.

Estovers (from the French *étoffer*, to furnish) is a term used by Bracton for that sustenance which a man committed for felony is to have out of his lands or goods for himself and his family during imprisonment. In Statute 6 Edw. I. it is used for an allowance of meat or clothes. In some manors the tenants have common of estovers, *i.e.*, necessary botes or allowances out of the lord's wood, in which sense estovers comprehends House bote, being a sufficient quantity of wood for the fuel and repairs of the house; Plough bote, a sufficient quantity of wood for the making and repairing of agricultural implements; and Hay bote, a sufficient quantity of wood for the repair of fences. Estovers must be reasonable, and strictly applied to their respective purposes and to none other. Any excess in the enjoyment, or any misapplication in the just amount, would be adjudged waste.

Estreat, in law, is a true copy or note of some original writing or record, and especially of recognisances, fines, and amercements, entered on the rolls of a court, and extracted or drawn out from thence, and certified into court, from whence authority is given to the sheriff, bailiff, or other officer to levy them. In order, therefore, to be relieved from any fine or estreat, application is made to that Court upon motion. (See the Statutes 3 & 4 Wm. IV. c. 99, and 22 & 23 Vict. c. 21, s. 28.)

Etching on Metal, &c.—The principal metal used for etching is copper, upon which three kinds of etching are employed—scraping, or *real* etching; aqua-tinta; and etching in *relief*, or ectypography. In the first two methods the lines of the design are etched *in;* in the third method the lights are etched in, and the lines of the design left standing in relief, similar to the letters of type-founders. Steel is treated in precisely the same manner. For etching on copper, brass, and silver, diluted nitric acid is used; for steel it is more diluted; and gold is acted upon by nitro-muriatic acid.

Ether (syn. oxide of ethyl) is a highly volatile, transparent, and colourless fluid, penetrating in odour, pungent in taste, exceedingly inflammable, and one of the most subtle of stimulants. It is also a narcotic and antispasmodic. Ether is prepared from a mixture of alcohol or spirits of wine, and sulphuric acid or vitriol. This mixture is submitted at once to rapid distillation, the ether passing over in the form of vapour, to be condensed in the refrigerated receiver. It dissolves bitumen, resins, and gum-resins, balsams, volatile oils, and wax; also gun-cotton; and forms collodion, which is employed in photography. In consequence of its rapid evaporation, its application to the skin is capable of producing an intense degree of cold. Sulphuric ether boils in the air at 96°, and in a vacuum at 12° below zero. It is found beneficial as a medicine in low fevers, prostration, oppressed action of the heart and lungs, and is inhaled for asthma, and as an æsthetic agent to deaden the nerves during surgical operations.

Ether Spray.—The evaporation of ether thrown out in spray from a small apparatus contrived by Dr. Richardson, and employed for freezing and inducing local anæsthesia, for the relief of the patient under surgical treatment. It is much used by dentists, but is so evanescent in its effects that it is only useful in limited and superficial operations. No constitutional disturbance accompanies or ensues from this freezing of a part of the body.

Ethereal Oils. (*See* Essential or Ethereal Oils.)

Ethics.—The science which treats of the laws regulating the human will, and the doctrines of morality and moral obligation (Greek *ēthos*, moral temper). Ethics may further be defined as that code of moral rules and principles which regulates and governs the voluntary actions of men in every state of society. Ethics has been a favourite subject with philosophers, ancient and modern, and numerous systems of ethical philosophy—the nature of which it is altogether beyond the scope of the present work to discuss—have been invented by them since the days of Socrates, Plato, and Aristotle.

Etiquette, Hints on.—The word "etiquette" signifies a "ticket," or card, and owes its origin to the ancient custom of giving a card of regulations and directions for the instruction of persons who attended Court. It is now the term employed to designate the laws by which polite society is governed, and the usages which obtain within its circles. Of these recognised conventionalities a few may be enumerated. A gentleman raises his hat when he meets a lady who bows to him when out of doors, and he takes it off when speaking to a lady within doors; he gives precedence to a lady on all occasions; he offers the left arm when ceremony requires that she should take his arm. When an introduction is made, the gentleman is brought to the lady by a mutual friend; a gentleman may not introduce himself. A lady in her own house is served after her lady guests at meals; they precede her when entering or leaving a room or a carriage. When a lady and gentleman meet in a street they should not stand and converse, but the latter should turn back and walk with the former. There is an etiquette connected with cards of address, calls, &c., also with dinners and various other occasions, which is referred to in this work under the various headings to which it relates.

Etna.—This is a useful utensil for boiling a small quantity of water without lighting a fire, and is invaluable in a sick room. It is made of tin, and resembles a funnel in appearance, with a small plate at the bottom to receive the methylated spirits of wine, by which, when

lighted, the water is boiled in a very few moments. These articles, though they can be bought for two or three shillings, have been somewhat superseded of late years by small spirit-stoves, which are equally cheap, and so contrived as to boil a kettle of water, or cook a chop, &c.

Etruscan Ornaments, Style of.—Etruscan art is closely related both in character and date to Egyptian art, although it also displays to some considerable extent the influences of Greek art. The earlier examples of Etruscan works of art possess, however, a degree of originality separating them from both Greek and Egyptian art-productions. In Etruscan architecture we recognise as prominent features strength and solidity; and in the ornaments associated with it—columns, entablature, and composition, &c.—a general resemblance to the Grecian orders and temples. The best Etruscan statues (of marble and bronze), rilievi, terracottas, paintings, vases, medals, coins, and engraved stones are remarkable for their elegant and graceful forms. The bassi-rilievi were sometimes painted and sometimes gilt; many of their finest compositions are found engraved on mirrors; and from the earliest times the Etruscans were celebrated for their skill in ornamental works of gold and silver, their castings, chasings, and inlaying in metal. On their vases we frequently see the flat black figures, on a red or yellow ground, which are also found on Greek vases.

Eucalyptus.—The genus *Eucalyptus* belongs to the natural family called *Myrtaceæ*, and includes a variety of very useful and beautiful trees. They are for the most part natives of Australia, and are among the largest trees to be found in the world. They exist in large forests, mingled with the leafless Acaciæ, and as some of them cast their bark in long stripes, which hang down from the branches, the appearance of the woods is very striking. One or two of the genus likewise possess the remarkable property of purifying, by their presence, the air from miasmata. From some of the species valuable gums and medicines are obtained. The *Eucalyptus Globulus*, or blue gum-tree, is one of these. Preparations of its bark and leaves have been recommended by some medical men in fevers of an intermittent character, and their value seems almost beyond question.

Euonymus. (*See* SPINDLE-TREE.)

Euphorbium.—This is an acrid gum or resin obtained from the *Euphorbia Officinalis* (belonging to the natural order *Euphorbiaceæ* or *Spurgeworts*). This plant is not unlike a cactus, from which, however, it is easily distinguished, from its emitting a milky juice when punctured. It is said to produce this milky juice only once in four years, but so abundantly as to supply the whole of Europe. It is a native of Mogadore, in Africa; the inhabitants in that region make incisions in the branches of the plant, from which the euphorbium exudes, in the form of a milky juice of extreme acridity. This juice soon dries in the sun into waxy, yellowish, friable tears, as we find it in the shops. It is sometimes employed in medicine, but rarely, its action being violent; it is, however, at times used by veterinary surgeons to blister horses instead of cantharides.

Eupion.—A highly inflammable liquid obtained in the distillation of sundry organic bodies. It is called eupion from the Greek words expressive of its fatty nature.

Eustachian Tube.—This is the tube or channel through which the tympanum, or drum of the ear, communicates with the pharynx, or back part of the throat. It is frequently affected by cold, and may cause temporary deafness. It may also be the seat of disease, and in that case the deafness on the affected side may be permanent. It is through this tube that the breath can be forced out of the ear when the drum of that organ is perforated.

Evacuations.—These are the solid or semi-solid matters which have not been used up in the process of digestion, and must consequently pass out of the body as refuse. Under the influence of disease and of certain medicines, they become very much altered in character. The evacuations of the sick are not only a very important aid to diagnosis, but they indicate very often, especially in acute cases, the progress of the disease. As it is now well known that contagious and infectious diseases are propagated in a great measure through the evacuations, it becomes absolutely necessary that these should in all such cases be thoroughly disinfected.

Evaporation is the slow conversion of any volatile liquid into vapour, as distinguished from its rapid conversion into vapour by boiling. It is in consequence of evaporation that the surface of the earth dries up in fine weather, and that water, alcohol, ether, and other such liquids will disappear entirely if left to stand in an open glass vessel. Some solids even, such as snow or ice, camphor, &c., are subject to evaporation, and hence snow will disappear from off the ground during the continuance of a severe frost. Several causes influence evaporation. Heat greatly promotes it; the higher the temperature the more abundant is the formation of vapour; hence artificial heat is used in factories and other places to dry things quickly. A constant renewal of the surrounding air is necessary, because as soon as the air around a wet article is fully saturated with vapour it can absorb no more, and if the temperature were to become colder, the air would even deposit some of its own moisture like dew. Hence a wet bandage can be kept moist for hours if it is covered with a sufficient number of folds to prevent the escape of the steam into the air; and, on the contrary, the earth will dry up all the faster after rain if a strong wind should blow, and clothes when hung up in the drying ground will dry faster on a windy than on a calm day. Drying ovens must therefore have a current of air passing through them, that dry air may come in, and the warm damp air may be carried away. The pressure of the atmosphere hinders the disengagement of vapour, and therefore a reduction of the atmospheric pressure will expedite evaporation. Advantage is taken

of this fact in sugar-making for drawing the excess of water out of the syrup, so as to concentrate it and promote the crystallisation of the sugar. The syrup is put into air-tight pans called vacuum-pans, and the air is then pumped out. The greater the surface of any liquid exposed to the air, the sooner will it evaporate; hence in evaporating down brine to obtain salt it is put into broad and shallow pans.

Eve.—In the Church calendar this word is used, not in its ordinary signification as the evening or latter part of a day, but to denote the evening *before* a holiday or saint's day. Thus, for example, we commonly speak of the evenings previous to Christmas Day and Easter Day as Christmas Eve and Easter Eve.

Evening Dress.—This for a gentleman involves black trousers, a black swallow-tailed coat, and a black waistcoat, all of cloth. The necktie for dinners, operas, and balls is white, but for evening parties black is allowed. The shirt-front is plain and simple; gloves should be white, and jewellery very limited. Evening dress for ladies varies with the fashion and with circumstances; it is, therefore, impracticable to describe what should be worn at home, at balls, dinners, and evening parties in general.

Evening Parties differ considerably in their character, and it is always well to specify on the card of invitation what is to be the order of arrangement. As a rule, these gatherings commence from eight to nine o'clock. The guests, upon their arrival, are served with tea or coffee, cake, and biscuits. These are generally laid out in an ante-room upon a long table covered with a white cloth, and presided over by neatly-dressed serving-maids. After taking refreshment, each individual is shown to the drawing-room, and the name is announced by the footman. The hostess should remain near the door until all her friends have arrived, that she may be ready to receive and welcome them. The evening may be spent in music, cards, or even in friendly conversation only, dancing being sometimes included. Supper is served from half-past nine to ten o'clock. It is usually laid out beforehand, and should be made to look as pretty as possible. The middle of the table should be occupied from one end to the other with fruits and flowers, and the several sweet dishes, jellies, creams, trifles, and soufflés ornamented plentifully with bonbons and crackers. The various dishes should be served cold; ices and wine be handed at intervals; and the beverages should consist of light wines of different kinds. Sometimes soup is handed round at the beginning of supper, and this, of course, must be very hot. Occasionally, when the gathering is a very informal one, the guests do not sit down to supper at all, but light refreshments are brought in on a tray, and are partaken of in the drawing-room. Then the refreshment consists only of sandwiches, patties, and sweets. The dress usually favoured at evening parties is half toilette. Ball costume is not usual, unless dancing forms part of the programme of the evening.

Evening Primrose.—This is a very old-fashioned flower, and rarely seen except in large country gardens, as there are so many bright yellow flowers whose blooms last much longer that have superseded it. It always looks well in shrubberies and at the backs of borders: it



EVENING PRIMROSE.

grows about three feet high. It blossoms very freely, and has a number of blooms at the same time, and, as its name implies, flowers during the after part of the day. It is a perennial, and lasts for several years when once planted, but it is advisable to divide and re-plant in the spring of every third year. It is raised from seed, and blooms in the second year.

Evergreens for Decorations.—The bright shining leaves are more especially adapted for this purpose; the yew, fir, and cedar have a melancholy significance, and as decorations are brought into use to express joy and festivity, such dull-natured evergreens seem out of place. Laurel leaves are those which can be used most expeditiously, for, being large, they cover space more quickly. Holly leaves form a very pretty decoration, especially when adorned with their berries; but their prickly-pointed leaves prevent rapidity of work, because they prick the fingers and continually catch the loops of cotton. For minute designs the neat bright box leaf is the most effective. Ivy forms a pretty decoration when allowed to follow its natural bent; that is, when placed and fastened, with its leaves, stalks, and tendrils, along the surface it is to ornament. Wreaths of evergreens are more quickly made than bands. A thick string or cord the required length of wreath, some fine string, together with small sprays and twigs of small-leafed evergreens, should be in readiness. The end of the cord should be fastened to a door-handle or some secure post; the little bunches are then laid on, and the string twined round the stalks. It is necessary to continually turn the cord round, otherwise the wreath will be flat, owing to all the sprays being placed on one side.

Everlasting Flowers.—This designation is commonly applied to a certain class of flowers

which retain their brightness and colour for months after being culled. This peculiar quality is in consequence of the hardness of tissue which is observable: the petals have a dry and straw-like appearance, and this absence of moisture prevents the usual rapidity of decay and collapse which ordinary flowers suffer, more or less, while acquiring the dryness necessary to preservation. In France these flowers are largely cultivated, as it is the custom to form wreaths for the adornment of graves. They are known by the name of Immortelles. In England they are much used for the decoration of churches. A very pretty pink flower, with a pendant head, called "rodanthe," is an everlasting one.

Eviction, in law, is dispossession, ouster, or deprivation of office or possession, usually applicable to ouster from real estate, but also applicable to dispossession from personal estate. The covenant for quiet enjoyment usually inserted in leases and other deeds is substantially a covenant against eviction. A tenant may be evicted by his landlord for proper cause; but a landlord may be guilty of a wrongful eviction, as where, without proper cause, he either actually (*i.e.*, corporeally) evicts him or carries out an intention so to do by a course of action incompatible with the tenant's returning into or continuing his possession.

Evidence.—The testimony adduced before a Court or magistrate of competent jurisdiction, by which any fact in question between the parties is ascertained. It is of two kinds—written and verbal. The former by affidavits, deeds, bonds, or other written documents; the latter by witnesses examined *viva voce*.

Evidence may be further divided into absolute and presumptive. The former is direct, in positive or absolute affirmance or denial of any particular fact; the latter collateral, and from the conduct of the parties affords an inference that such a particular fact did or did not occur. As the law never gives credit to the bare assertion of any one, however exalted his rank or pure his character, the party making an affirmative allegation, which is denied by his adversary, is in general required to prove it, unless, indeed, a man is charged with not doing an act which he is legally required to do, for here a different rule must necessarily prevail; and the rule is, that the evidence must be applied to the particular fact in dispute, and therefore no evidence not relating to the issue, or in some manner connected with it, can be received; nor can the character of either party, unless put in issue by the very proceeding itself, be called in question, for the cause is to be decided on its own circumstances, and not to be prejudiced by any matter foreign to it.

Respecting the competency of witnesses, as a general rule every person is a competent witness in an action. It was, however, in early times considered that persons not professing the Christian faith were incompetent, and for a long period a belief in a God and in a future state of rewards and punishments was essential to the taking of an oath, and therefore to the competency of a witness. By the Evidence Amendment Act, 1869, it is enacted that "If any person called to give evidence in any court of justice, whether in a civil or criminal proceeding, shall object to take an oath, or shall be objected to as incompetent to take an oath, such person shall, if the presiding judge is satisfied that the taking of an oath would have no binding effect on his conscience, make the following promise and declaration: — 'I solemnly promise and declare that the evidence given by me to the Court shall be the truth, the whole truth, and nothing but the truth.' And any person who, having made such promise and declaration, shall wilfully and corruptly give false evidence, shall be liable to be indicted, tried, and convicted for perjury, as if he had taken an oath." An atheist, therefore, is clearly under this provision capable of giving evidence, although, not having the necessary religious belief before stated, he cannot take an oath. In cases depending on parole or verbal evidence, the testimony of persons who are themselves conversant with the facts they depose to must be produced, the law having no regard, except under special circumstances, to any hearsay evidence. Thus a memorandum in writing made at the time by a person since deceased, in the ordinary way of business, and which is corroborated by other circumstances, will be admitted as evidence of the fact.

Witnesses are summoned by writ of subpœna to attend, forfeiture involving heavy penalties, besides the liability to damages for non-attendance. Persons infamous in law by their crimes, and persons directly interested in the matter in issue, were formerly incapable of giving evidence; but by the Act for the Amendment of the Law of Evidence (the 6 & 7 Vict. c. 85) no person offered as a witness shall thereafter be excluded from giving evidence by reason of incapacity from crime or interest; no counsel or attorney shall be compelled to disclose the secrets entrusted to him by his client, but he may give evidence of facts which he knew by other means than for the purpose of the cause. And now by the Statutes 14 & 15 Vict. c. 99, and 32 & 33 Vict. c. 68, the parties to an action of whatever sort are competent and compellable to give their testimony. In criminal proceedings, however, neither husband nor wife is compellable to give evidence for or against each other. The following are some of the principal rules of evidence: — 1. The best evidence must be given that the nature of the thing is capable of, for if it appears that better evidence might have been produced, the very circumstance of its being withheld furnishes a suspicion that it would have prejudiced the party in whose power it is had he produced it; thus if a written contract is in the custody of the party, no verbal testimony can be received of its contents. 2. The point in issue must be proved by the party who asserts the affirmative. 3. It will be sufficient to prove the substance of the issue. 4. Hearsay evidence of a fact is not admissible. (*See* WITNESS.)

The rules of evidence are the same in civil as in criminal courts, for a fact must be established by the same evidence, whether it be followed by a civil or criminal consequence.

The mode of taking evidence on a trial in the Common Law Courts formerly differed from that in use in the Court of Chancery. It was oral in the former, and by affidavit in the latter. Now, however, that there is one Supreme Court, the ordinary mode of taking evidence is by oral examination of witnesses; but by agreement or leave of the Court or a judge, affidavits or depositions may be used.

Evil Eye.—A very ancient and wide-spread superstition, according to which the look of certain persons brings calamity to the person or thing looked upon; *e.g.*, children, cattle, crops, houses, &c. The notion has been found to prevail almost all over the world, but it recedes as civilisation and education progress. At present it is in Europe principally confined to the peasant populations, but even they, in the British Islands, have very generally discarded it. In Italy it is more common, and, as in other cases, the evil eye is not necessarily associated with bad personal character—a good proof of which is found in the oft-repeated assertion that the ignorant rustics of Italy formerly regarded Pope Pius IX. as endowed with this baleful faculty. Another noticeable point is that the possessor of the evil eye may not be aware of it, and may inflict injury without knowing it or intending it. Among Mussulmans the superstition is very general, and fraud or folly has devised sundry preservatives against the mysterious power. The best preservative is knowledge, for the spread of which all superstitions afford an argument.

Evil, King's.—Scrofula, or king's evil, so called because it was formerly believed to be curable if touched by the finger of royalty, is a disease akin to consumption, and differing only from it in certain local manifestations which have given it a special name. These are —(1) an indolent enlargement and suppuration of the glands of the neck, the sores resulting from which do not heal kindly, and, leave as a rule, most unsightly scars; (2) a peculiar obstinate inflammation and ulceration of the eyelids and eyes, characterised by great intolerance of light and profuse discharge of tears—this is called strumous ophthalmia; (3) diseases of bones and cartilage, especially in the neighbourhood of joints, causing abscesses and running sores, which do not readily heal, as well as serious deformities. Scrofula, or king's evil, may, in addition to the above local affection, be characterised by all the ordinary symptoms of consumption, as cough, profuse perspirations, spitting of blood, &c., the tubercular constitution being in both cases the origin of the symptoms present. The treatment of this disease is precisely that which has been recommended under the heading of CONSUMPTION. The enlarged glands may be painted with iodine, and if they show a tendency to suppurate they may be poulticed, and relieved as soon as possible with the lancet. The resulting wound should be dressed a day or two after with basilicon or zinc ointment.

Ewer.—The word ewer is taken from the Saxon *huer*, or *hwer*. It signifies a jug with a large wide spout used for holding water. The word is an old-fashioned one, and not much used now. The first attempts to make vessels which would hold liquids reached no further than to the manufacture of those which could be made sufficiently hard by exposure to the sun. These were very easily broken, and, excepting in very dry climates, could scarcely survive through the winter. Specimens of sun-dried vessels have been transmitted to us from Egypt, Assyria, and Babylonia, which represent very early efforts of the art. The baking of the clay, which most likely was discovered by accident rather than design, must have been of immense importance. The ewers made of Palissy ware were exquisite in shape, and were elaborately decorated. A very curious jug or ewer was found at Lewes in 1845, of a date as early perhaps as the reign of Henry II.

Ex officio.—Literally, by reason of office (Latin). In general language, anything done by virtue of office, and every act done in prosecution of the duties of office. In law, an *ex officio* proceeding is one taken by an officer on his own authority, in furtherance, in his judgment, of the duties of his position. An information at the suit of the ruling power, filed by the Attorney-General, by virtue of his office, and without previous application to a Court for leave (as in cases of libel and sedition when officially prosecuted), is termed an *ex officio* information.

Ex parte signifies, in law, of the one part (Latin). Thus an *ex parte* statement is that made by one only of the parties concerned in any suit or transaction; an *ex parte* commission is that taken out by one side or party only to a suit.

Ex post facto.—A Latin phrase meaning, in its literal sense, by something done afterwards. An *ex post facto* law is a law enacted with a retrospective effect, and intended to punish an offence already committed, or to declare an act penal which was not punishable at the time of commission.

Examinations, Scholastic and Public.—Special inquiries as to the attainments and knowledge of students and candidates for collegiate and university scholarships, the various professions and offices of employment, as in the Government service (*see* CIVIL SERVICE), banks, &c. It cannot be too often impressed on students and others that examinations are by no means the ends of study, but should be considered only in the light of tests of real knowledge. Nevertheless, there is a certain amount of tact required in preparation for an examination of any sort, and certain special study and care are wise and justifiable. Thus, for example, all candidates for examinations should thoroughly grasp the scheme of their particular examination, and the scope of each subject; they should pay close attention to all directions and regulations issued by the examining body; they should study carefully the examination papers for preceding years; and where the appointed examiners are the authors of books of repute in the subjects under their direction, their books should be used for purposes of study in preference to the works of others.

With regard to the examination itself, many candidates of high attainments often fail, simply through nervousness and lack of confidence. Self-confidence, arising from a knowledge of hard study in the required subjects and a thorough comprehension of what will be required by the examiners, is one of the most valuable qualities in all who are preparing for examinations, whether scholastic or public.

Excellency.—An honorary title given to viceroys and ambassadors as representatives of sovereigns and states.

Exceptions.—In conveyancing, an exception from the thing granted, being a portion less than and severable from the whole, and which is of a nature to be held by itself. In chancery proceedings, exceptions to an answer to a bill are objections taken on the ground of insufficiency or of scandal. The objections were formerly stated in the form of written pleading, but by the Judicature Act this form is superseded, and the Court is to dispose of the allegation of insufficiency in the answer upon motion in a summary way. Bills of exception and proceedings in error are abolished by the Judicature Acts. In the Scotch law, as in the Roman, exception is synonymous with defence.

Exchange.—In commerce, the transfer of one commodity for another, or the transfer of one debt or credit for another. By the *rate* or *course of exchange* between two countries is understood the current price of money between them. This rate of exchange should strictly be regulated by the comparative values, as bullion, of the standard coins of each country, and this is indeed the basis of exchanges of this description. But other considerations also affect the matter, the principal of these being the plenitude or scarcity of money at any specified time in each country, as shown by the existing rate of discount. Thus the rates of exchange between the United Kingdom and foreign countries are constantly varying. When a bill for the payment of £100 sterling value in another country can be purchased for £100, the rate of exchange is said to be at *par;* if it can be purchased for less than £100, the rate of exchange, as between this country and that in which the bill is to be paid, is *below par;* while if it cost more than £100, the rate is *above par.*

Exchange, Bill of. (*See* Bill of Exchange; Bills of Exchange, Duties on.)

Exchequer, Barons of the.—The judges of the Court of Exchequer were formerly designated barons, the judges of the other Courts being justices; but since this Court has become a division of the High Court of Justice, under the Judicature Acts, this particular title of its judges, if retained at all (about which there seems to be some question), will be henceforth a courtesy title only.

Exchequer Bills are a species of paper currency, first established in 1796 to supply the want of circulating cash during the recoinage at that period. They were then taken at the Exchequer for all payments of the revenue, and when re-issued they were allowed £7 12s. per cent. interest. They have since been issued yearly, and the Bank of England ever since the year 1706 has had the contract for their circulation at a certain premium. The Commissioners of the Treasury are empowered by various Statutes to borrow money within a specific sum, limited by those Statutes, by issuing exchequer bills on the credit of certain duties, which bills bear interest (generally from 1½d. to 2½d. per diem per £100) according to the periodical rate. The advances of the Bank to Government are made upon exchequer bills, and the daily transactions between the Bank and Government are principally carried on by this means. Notice of the time at which outstanding exchequer bills are to be paid off is given by public advertisement. Exchequer bills are a favourite mode of investment with bankers, because, although the interest is low, the capital is received at the Treasury at the rate originally paid for it; and thus the holders are exempt from any risk of fluctuation in price. An Act was passed in 1866 for "Consolidating the several laws regulating the preparation, issue, and payment of Exchequer Bills and Bonds" (the 29 & 30 Vict. c. 25). As to the forgery of Exchequer bills, see the 24 & 25 Vict. c. 98, s. 8; 29 & 30 Vict. c. 35, s. 15; and the 36 & 37 Vict. c. 54, s. 5.

Exchequer, Chancellor of the. (*See* Chancellor.)

Exchequer Court, Exchequer Chamber. (*See* Court and Courts of Justice.)

Excise.—The levy of duties upon commodities produced and consumed within a country, and also on licences to manufacture and deal in certain commodities. This means of raising money was first originated in England by the Long Parliament in 1643, a tax being then levied on all beer and ale brewed. A similar expedient was adopted by King Charles's Parliament sitting at Oxford, the taxes being exacted within the then existing limits of the king's authority. Excises, continued through the Protectorate, ceased temporarily at the Restoration, concurrently with the revival of the feudal liabilities of tenants *in capite*. For these liabilities, however, excise duties were soon substituted, being levied on ale, beer, cider, perry, mead, spirits, tea, coffee, sherbet, and chocolate. From this period the excise has always formed a considerable feature in the national revenue.

For the financial year 1877-8, the only articles on which excise duty was charged in the United Kingdom were chicory, malt, spirits, and sugar (used by brewers), the rates being as follows:—

	s.	d.
Chicory, per cwt., raw or kiln-dried	12	1
Malt, per bushel (and 5 per cent.)	2	7
Malt (Scotland and Ireland) per bushel (and 5 per cent.)	2	0
Spirits, home-made, per proof gallon	10	0
Spirits, imported from Channel Islands, per proof gallon	10	5
Sugar, used by brewers, per cwt.	11	6

There are also a number of duties or licences authorising persons to make or deal in various

commodities, the principal of these being for brewers (12s. 6d. on every fifty barrels or part of fifty barrels brewed) beer-dealers, playing-card makers, dealers in cider and perry, game-dealers, maltsters, publicans, spirit-distillers and dealers, wine-dealers, tobacco and snuff manufacturers and dealers.

Excisions.—These are certain surgical operations requiring the use of the knife or some cutting instrument. The term is applied by surgeons to the removal of tumours, morbid growths, enlargement of glands, as the tonsils, and to diseased joints, as the shoulder, hip, knee, &c. Excision of the joints is now performed where formerly the whole or a great part of the limb would have been amputated; and as a limb maimed is better than no limb at all, excision may be looked upon as one of the great triumphs of modern surgery.

Excoriation.—This is an abrasion or peeling off of the cuticle or superficial skin. It is most frequently seen about the lips, edges of the nostrils, ears, and in the feet after hard walking or wearing badly-fitting boots. Excoriations are best treated with glycerine, or glycerine of tannic acid, or zinc ointment.

Excrescences. — These are abnormal growths occurring chiefly on the skin, of which the most common example is the wart (*which see*).

Excretions.—These are the refuse matters which pass out of the body by the bowels, bladder, and skin.

Excuses.—When it is really necessary to make these, they should be done in as polite a form as possible. If an invitation be accepted, the engagement should be strictly kept, unless some unavoidable circumstance arises: an excuse is then sent, and the reason should be stated. When an invitation is declined at once, it is considered polite to mention why it cannot be accepted, whether owing to a previous engagement, absence from home, or illness, which are considered to be the valid excuses. When a gentleman asks a lady to dance with him, she can offer only two excuses as a refusal, either that she is already engaged for it, or that she prefers to sit down during that dance. Guests in a house should always offer excuses in an apologetic form to their hostess, if they are late for any meal.

Execution, in law, is the completion or finish of some act, such as a judgment, deed, &c. It is the last stage of a suit, whereby possession is obtained of anything recovered. This is termed final process. Writs of execution are of several kinds, as *fieri facias*, *capias*, elegit, attachment, &c.

Executive.—That branch of the Administration of the country which puts in force the laws, as distinguished from its legislative and judicial branches. The body that deliberates and enacts laws is legislative; the body that judges and applies the laws in particular cases is judicial; and the body that carries the laws into effect, or superintends the enforcement of them, is executive. The executive authority in all monarchies is vested in the Sovereign.

Executor, or Executrix, is a person appointed by a testator to carry into execution the directions of his will after his decease, and to dispose of the property accordingly. The regular mode of appointing an executor is by naming him expressly in the will, but any words indicating an intention of the testator to appoint an executor will be deemed a sufficient appointment. An executor derives his authority from the will, and not from the probate, and he may therefore do many acts in execution of the will, even before it is proved, such as releasing, paying, or receiving of debts, assenting to licences, &c.; but he cannot proceed until he has obtained probate. If an executor die before probate, administration must be taken out with the will annexed; but if afterwards, his executor will be executor to the first testator, and no fresh probate will be needed. It will be sufficient if only one of the several executors prove the will; but if all refuse to prove, they cannot afterwards administer, or in any respect act as executors. If an executor become a bankrupt, the Court will appoint a receiver of the testator's effects, as it will also upon the application of a creditor, if he appear to be wasting the assets. An executor who has once administered cannot afterwards renounce, and may be compelled to prove the will. The first duty of an executor or administrator is to bury the deceased in a suitable manner, and if he exceed what is necessary in this respect, it will be deemed a waste of the testator's assets. The next thing to be done by an executor is to prove the will, which should be done within six calendar months after the testator's death, and if delayed after that time a penalty of £100 and 10 per cent. on the property is incurred. If there be a suit or dispute relative to the will or administration, the probate or letters of administration should be obtained within two calendar months after it is "ended." The probate should be obtained to the extent of the sum really expected to be received. An administrator, after obtaining letters of administration, stands in many respects in the same situation as an executor. Next the executor or administrator should proceed to collect and reduce into money the personal assets of his testator, when not otherwise directed, especially if they be of a perishable nature, and pay the deceased's debts. In general, legacies should not be paid within a year of the testator's death, and not even then without an indemnity, if there be any reason to apprehend outstanding claims. An executor is not entitled to any remuneration for his own personal trouble or loss of time, unless this be expressly sanctioned in the will. The final duty of an executor, as such, is to prepare and pass the residuary account, and pay the proper duty thereon. (*See* ADMINISTRATION.)

Exercise.—A certain amount of exercise is absolutely essential to good health. Whether it be taken actively, in the form of running, walking, riding, dancing, rowing, &c., or passively, in a carriage or boat, it will always do good, by calling the muscles into play, promoting the circulation, and aiding respiration. Exercise, not immediately after a meal,

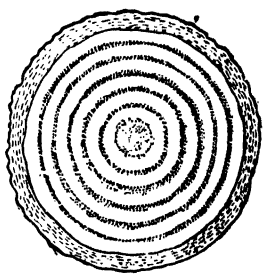
also aids digestion, and frequently excites a healthy action of the bowels. Of course the kind of exercise to be taken must be adapted to the constitution and state of health of the person who takes it. Violent exercise is not suitable for delicate persons, neither will carriage exercise be of much service to the robust. Growing children in delicate health require to have their exercise well regulated. In addition to their ordinary games, riding, dancing, and fencing are the most important. Reading aloud and singing are also useful exercises. Lastly, whilst strongly advocating daily and suitable exercise for every one when it can be taken, it cannot be too strongly urged that violent exercise is frequently productive of serious consequences, which must be guarded against by a cautious avoidance of that form of it for which the person is not physically adapted.

Exhalations.—These are certain vapours which are continually passing off from the body by the skin and breath. Under ordinary circumstances this process goes on insensibly, but in certain diseases the exhalations of the body become markedly offensive, as, for example, in small-pox and internal gangrene.

Exhaustion.—This is a condition in which the powers of life act feebly. Three kinds of exhaustion are usually described:—1. That which frequently precedes typhus and other fevers. This is characterised by extreme weakness, pallor, soft quick pulse, cold skin, and hurried breathing. 2. That which remains after a long illness, as fever, small-pox, erysipelas, pneumonia, &c. The extreme degree of this form of exhaustion is manifested by muttering delirium, involuntary discharges, picking of the bed-clothes, and by sinking of the body towards the foot of the bed. 3. A third form of exhaustion is that which occurs from loss of blood and profuse discharges. With regard to the important question of stimulants in the treatment of exhaustion, it may be laid down as a general rule that they are the most powerful remedial agents we possess for this condition; but as there are some cases where their use may not be advisable, it may be well to bear this rule in mind, viz., that when they quicken the pulse and hurry the breathing they should not be continued; but if, on the contrary, they lower and soften the pulse, moisten the tongue, cool the skin, and render the respiration less hurried, they are doing good, and must be persevered in.

Exhibitions.—These are of various kinds, but we need only refer briefly to those of a local character, which are generally got up for some useful purpose. Exhibitions of vegetable products, as of flowers, fruit, &c., are often intended to encourage efforts to improve their cultivation, prizes being offered for the finest specimens. A similar object is contemplated by exhibitions of poultry and various domesticated animals. Sometimes works of art and divers manufactures are exhibited, with the intention of stimulating skill and industry. Frequently exhibitions are held for purely charitable purposes, and objects which are curious and rare, or otherwise remarkable, are collected, a charge being made for admission, and the profits appropriated to the benefit of some institution. In all cases the success of the enterprise depends much upon the ingenuity and tact of those who manage it. As a rule, such exhibitions should be encouraged, not only on account of their avowed objects, but as a means of imparting valuable information to the public, and improving their taste.

Exogenous.—A term in botany, used to indicate the peculiar growth or formation of the wood in by far the largest class of plants or trees in the vegetable kingdom, namely, the *exogens*. The increase in the woody matter in an exogenous tree—take the oak for example—is effected, year by year, by additions to the outside of the wood, formed during the previous year. On seeing a cut section of a tree of this sort, one may tell its age, by counting the number of concentric rings in its stem. The *exogens*, therefore, differ entirely from the *endogens*, the wood of which is formed—as in the palm-tree—by layers added year by year to the inside. (*See* ENDOGENOUS.)



SECTION OF EXOGENOUS STEM.

Exordium.—An introduction, especially that of a sermon or other set discourse; also the preliminary portion of a poem. An overture is an exordium, but the word is mostly used of literary and oratorical compositions.

Exostosis.—This is a bony tumour or growth from one of the bony structures of the body. It is supposed to have its origin in, or to be promoted by, either the scrofulous, cancerous, or syphilitic constitution. The disease generally occurs before the age of puberty. The only treatment is removal by a surgical operation.

Exotics.—The word "exotic" signifies "foreign;" the term exotics is consequently used to denote all those flowers, shrubs, or trees which have been introduced to our gardens from other countries or climes. They are nearly always greenhouse or hothouse plants.

Expectation, in the doctrine of chances, is applied to any contingent event, upon the happening of which some benefit, &c., is expected. This is capable of being reduced to the rules of computation, for a sum of money in expectation when a particular event happens has a determinate value before that event happens. Thus if a person is to receive any sum, as £10, when an event takes place which has an equal chance or probability of happening and failing, the value of the expectation is half that sum, or £5; but if there are three chances for failing and only one for its happening, or one chance only in its favour out of all the four chances, then the probability of its happening is only one out of four, or one-fourth, and the value of

the expectation is but one-fourth of £10, which is only £2 10s., or half the former sum; and in all cases the value of the expectation of any sum is found by multiplying that sum by the fraction expressing the probability of obtaining it. So the value of the expectation of £100, when there are three chances out of five for obtaining it, or when the probability of obtaining it is three-fifths, is three-fifths of £100, which is £60.

Expectation of Life, in the doctrine of life annuities, is the share or number of years of life which a person of a given age may upon an equality of chance expect to enjoy. A rough estimate of any person's expectation of life may be formed by calculating two-thirds of the difference between his or her present age and eighty.

Expectorants. — These are medicines which favour the discharge of mucus from the windpipe and air-passages of the lungs, affording intense relief to these parts when inflamed or stopped up. They are divided into three groups:—1. Expectorants which stimulate, as ammonia, senega, squill, &c. These are most applicable to chronic cases where there is no febrile disturbance. 2. Expectorants which are sedative in their action, as ipecacuanha, antimony, &c. These are applicable to cases of bronchitis in the acute stage, when fever is present. 3. Expectorants which are both stimulating and relaxing, as vapour of water, chlorine, creasote, ammonia, carbolic acid, &c. These are only applicable to chronic cases.

Expectoration.—This is the mucous discharge which is coughed up from the air-passages. It varies in different diseases, being sometimes of a greenish colour and tinged with blood, as in consumption; sometimes of a brown or rusty appearance, and of a viscid character, as in pneumonia; or it may be thin and frothy, as in bronchitis. The expectoration in the chronic bronchitis of old people is characteristic, and is often very profuse. It need scarcely be observed that the exact nature of the matters expectorated is a great guide to the physician, both in the diagnosis and treatment of diseases of the air-passages and lungs. The black or sooty expectoration, which often excites so much alarm, is due to inhaling the sooty particles in the air of large towns: these, when in sufficient quantity, give a colour to the expectoration. The term expectoration is often used wrongly to denote the act of spitting.

Expenses.—The costs of a lawsuit; payment made to witnesses; general outlay or expenditure. In the management of a business, and in the conduct of private or household affairs, it is of extreme importance to regulate expenses so that they shall not exceed the income. Whenever expenditure goes beyond profit or income, capital is drawn upon, and insolvency must eventually ensue. In family concerns it is usually known what the income amounts to, and common sense will dictate the scale of expenditure, which should always, if possible, be less than what a man can say he is able to afford. Saving is a duty, and the consciousness of this is the best regulator of expenditure. A family with an income of £220 a year, and wishing to save £12, must evidently not spend more than £4 a week; and by a proper method of keeping accounts and a little experience, a resolute housekeeper will accomplish all that is required, and learn how to balance outlay with income. (*See* ESTIMATES FOR EXPENDITURE.)

Explosions.—These are of various kinds, the most important of which are enumerated below:—

1. *Chemicals.*—A great many chemical compounds are highly explosive. The fulminates of mercury and silver are well known, from their use in charging percussion caps. Peroxide of acetyl is one of the most violent explosives known. Chloride and iodide of nitrogen explode very readily, the latter even by vibration or by the touch of a feather. Nitro-glycerine, or glonoine, is much used as an explosive for blasting purposes, usually in the form of dynamite, or Nobel's mixture. Picric acid, and the picrates of potassium, barium, strontium, lead, mercury, and iron are all highly explosive. So are acetylene copper and nitrate of diazobenzine. In the preparation of, or in experimenting with, any of these bodies, the greatest possible care should be taken, as many fatal accidents have been caused by them.

2. *Flour-mills.*—Explosions have not unfrequently occurred in the grinding of flour. Fine flour floating in the air will ignite if it comes in contact with a lighted candle, and the fire will immediately spread through the whole cloud of flour-dust. The explosion in the mill itself is doubtless promoted by the high temperature generated by the friction produced in the act of grinding; and hence one reason why the temperature should be kept down by means of ventilation. If the stones are placed too close together they will strike occasionally, producing sparks, which will be sufficient to give rise to an explosion. The use of exposed portable lights in flour-mills ought to be strictly prohibited. Very fine wood-dust has in similar manner given rise to destructive explosions in saw-mills.

3. *Gas.*—If common gas escape into the air it forms an explosive mixture. On the approach of a flame it will instantaneously take fire, and the heat evolved will cause such an enormous expansion of the gases as to burst open the chamber in which it may be confined. Hence if a smell of gas be perceived in a room, no light must be admitted: the supply of gas should be at once shut off from the main, and the doors and windows thrown open to ventilate the house or room. Afterwards the cause of escape may be investigated. The fire-damp in coal-mines is a gas analogous in character. A mixture of one-tenth of this gas with nine-tenths of air is highly explosive, and if safety-lamps are not used when such a proportion of fire-damp accumulates in the pits, a fearful catastrophe is certain to result. (*See* DAVY-LAMP.) The explosion not merely causes an outburst of flame sufficient to kill the pitmen in the neighbourhood, but the rush of air through the workings which is caused by it destroys everything in its course.

4. *Gunpowder.*—The explosive effect of gun-

powder is due to the solid ingredients of which it is composed being suddenly converted into gases, producing a great development of heat, and an immense increase in bulk. The temperature required for producing an explosion varies from about 500° to 600°, according to the kind used, blasting-powder going off at the lowest, and the finest sporting-powder at the highest temperature; but the heat developed in the act is sufficient to fuse gold, and is therefore estimated to rise to about 2,200°. At such a temperature as this the gases produced will occupy at least 1,500 times as much space as the original powder. The danger of such explosions, therefore, consists both in the shock produced by the expansion of the gases, and the heat setting things on fire. The greatest care should always be exercised in the storage of gunpowder, even when kept in the smallest quantities; it should not only be kept safe from the approach of any sparks of fire, but should not be spilled on the floor, as the friction caused by treading upon it might be sufficient to cause it to explode. In powder-factories and magazines the workmen wear flannel shoes to guard against this source of danger. Gun-cotton is equally, if not even more destructive in the force of its explosion, and special care must be taken with it lest it should be mistaken for ordinary cotton-wool or yarn. (*See also* DETONATING COMPOUNDS.)

5. *Steam.*—All boilers are liable to explosion, either from the weakness of the boiler-plate of which they are made, or from improper management. The fur which collects on the inner surface, and which consists principally of sulphate of lime, also tends to impair the durability and safety of the boiler. Explosions are attended with much danger, not only from the expansive force of the steam tearing the boiler to pieces with sufficient violence to wreck everything in the immediate neighbourhood, but from the liberated steam scalding all the people who may be near at hand at the time. As a necessary precaution, boilers must always be furnished with an escape-pipe or safety-valve; but these will not be a sufficient safeguard against improper management, as they may not be capable of letting the steam off as fast as it is generated, and then the internal pressure may accumulate until it becomes greater than the boiler will bear. This may arise from forcing the fires too much occasionally, to make up for their having been previously neglected; or, still more probably, from allowing the quantity of water in the boiler to get too low, and then filling it up again while the plates are overheated, which they are certain to become if there is not water on the inside to keep them cool. In the latter case an explosion is sure to result. The fire should therefore be kept as even as possible, as a precaution against the first of these sources of danger, and the water be supplied constantly and regularly, in sufficient quantity, as a precaution against the second; but if by any chance this should not have been done, the fire must be drawn, and the boiler allowed to cool down before re-filling it. Whenever water is used that contains any quantity of mineral ingredients in solution, the boilers should be seen to frequently, and the fur cleaned off.

Explosive Mixtures.— Nitro-benzine mixed with five times the quantity of nitric acid explodes with great violence if fired by a detonating fuse. Picric acid and an equivalent quantity of nitric acid explodes with intense violence when fired in a similar manner. The mixing of chlorate of potassium with any solid combustible substances is always a very dangerous operation; but if it is allowed to soak in bisulphide of carbon, or in nitro-benzine, it will explode most violently when detonated. Nitrate of potassium and acetate of sodium, in equal parts, when melted together, will explode on the temperature being raised to about 650° Fahr.; and the addition of one-tenth part of sulphur will make the explosion more violent. (*See preceding article.*)

Exposure, Effects of.—Whilst a fair amount of exposure is bracing and invigorating, too much of it predisposes to congestion of internal organs. It is also productive of rheumatic affections, and if excessive may end in death, through stagnation of blood and stoppage of the action of the heart. (*See* FROST, EFFECTS OF.)

Exposure of Infants.—A barbarous custom practised by most of the ancients, except the Thebans, who had an express law to the contrary, whereby it was made capital to expose children; parents who were not in a condition to educate their children being compelled to bring them to the magistrates, in order that they might be brought up at the public expense. Among the other Greeks, when a child was born it was laid on the ground, and if the father designed to educate the child, he immediately took it up; but if he forbore to do this, it was carried away and exposed. Many persons exposed their children only because they were not in a condition to educate them, having no intention that they should perish. It was the unhappy fate of daughters especially to be thus treated, as requiring more expense to educate and settle in the world than sons. Exposing or abandoning a child under the age of two years is by the Statute 24 & 25 Vict. c. 100, s. 27, made a misdemeanour, punishable with penal servitude for three years, or imprisonment for a term not exceeding two years, with or without hard labour, at the discretion of the Court.

Express.—A special message, messenger, or conveyance sent on a particular occasion. The word is, however, also applied to a railway train, or other vehicle which runs at stated times, between certain places, and usually at more than ordinary speed. A newspaper supposed to convey the latest special intelligence is sometimes styled an express.

Extending Tables.—Tables which are used for the dining-room, and may be increased or decreased in length, to accommodate a larger or smaller number of guests at dinner, &c., and which are so made that they may, by an application of the telescopic principle to their framework, be pulled out, and the gap thus opened filled in by the placing on the framework of one, two, or more flaps.

Extortion, in law, signifies any oppression by colour or pretence of right, and in this

respect it is said to be more heinous than robbery itself, as also that it is usually attended with the aggravating sin of perjury. The Act 3 Edw. I. c. 26, provides against extortion by the king's officers. The other Statutes bearing on this offence are the 15 & 16 Vict. c. 87; the 32 Geo. II. c. 28; the 33 Geo. III. c. 52; the 7 Wm. IV. & 1 Vict. c. 30 and 55; the 1 & 2 Vict. c. 110; and the 15 & 16 Vict. c. 73.

Extract of Meat. (*See* EXTRACTS USED IN COOKERY.)

Extraction of Teeth.—This is a painful operation, requiring both skill and dexterity in its execution. To obviate the pain, certain gases, as the nitrous oxide, or laughing-gas, and chloroform, have been inhaled: but the risk, however slight, of some unfortunate mishap occurring, in an operation which, though painful, is not attended with danger, should deter persons from resorting to these expedients, unless under very exceptional circumstances. (*See* TEETH.)

Extracts.—In a technical sense, extracts are chemical preparations of vegetable principles, which are obtained by the evaporation of the liquid employed in extracting them. They are supposed to contain such peculiar characteristics of the substances acted upon as are not so volatile that they must be lost during evaporation; and they must be capable of being redissolved, so as to form a solution like that from which they were derived. Extracts are named aqueous, alcoholic, or ethereal, according as the menstruum employed is water, spirit, or ether. Alcoholic extracts possess much more activity than those prepared with water. All the varieties are very uncertain in strength and quality, and need to be prepared with great care. They are very liable to deteriorate with time and gradually lose their activity. As a general rule, an extract more than six months old is only half as strong as one newly made, and an extract more than twelve months old should be rejected as worthless. These preparations are best preserved by being put into pots as soon as made, by being securely tied up, and by being stored in a cool dry situation. The difference between a "simple extract" and a "compound extract" is that the former is prepared from one, and the latter from two or more vegetable substances.

Extracts used in Cookery.—Preparations of this kind are growing daily in popular favour. They take the form of meat extracts, both solid and fluid, meat lozenges, meat biscuits, vegetable and fruit extracts, and condensed and concentrated foods. The extracts of meat represent the flesh of various animals, and offer a variety and delicacy of flavour which is particularly adapted to invalids, in addition to which they possess, in a modified degree, stimulant and restorative qualities, which make them useful in cases of exhaustion. When taken in combination with wine or good beef tea, the solid extract of meat is excellent; but if it be relied upon as a principal article of nutriment for the sick, it will prove worthless, excepting in cases of very extreme feebleness when the patients are favourably influenced by slight causes. This cannot, however, be said with respect to the fluid extract, which fully retains all the nutritious qualities of the meat, and constitutes a convenient and at the same time a valuable food, containing all the constituents of lean meat, and supplying an equal amount of nourishment.

Vegetable and fruit extracts are chiefly used for flavouring. Vegetable extracts are prepared from garden produce, and they impart to soups, stews, gravies, and hashes a delicacy of flavour which stimulates the appetite and promotes digestion. They are chiefly valuable because they afford an easy method of giving a pleasant taste and a delicious and savoury smell to various dishes, and thus increasing their value; for it is an acknowledged fact that food which is thoroughly enjoyed is far more nourishing than that which is merely taken as a matter of course.

Extracts used in Medicine.—Extracts of medicinal agents are very numerous, and are prepared in different ways. Some are obtained from the fresh juice of the plant, leaves, and flower-tops, by repeated processes of evaporations at different temperatures. These are called green extracts, the most important of which are extract of aconite, belladonna, conium, henbane, and lettuce. Another group of extracts is made from the drugs in a dry state, by the action of cold or boiling water, and subsequent evaporation. Extracts of aloes, calumba, gentian, liquorice, opium, and poppies belong to this class. There is a third group of extracts obtained in the same way as the preceding, except that spirit is used instead of water. This comprises the extracts of Indian hemp, colocynth, jalap, hops, strychnia, and rhubarb.

Extracts used in Perfumery.—In French perfumery these are strong spirituous solutions, simple or compound, of the fragrant principles and essential oils of plants and other substances. Many of these are procured by distillation and direct solution, and their preparation is simple; but the oils and other materials must be perfectly new and pure, and the spirit absolutely scentless and strong. The principal extracts used in perfumery are the "extract de bouquet," "de maréchale," "de millefleurs," "de rondelitia," and "de vanille." From some flowers of exceedingly delicate perfume, highly-scented spirit of the finest quality cannot well be obtained by infusion, distillation, or simple solution of the respective essential oils, and with these a different method is pursued. Of such are the honeysuckle, jasmine, jonquil, may-blossoms, may-lily, myrtle-blossoms, narcissus, orange-flowers, violets, wall-flowers, and several other flowers.

Extradition.—The surrender of a criminal by a foreign government in whose jurisdiction he has sought refuge from prosecution to the state within whose jurisdiction the offence has been committed. The duty of extradition is by no means fully admitted by all states. Generally, no state will make an extradition of its own subjects; and no state will make an extradition of political offenders. As regards the practice

of England in this respect, it is regulated by the Extradition Act, 1870 (33 & 34 Vict. c. 52), and the Extradition Act, 1873 (36 & 37 Vict. c. 60), the former of which enacts that when an arrangement for that purpose has been made with any foreign state, her Majesty may, by Order in Council, direct that the Act shall apply in the case of such foreign state, subject to any conditions to be expressed in the order. But the first-mentioned Act expressly excepts political offences, the Secretary of State having a discretion to decide whether the offence is or is not of a political nature. The Act of 1873 extends the provisions of the principal Act in the case of accessories, who are made punishable as principals.

Extravasation.—This is the term used to signify an escape of some fluid, as blood or urine, from the vessel containing it. Thus we have extravasation of blood on the brain, either as the result of a blow or other injury of the head, or from a blood-vessel giving way, as in apoplexy. Again, the bladder or urinary passages may give way from accident or disease, allowing the urine to escape into the surrounding parts. This is called extravasation of urine.

Eye.—This is the organ of sight, situated in a cavity of the skull called the orbit. For convenience of description it is usual to divide the eye into (I.) eyeball and (II.) appendages. I. THE EYEBALL. This is spherical in shape, measures about an inch from front to back, rather less from side to side, and is composed of three coverings or tunics, enclosing three refracting media called humours. The first tunic or covering is composed of the *sclerotic* and *cornea*, the former occupying five-sixths and the latter one-sixth of the globe. The sclerotic is the strong fibrous covering, of a smooth and shining appearance, which receives the name of the white of the eye. It is covered by the conjunctiva, or mucous membrane, and joins the cornea in front. This latter is the highly-transparent horny structure which covers and protects the anterior chamber of the eye. The second tunic consists of the *choroid* and *iris*. The former is the vascular or blood-distributing membrane, and is lined with a peculiar substance called black pigment. (This pigment is absent in the eyes of pure Albinos.) The latter, so called from its rainbow appearance, is a fibro-muscular, highly contractile veil, suspended behind the cornea in the aqueous humour, and having in its centre an aperture, which is called the pupil. The front surface of the iris is variously coloured; behind it is of a deep purple tint, closely resembling a ripe grape. This imparts to each individual eye its special colour. The third tunic is the *retina*. This is the nervous covering, and is composed chiefly of the expansion of the optic nerve, which pierces the eyeball behind. The humours, or refracting media, of the eye are:—1. *The aqueous*. This fills the anterior and posterior chambers of the eye. It is very small in quantity, and is composed chiefly of water, with a very little salt. 2. *The vitreous humour*. This forms about four-fifths of the entire globe. It is perfectly transparent, is of the consistence of thin jelly, and composed chiefly of water, a little albumen, and some salts. 3. *The crystalline lens*. This is a transparent, double convex body, enclosed in a capsule, and measuring about a quarter of an inch each way. It is situated behind the pupil, in front of the vitreous humour. It undergoes certain changes of colour and shape at different periods of life. After death it absorbs moisture from the fluids of the eye, and forms the peculiar appearance known as the *liquor morgagni*. II. THE APPENDAGES OF THE EYE. These are the eyelids, with their lashes, the eyebrows, and the lachrymal or tear apparatus. 1. *The eyelids*, of which the upper is the larger, are composed of skin, areolar tissue, muscles, fibro cartilage, glands, and a lining mucous membrane (conjunctiva). They are fringed with short thick hairs, arranged in a double or triple row, and called eyelashes. These are turned upwards in the upper lid, and downwards in the lower lid, to prevent interlacing. The eyelids serve as a protection to the eye. 2. *The eyebrows*. These are ridges of thickened integument and muscle, situated on the upper circumference of the orbit, from which short thick hairs grow obliquely. The eyebrows regulate to some extent the admission of light by muscular contraction. 3. *The lachrymal apparatus*. This consists of the lachrymal gland, which is situated on the outer angle, or canthus, of the eye, and secretes the tears; the lachrymal papillæ, which are punctured with little apertures for the escape of the tears, and are observed as little red prominences at the inner angle of the eye; and lastly, the lachrymal sac and nasal duct, through which the tears pass into the nostril.

Eye, Ailments of the.—The eye is subject to a great variety of ailments, of which the following are the most important:—1. *Conjunctivitis*. This is inflammation of the mucous membrane. (*See* CONJUNCTIVA.) 2. *Purulent ophthalmia*. This is a contagious disease, characterised by a copious discharge of matter, by great pain, by swelling of the lids, and serious constitutional disturbance. It is epidemic in Egypt, and is there caused by sand and other matters, which are carried about by the high winds. These get into the eyes, and set up the irritation, which produces ophthalmia. Another form of this disease is gonorrhœal ophthalmia; a third is the ophthalmia of newly-born infants. Purulent ophthalmia, if neglected, is apt to run a very rapid course, and complete destruction of the sight is no uncommon occurrence. In the case of adults, the bowels should be well cleared out, and bark and ammonia or quinine administered. The eyes should be syringed every six hours with a solution of alum and water, or of nitrate of silver (one grain to the ounce of water), and pads of lint or cotton-wool soaked in cold water should be kept constantly applied. In the case of children, an injection of sulphate of zinc and water (of the strength of five grains of zinc to the ounce of water), must be used every four hours, and wet lint kept constantly applied, as just directed. The strength must in all these cases be supported by good food, and wine if necessary. 3. *Corneitis*. This is inflammation of the transparent membrane which covers and protects the chamber of the

eye. It occurs most frequently in scrofulous children, and receives the name of strumous ophthalmia. The affection is characterised by an intense intolerance of light, the sufferer generally lying on the face and burying the head in a pillow. The cornea, naturally so transparent and smooth, looks hazy and rough, with a margin of pink where it joins the sclerotic, or white of the eye; there is also intense tearfulness and great prostration. This disease sometimes goes on to suppuration, and even perforation, the latter permitting the iris to protrude, and giving rise to a condition which is called *staphyloma*. The treatment consists in the application of leeches to the temples, in occasional blisters behind the ear, and in hot poppy fomentations. One or two grains of grey powder at bedtime for a few nights, and quinine and iron, with cod-liver oil, during the day, will be of service. The cornea may also be ulcerated from injury or disease. The proper treatment is that just described for corneitis, with the addition of zinc lotion (five grains to the ounce), and in certain cases touching the ulcer occasionally with caustic (nitrate of silver). 4. *Sclerotitis*. This is inflammation of the sclerotic or white membrane of the eye. It is usually of rheumatic origin, and must be treated with iodide of potassium, colchicum, and other remedies suitable for that disease. The symptoms are a pinky redness of the white of the eye, severe pain both in the eye and in the forehead, great intolerance of light, and prostration. 5. *Iritis*. This is an inflammation of the iris, the membrane which imparts to the individual eye its characteristic colour. It is generally caused by rheumatism, scrofula, or syphilis, and is characterised by alteration in the colour of the iris, by a red ring round it, into which straight streaks of red, like the spokes of a wheel, run from the circumference of the sclerotic, or white part of the eye; there is great pain, and considerable impairment of vision. The treatment consists in at once administering small doses of mercury, to check the effusion of lymph, the best form being grey powder, in doses of two grains, combined with a little henbane, to prevent it running off by the bowels, three times a day. Quinine or bark, with ammonia, will do good if the patient is weak, and blisters occasionally behind the ears will be of service. If gout is suspected, colchicum must be given. If there is evidence of scrofula, iron and cod-liver oil are recommended. To relieve pain, a little extract of belladonna may be smeared over the orbit. 6. *Cataract*. (*See* CATARACT.) In addition to the above, there are diseases of the choroid and retina, which are, however, rare, and the symptoms of which are very obscure. (*See also* EYELIDS, AILMENTS OF.)

Eye-glasses.—Glasses to assist the sight; spectacles. The word is commonly intended for such glasses as are portable, and, whether single or in pairs, are not mounted on the same plan as ordinary spectacles; but as their intention is the same, we refer to the article on that subject.

Eye, Injuries to the.—These may be slight, as from a blow, or from particles of dust; or they may be severe, from a wound, or from the presence of some foreign body, as lime, steel filings, &c. If some small matter gets into the eye it is best to bear patiently for a short time, avoiding rubbing, in order to give the lids and tears a chance of removing the offending matter, which they generally do if left to themselves. Should they not succeed, then the eye should be examined, the matter detected, and wiped out by means of a soft handkerchief folded to a point, or by a camel's-hair brush. If this fails, through not being able to reach the object, then the lid may be turned inside out, by simply pressing a thin rod (a knitting-needle will do very well) flatly on the upper margin of the lid, and with the thumb and finger of the other hand turning the lid over upon it, when the matter can easily be removed. If lime has got into the eye, it should be at once bathed with vinegar and water. Other foreign bodies, as filings, splints, &c., require removal by forceps. Incised wounds require, as a rule, fine stitches with silver sutures and cold-water applications; and burns and scalds must be treated as recommended under that head. Lastly, injuries of the eye may produce any of the diseases mentioned under EYE, AILMENTS OF THE.

Eye-water.—This may be described as a lotion for the eye, and is generally composed of either sulphate of zinc, dissolved in rose-water, or of Goulard water. If sulphate of zinc is used, the strength should be four or five grains to the ounce of water; plain water may be substituted for the rose-water.

Eyelashes and Eyebrows, Loss of.—This is a form of baldness, and is due to the same causes as produce a deficiency of hair in other parts of the body, and must be treated in the same way—viz., by stimulating lotions containing cantharides, by blistering, painting with iodine, and by tonics, especially iron and cod-liver oil. The condition is sometimes congenital.

Eyelet.—A small eye; a hole in leather, textile fabrics, &c., for the passage of a lace or cord. An eyelet usually has stitches worked round it, or is protected by metal, inserted and fixed by a machine. A lace-hole is an eyelet, but is not often so called.

Eyelids, Ailments of.—The ailments of the eyelids are:—1. *Overflow of tears*. This may be due either to the irritation of a foreign body or to some ailment of the eye, or to some mechanical obstruction by reason of which the tears cannot escape through the lachrymal apparatus into the nasal duct. When due to the first two causes it must be treated as previously directed under EYE, AILMENTS OF THE. When due to the last named cause, an operation is necessary. Abscess of the lachrymal sac, resulting in lachrymal fistula, causes an overflow of tears, and also requires surgical interference. 2. *Eczema*. This is a vesicular eruption which frequently attacks the margin of the lids, causing them to adhere during sleep. Frequent bathing with warm water, and the careful smearing, at bedtime, of a little nitrate of mercury ointment along the margin of the lids, will soon effect a

cure. The general health must be attended to at the same time. 3. *Styes.* These are small but painful boils. They require hot fomentations and poultices, and should not be squeezed. An aperient will probably hasten their disappearance. 4. *Entropium.* This is a turning-in of the lid. Painting with collodion, if the case is a slight one, may be of service, but if severe an operation is necessary. (*See* ENTROPIUM.) 5. *Ectropium.* This is an eversion or turning-out of the lid. (*See* ECTROPIUM.) 6. *Ptosis.* This is a falling or drooping of the lid, due to paralysis of the nerve which supplies the elevating muscle, the levator palpebræ. 7. *Trichiasis.* This is a condition in which the lashes grow inwards, causing great irritation and tearfulness. The offending hairs must be gently pulled out with a pair of forceps, care being taken not to break them.

Eyesight, Abnormal or Defective.—This comprises (1) squinting, (2) long sight, (3) short sight. 1. *Squinting.* This may be either convergent (*i.e.*, inwards), or divergent (*i.e.*, outwards). Both forms are due to unequal action of either the internal or external recti muscles, and can, in most cases, be very much improved by a surgical operation. 2. *Long-sightedness* (*presbyopia*). This is an incapacity for seeing near objects clearly. Glasses which do not enlarge but simply brighten, and which are neither convex nor concave, should be worn. 3. *Short-sightedness* (*myopia*). This is a condition requiring proper spectacles and avoidance of too close eye-work.

F

Fabrics.—From the Latin *fabrica*, from *faber*, a worker in hard materials. This word is often applied to those manufactures of the loom which have been of late years more properly termed textile or woven fabrics. (*See* TEXTILES.)

Fabrics, Cotton:—The term fabric was used more especially to designate Indian muslins, denominated "the finest fabrics of the East." Under the heading of TEXTILES are given particulars of the cotton manufactures.

Fac-simile.—An exact copy, or correct imitation, as of a person's handwriting, of a drawing, engraving, model, &c. The art of producing fac-similes of ancient and modern documents is now of considerable importance. The work may be executed by three principal processes: (1) by simple drawing, which is copying by sight; (2) by tracing, which preserves the proportions and forms of the original; (3) by photography in one of its many applications. This last is the most satisfactory in various respects, and has been extensively employed in producing fac-similes of ancient manuscripts, maps, prints, &c. (*See* PHOTO-LITHOGRAPHY.)

Face-ache. (*See* NEURALGIA.)

Face, Ailments of.—These are very numerous, and, owing to their situation, cause much anxiety and discomfort. The most important are:—1. *Salivary fistula.* This is a condition in which the saliva dribbles out on the cheek, owing to the injury through a wound or ulcer of Steno's duct, which connects the parotid gland with the inside of the mouth. It can be cured by a slight surgical operation. 2. *Hair-lip.* This is a fissure of the upper lip. It may be either single or double. When single, it is generally situated on the left side, a little way from the middle; when double, there are fissures on both sides, with a flap of skin between. This condition is usually complicated with deficiency of the bones behind, and what is called cleft palate. It is due to arrest of development before birth, and can be remedied by a surgical operation, which should be performed when the infant is a few weeks old, as the earlier it is done, the more successful it will be. 3. *Epithelium,* or so-called cancer of the lip. This is a common disease, and is generally due to some local irritation about the mouth, as smoking a short pipe, biting irritating matter, and decayed teeth. It usually begins as a crack, wart, or hard lump on the lip, just at the beginning of the red border, and remains stationary, it may be for a long time, without causing much pain or inconvenience. After a time, under some special irritation or from bad health, an ulcer forms, which spreads rapidly, eating the lip and undermining the health. If this is not checked by a surgical operation, which must remove all the diseased part, death will ensue from exhaustion. Cancer of the lip occurs generally after middle age, and if removed in time, and thoroughly, seldom recurs. 4. *Cancrum oris.* This is a gangrenous ulcer of the cheek. (*See* CANKER.) 5. *Lupus.* This is a corroding ulcer of the face, usually beginning at the nose, which is frequently eaten away, and spreading outwards. It is best treated with powerful caustics, and by attention to the general health. 6. *Lipoma.* This is an abnormal growth of the skin of the nose, producing a very unsightly appearance, and must be removed by a surgical operation. 7. *Mumps.* This is an enlargement of the parotid gland, common to children. (*See* MUMPS.) 8. *Tumours.* These may be either malignant or non-malignant, and require removal with the knife. 9. *Wounds of the face.* These, owing to the mobility of the face, necessitate special care in their treatment to prevent disfigurement. They usually require to be sewn with either silk or silver sutures. 10. *Face-ache.* This is neuralgia of the face. (*See* NEURALGIA.) 11. *Facial palsy.* This is paralysis of the muscles of the face, and may be due either to some lesion of the brain, as apoplexy, or to catching cold by sitting at an open window. In the former case there will usually be paralysis of at least one side of the body, and other symptoms indicative of the seat of the disease. When due to cold only, the paralysis is more complete as regards the expression of the face, which is often painfully distorted; but the symptoms soon pass away, and in a few weeks there will be complete recovery. There is therefore no occasion for alarm, though the symptoms are sometimes very distressing. As in some cases the eye cannot be closed, a

veil may be worn. No treatment is necessary, except to keep the bowels relieved and support the strength.

Face, Painting on.—The mischief done by this process cannot be overrated. By it the natural secretions of the skin are checked, the colour of the face destroyed, and the seeds of such diseases as cancer and consumption developed. Skin affections of an intractable kind are originated by it, and all this apart from the nature of the agents employed, which may indeed be harmless *per se*, but may, and no doubt very often are, exactly the reverse.

Factor.—An agent employed by manufacturers, merchants, &c., to buy or sell goods for them, generally on commission. (*See* Commission; Commission Agents.) In Scotland the term *factor* has precisely the same signification as *steward* in England.

Faculty.—In ecclesiastical law, a licence or authority, as for marriage without banns, or for the erection of a monument within a church. In academical usage, faculties are those groups of subjects in which degrees are granted by the universities, the oldest being the faculty of Arts. (*See* University.) There are three other principal faculties in the universities of Great Britain—Divinity, Law, and Medicine. There is also a faculty of Science in the University of London. Music, in which degrees are also granted, is not correctly a faculty in itself, but only a branch of the original faculty of Arts. (*See* Arts Degrees; Degrees, Collegiate.)

Faded Colours, To Revive.—The use of bullock's gall, diluted in the proportion of one gall to a bucket of water, and about a quarter of a pound of soft soap, melted and worked into a good lather, is an excellent preparation for reviving the colours in carpets. A pint of the gall, two ounces of powdered alum, two ounces of salt, and, when settled, an addition of ten drops of essence of lemon, may be applied with a sponge, and if well rubbed on will be found very effectual. All coloured woollen materials may be restored in this way. Brushing and shaking will be necessary before the scouring. The colours in muslin may also be treated with ox-gall, alum, and salt. For restoring the black in silk and black lace, a decoction of green fig-leaves may be used. Boiling water should be poured on the leaves, and the water used when cold. The colours in cotton goods or those in silk, with the exception of black, cannot be revived.

Fæcula. (*See* Fecula.)

Faenza. (*See* Fayence.)

Faggots, or Fagot.—This word is used to denote bundles of sticks, twigs, or small branches of trees which are to be utilised as fuel, or to be employed in raising batteries and filling ditches. In mediæval times the so-called heretics that were to be burnt were surrounded with blazing faggots. In cookery, a faggot is understood to be an assortment of vegetables or herbs employed for seasoning.

Fahrenheit. (*See* Thermometer.)

Faience. (*See* Fayence.)

Faille.—This is a particular kind of silk material which has of late years been introduced and brought into extensive use for evening dresses, and for the trimmings of bonnets and hats. In appearance it is dull, not having the brightness of glacé or even of grosgrain. It is soft, but has much more substance than foulard. Faille looks better in light than in dark colours. It is an inexpensive kind of silk.

Fainting.—This is the temporary arrest of the action of the heart through some shock to the nervous system. It is also frequently the mode of death in persons suffering from disease of the heart. The treatment in fainting is to expose the person freely to the air, removing the clothing about the neck and chest for that purpose. Cold affusions with wet towels, or by pouring cold water over the face and chest, will generally arouse to consciousness. A little wine or brandy, or a few drops of sal volatile, may also be given with advantage.

Fairy-ring. (*See* Champignon.)

Fall.—A veil fastened to the extreme edge of the bonnet, and falling in folds on each side. It was much in fashion some twenty years ago, but now used only by widows advanced in life.

Falling Sickness. (*See* Epilepsy.)

Falling Stars. (*See* Meteors.)

False Character to Servants. (*See* Character to Servants.)

False Imprisonment. (*See* Imprisonment, False.)

False Pretences, Obtaining Property, &c. by.—A misdemeanour at common law of the nature of larceny, punishable by fine and imprisonment, under 24 & 25 Vict. c. 96, s. 88, which enacts that whosoever shall, by any false pretence, obtain from any other person any chattel, money, or valuable security, with intent to defraud, shall be guilty of a misdemeanour, and liable to be kept in penal servitude for the term of three years (which has been increased to five years by 27 & 28 Vict. c. 47), or to be imprisoned for any term not exceeding two years; but if upon trial for such misdemeanour it shall be proved that he obtained the property so as to amount in law to larceny, he shall not be acquitted of misdemeanour, and no person tried for such misdemeanour shall be prosecuted for larceny upon the same facts. Whosoever shall, by any false pretence, cause or procure any money to be paid, or any chattel or valuable security to be delivered to any other for the use or benefit, or on account of, the person making such false pretence, or of any other person, with intent to defraud, shall be deemed to have obtained such money, &c., within the meaning of sec. 88 (sec. 89). Whosoever, with intent to defraud or injure any other person, shall by any false pretence fraudulently induce any other person to execute, make, endorse, or destroy the whole or any part of any valuable security, or to write, impress, or affix his name, or the name of any other person, &c., or the seal of any body corporate, &c., upon any paper or parchment, in order that the same may be afterwards made or converted into, or used or dealt with, as a valu-

able security, shall be guilty of a misdemeanour, and liable to the same punishment (sec. 90).

False Swearing. (*See* PERJURY.)

False Weights and Measures. (*See* WEIGHTS AND MEASURES, FALSE.)

Fan Lace. (*See* LACE.)

Fancy Costumes.—These, as worn at fancy dress balls, may be divided into three or four classes—viz., historical, national, characteristic (the subjects being taken from books, plays, and pictures), and the fancy dress proper, such as night or morning, winter, snow, and others. The authority generally consulted for historical dress is Planché, a writer whose works are the reference books for every one on this and kindred subjects. The reigns of Louis XIV. in France, and Charles I. and II. in England, are most in favour for the beauty of their dress. What are called in France *costumes poudrées* are of that era, and are becoming to both old and young. Photographs and prints of national dress are easily obtained, or books of travel may be consulted. The subjects of pictures are also charming, such as Millais' "Huguenots," &c.

Fancy Fairs. (*See* BAZAARS, HINTS ON.)

Fancy Work.—In this term is included all work which is ornamental, even though it be employed in the making of useful articles. Thus knitting and crochet, tatting, netting, embroidery in all its forms, and canvas work of every class, would be denominated fancy work, in contradistinction to plain work, which signifies the mere sewing together of materials without ornamentation. Under this head may also be classed the innumerable articles which are styled fancy goods, such as the pretty needle-cases, pin-cushions, and many knick-knacks of that description which are in these days made by the help of machinery.

Fans.—The price of these varies from a few pence to many pounds, and therefore there is great choice afforded. This exists not only in the materials of which the different fans are composed, but also in the workmanship displayed. Ivory, ebony, tortoiseshell, mother-of pearl, and sandal-wood are severally employed for the handles; and paper, parchment, feathers, silk, satin, gauze, and lace for the leaves. The least expensive fans are those of paper, which are imported in great numbers from Japan. The most costly are those on which designs or small pictures have been finely painted by an artist's hand. The latter are principally supplied by the French, who are famed for the beauty of their fans—a branch of industry which is but little followed in England. The Spanish fans are very handsome, and exhibit good workmanship; they are larger and heavier than the French and Japanese fans. Ancient records show that fans have long been used in the East; it is supposed that they were introduced into Europe after the Crusades. At that period their form was a bunch of feathers fastened to a wooden or golden handle. In the sixteenth century certain French Jesuits visited China, and on their return to France brought specimens of the Chinese folding fan. This improvement was at once adopted.

Fare, Bill of. (*See* BILL OF FARE.)

Fares. (*See* CABS AND CAB-FARES.)

Farina.—This is a Latin term for meal or flour which has been adopted into the English language, and is often made use of in scientific works. In botany, farina is the fine dust or powder contained in the anthers of plants. In domestic economy, it signifies the glutinous part of wheat and other seeds which is obtained by grinding and sifting. Farina consists of gluten, starch, and mucilage. Of the different varieties, that produced by the pounding of the seeds is the most valuable. In South America, cassava meal is generally called farina, and constitutes an important article of food; it contains, along with starch, vegetable fibre and albuminous substances.

Farinaceous Food.—Farinaceous food is that form of diet which is made of meal or flour, as distinguished from animal and vegetable food. The nourishment required by the body to supply the waste that is continually taking place consists of gluten, fibrine, albumen, starch, fat, sugar, and saline matters, and many of these may be obtained from farinaceous foods. The absence, however, of all mineral and saline matters in nearly all farinaceous compounds renders them quite unfit for an exclusive article of diet, especially for young children. The nutriment contained in a pound of meat exists in a very much smaller degree in a pound of bread, still less in a pound of potatoes. As an auxiliary to animal food, farinaceous diet is most invaluable, but it is a great mistake to imagine that it can be made to act as a substitute for it. Bread, biscuits, cakes, puddings, pies, and many similar preparations are included among farinaceous foods.

Faro.—This game is one of so speculative a character that it has an unenviable notoriety among those in which chance as well as skill are both prominent elements. The name is probably a corruption of Pharaoh. The game is played with a complete pack of cards, which are dealt out in a peculiar style by the banker or keeper of a gambling-table. The play is for money, of course, and the odds are always, and often largely, in favour of the banker. The mode of the game we need not describe, but we may observe that it can be played by any number, at an oval table covered with a green cloth and otherwise prepared for the purpose. A set of special terms is used in connection with faro.

Fashionable Habits.—These may be either harmless or objectionable. They relate to dress, conversation, amusements, social arrangements, and manners in general. In all these there is what is called a fashion, and whether the fashion be good or bad, people will become its obsequious devotees, without regard to propriety, dignity, self-respect, comfort, or expediency. But happily, as society is constituted among us, no one loses caste or estimation by repudiating what, however fashionable it may be, is inconsistent with personal excellence and high principle. Thus if gambling and profane language are accounted fashionable, any member of good society can repudiate them

by word or deed, as not required by true etiquette and politeness, as real breaches of good manners and sound morals, and therefore as social blemishes. On the other hand, all persons who wish to occupy a position in good society must expect to conform to the fashionable customs of the day, so far as they are beyond reproach and characterise the sphere in which one moves.

Fashionable Society. — Whether we say "society," "fashionable society," or "good society," we mean much the same thing—namely, that section of the community which is supposed to represent most perfectly the manners, and especially the refinements and elegancies of the time. Fashionable society is necessarily exclusive, and comprises cliques and coteries to which formal introduction is required, as well as such rank, station, wealth, or accomplishments as are taken to be necessary conditions. "The Upper Ten Thousand," as fashionable society is in its most restricted sense often called, is supposed to comprise the aristocracy of the nation. But good society exists beyond this charmed circle, and includes not only those who are in the peerage, but others who are in the upper strata, whether as landed gentry, county families, wealthy merchants and manufacturers, or members of various professions. All these furnish their contingents to fashionable society, and justify their claim to belong to it by conforming more or less perfectly to those fashionable habits which are the subject of the preceding article.

Fasting, Effects of. — These depend upon the extent of the fasting and the constitution of the person who fasts. Fasting, if unduly protracted, is injurious to digestion, deranges the secretions, and impairs health. But if only occasional, then no great harm can accrue, but rather good, if the system requires the self-denial. Long sustained fasting is said to increase the activity of the brain, and this will doubtless be the effect upon those who work the brain only, and not the body; but it will have its limit, when the debilitated and diseased body begins to re-act upon the brain and to dull its brightness. Those who have work to do require to be fed, and fed regularly, and any withdrawal or departure from this rule will carry its own punishment. (*See* DIET; DIGESTION; FOOD, &c.)

Fat as Food.—Fat makes fat, and therefore a certain amount of that food, except under certain conditions, is absolutely essential to perfect health. These conditions are an enormous amount of fat in the body—when a Banting diet of a modified kind becomes necessary—and the presence of certain diseases. In consumption, and other affections of a wasting character, a large proportion of fatty food should be taken, and will often prove highly beneficial. It is remarkable that children of a consumptive or strumous habit, as a rule, dislike fat, though so necessary for them, and this dislike is often a guide to the state of the constitution. Fat disagrees with some people, giving rise to indigestion; and in such cases, unless specially indicated for other reasons, its use must be limited. (*See* DIET; FOOD, &c.)

Fatigue, Effects of.—These are drowsiness, languor, stiffness of the limbs, and temporary prostration. The best remedies are the warm bath and a long sleep.

Fatty Degeneration.—This is a condition in which fat is deposited in parts of the body where it should not exist, or should at least be present in very small quantities only. It is a sign of the decay of vital power, and, except in the case of the scrofulous, is seldom seen before middle or old age. The chief seats of fatty degeneration are the heart, liver, and kidneys. When the heart is affected it becomes flabby and dilated, and does its work badly; fainting fits frequently occur; and death may, and often does, result from this cause alone. When the liver is affected, dropsy generally supervenes, followed by exhaustion and death. When the kidneys are the seat of the disease, the urine will be scanty, high-coloured, and albuminous. It is seldom, however, that one organ only is affected, the disease being usually found in all the above-mentioned organs at the same time. Fatty degeneration is characterised by great muscular flabbiness and want of energy, the sufferer looking at the same time fat and comparatively speaking well. Disease of the urinary organs often excites fatty degeneration. The treatment consists in placing the sufferer under the best condition of healthy living, and carefully watching for any tendency to fainting. A little bottle of sal volatile should be always at hand for this purpose, of which from half a tea-spoonful to a tea-spoonful should be given. If this is not available, a little wine or brandy may be given.

Fauces.—This is the term popularly applied to the whole of the back part of the mouth and part of the gullet as well. It is frequently the seat of inflammation, ulceration, and post-nasal-catarrh, requiring the use of gargles, inhalations, and caustics.

Favours.—In former days it was the custom for all the members of a bridal party to be adorned with wedding favours, or true-love-knots, as they were often termed, which were presented after the ceremony. Those worn by gentlemen were in the form of a rosette; those given to the ladies resembled miniature bouquets. In the present day favours of this description are distributed amongst the servants only: they are made of white satin ribbon, with orange blossom in the centre.

Favus.—This is a disease of the skin which usually attacks the head. It appears as an eruption of pustules, which run into each other and, matting the hair, form a scab. This scab has a central depression, hence the term favus. The disease is due to a parasite (*Achorion Schœnleinii*), which makes its habitat in the hair follicles, exciting the eruption. The treatment consists in cutting the hair as close as possible and washing well with soft soap and warm water. Poultices should then be applied to soften the scabs, and the iodide of sulphur ointment well smeared over the whole head for a few nights. If this does not succeed, a solution of sulphuric acid or nitrate of silver, or the vapours of iodine and sulphur, may be tried.

The general health must be improved by pure air, good food, and by such medicines as iron and cod-liver oil.

Fawn-colour, or the colour of the fawn; better known by the more modern name of *café au lait*. It is a warm drab.

Fayence, otherwise written Faenza (probably from the original place of manufacture), and Faience, and also called Majolica (from Majorca, where it was produced at an early date), or Maiolica. The oldest dated pieces belong to the years 1475, 1477, and 1485. Fayence is a kind of earthenware, often beautifully modelled, highly glazed, and artistically decorated. Ancient specimens often bear the names or monograms of their makers, and other inscriptions, and when of special excellence or rarity command almost fabulous prices. The ware has been very successfully imitated in modern times, and ornamental pieces of really good work can be purchased at a moderate outlay.

Feather.—A natural flaw or partial crack which appears sometimes in precious stones of all kinds. Feathers are found in the very substance of a gem, and diminish its value by lessening its brilliance and beauty; they are, however, very often practically hidden by the skill of the cutter and setter. Purchasers of jewels should carefully inspect them in search not only of feathers, but of "clouds" and "sand." The clouds are of different tints, and are so called from their appearance; the sand is also of various colours, and resembles minute seeds.

Feather-beds.—Feather-beds are much less common than they were some years ago—spring mattresses being preferred by most people, on account of their comfort and cleanliness. When feather-beds have been in constant use some time (say four or five years), the feathers should be re-dressed. An empty room devoid of furniture will be found the best place for liberating the feathers from the tick. After being turned out, all clotted lumps should be rubbed away. The feathers should then be placed, a few at a time, in a fine wire or wicker sieve, the dust and other impurities should be taken away, and the whole should be carefully examined, and nothing allowed to remain that would destroy the softness and elasticity of the feathers. Before returning the feathers the ticks must be washed, or, if necessary, new ones may be substituted. The tick should be strong and of good material, as otherwise the dust from the feathers will penetrate through it and cause much unnecessary labour; though when feathers have been thoroughly cleaned by the steaming process very little dust will accumulate.

Feather Flowers.—The manufacture of feather flowers is a comparatively simple and easy process; the requisite materials may easily be obtained, and the work will be found a very pleasant occupation. Feather flowers are often more admired than those made of wax, owing to the natural and graceful appearance they are made to assume. Some specimens have been exhibited the effect of which has been very beautiful. In their manufacture the best white swan or goose feathers are used, and these should be as fresh as possible. They will need to be stained to imitate the natural flowers. The plan generally adopted in making feather flowers is to have a real flower as a copy. Its leaves must be carefully pulled to pieces, and the shape of each leaf cut in tissue paper. The feather is then placed on the paper and cut to the same shape. The various dyes required may all be made by mixing different chemical preparations, though much trouble in this department may be spared by using prepared dyes, which will prove to be both more convenient and economical. Should it be impossible to obtain real flowers as a guide, good artificial ones may be used instead. The latter are now made in such perfection that they may very well stand as models for a purpose of this kind.

Feather Screens. (*See* SCREENS.)

Feather Work.—Very pretty ornamental work may be made from feathers, such as fans, screens, mats, and many other fancy articles. When the colours are well chosen and the feathers tastefully arranged, a very pretty effect may be produced. Peacocks' feathers are extensively used for ornamental work; both the large stars or eyes are used, and also the small brown green-and-gold feathers growing on the neck and on the back of the bird. In making feather ornaments, a frame has to be prepared the size and shape required, and upon this the feathers are gummed. The beauty of the work consists in the tasteful arrangement of its colours. Very handsome mats for the drawing-room, to be placed under the piano, near the window, or to be used as hearthrugs, are made from feathers. These are made of one colour only, or in a pattern, according to taste. Hats, muffs, jackets, and dresses are, too, sometimes trimmed with feathers.

Feathers, Dyes for.—For *black*, impregnate with a mordant of acetate of iron, and boil in a decoction of madder and logwood. *Blue:* Oil of vitriol, one ounce; indigo, in powder, one drachm; mix well, and leave standing for a day or two. Put a tablespoonful in a quart of boiling water, stir well, put the feathers in, let them simmer for a few minutes, then lay them out to dry. *Green:* Mix the indigo liquid with turmeric, pour boiling water over it, and leave the feathers to simmer till the right shade appear. *Lilac:* Put two tea-spoonfuls of cudbear in a quart of boiling water, and let it simmer a few minutes before immersion of the feathers. *Pink:* Put three deep-pink saucers in a quart of boiling water, with a little cream of tartar. Add a saucer for a deeper shade. Leave the feathers in the dye for several hours. *Scarlet:* Dissolve a tea-spoonful of cream of tartar, a tea-spoonful of prepared cochineal, and a few drops of muriate of tin, in a quart of boiling water. *Yellow:* Put a table-spoonful of the best turmeric into a quart of boiling water; mix well. For a lighter or deeper shade, add more or less turmeric; to give an orange tint, add a very small quantity of soda.

Feathers for Beds, Cushions, &c.—The feathers used in making cushions, pillows, and similar articles differ both in colour and quality. The best feathers are clean white, fluffy, and curled, and have down on the stems. The common kinds have very little down, so that in choosing feathers the quantity of down on them may be taken as a safe guide as to their quality. Before buying a feather-bed it is advisable to have a portion of the tick ripped, that no mistake may be made. Should any hard lumps be found, they may be considered a proof that the feathers are of an inferior kind, as the best feathers are perfectly light, soft, and smooth. Steaming is now considered the best means of purifying feathers.

Feathers for Ornaments.—Feathers employed for ornamental purposes differ very much in their form and colour, the use to which they are appropriated depending more upon the form than upon the colour, as they may easily be dyed any colour required. We are indebted to many foreign birds for the beautiful feathers we use as ornaments, and among them all the ostrich holds the first rank. Pure white ostrich feathers are of great value, the black ones being used for the Highland regiments and for funeral trappings. The feathers taken from the male ostrich are superior to those of the female; those, too, taken from the back and above the wings of the bird are better than the wing or tail feathers. The feathers are first assorted according to quality; they are then cleaned by being washed in soap and water, then rinsed, drained, and shaken. The ribs are scraped with bits of glass, to make them pliable; and if intended to retain their natural colour, all they need after this is the curling. The grey and white marabou stock-feathers, which are imported from Calcutta, are exceedingly elegant, and are used for head-dresses; pure white marabou-feathers are very costly. Cocks' feathers, bird-of-paradise feathers, those of the osprey, egret, swan, turkey, pheasant, grebe, peacock, and many others, are all made use of as ornaments and for military plumage.

Feathers, To Curl.—The best method of curling feathers is to pass a blunt knife over the filaments with the aid of the thumb, and this is the plan generally adopted by those who understand the business. Great care must be taken not to cut or break the feather, which may easily be done should the knife be too sharp. The plan of holding a feather to the fire until it curls is not advisable, as it is apt to make it rotten.

Feathers, To Dress, &c.—When goose feathers are to be used for beds it is advisable in plucking the geese to remove all the coarse outer feathers first, in order that the fine down growing under them may be kept separate, as this forms the most valuable kind. Unless the birds are fully grown, the feathers will be of little use: those taken from young birds have too much quill and too little down to be of any great value. The feathers, too, of birds that have been long kept should not be plucked for use, as the taint of the high meat can never be entirely removed. In cleaning and drying feathers great care must be exercised to make them pure and clean. Sometimes they are merely exposed to the sun until perfectly dry, and then beaten to remove any loose dirt. More frequently, however, the feathers are put into warm water, to which is added a little soda, or a weak solution of chloride of lime. After this they are rinsed in cold water and put to drain on a cloth, then dried as before in the sun or in a stove. When dried in a stove they should be put in bags made of coarse muslin, and placed in the oven with the door open until the drying is complete, when they are fit for use.

Febrifuge.—This is the term used by medical men to signify certain medicines which relieve thirst, lower the temperature, cause perspiration, and in other ways prove beneficial in feverish affections. The term includes such refrigerants as acetic, citric, and tartaric acids, as well as saltpetre and cream of tartar. It also includes the so-called anti-pyretics, as quinine, chloral hydrate, alcohol, digitalis, the cold bath, bleeding, and purging. Lastly, it includes the diaphoretic medicines. (*See* DIAPHORETICS.)

Fecula, also spelt Fæcula, signifies starch, a substance which is found in the form of granules of different form and size in nearly all flowering plants. It is more abundant, however, in the roots and in the seeds, where it is laid up in cells, intended to be assimilated by the plant, or eaten up, as it were, to aid in its future growth. The granules of starch in the plant—in a potato tuber, for instance—are contained in cells; and by bruising the root or other portion of the plant containing the starch, and mixing it in water, and afterwards leaving it at rest a while, the fecula is easily obtained, as the cellulose falls to the bottom. The supernatant liquor is poured off and allowed to settle, when the starch is found at the bottom. Starch differs from sugar, in that the former is not fermentable; but starch may be readily changed into sugar by the use of agents, such as sulphuric acid, which cause fermentation.

Feeding Bottles.—When from illness or any other cause a mother finds that she cannot suckle her baby, the infant must either have a wet nurse, or be what is called "brought up by hand." When the latter plan is decided upon, the feeding bottle is the best thing from which its food can be given. It is so because in it the process of nature is imitated as closely as possible. In the natural mode of nourishment the food is introduced slowly, and by suction, into the stomach of the child. In the act a quantity of saliva is secreted, and this mixes with the milk and aids digestion. The objections which are urged against the use of feeding bottles have arisen from their abuse, not from their judicious use.

In choosing the bottle, care should be taken to obtain one which, however placed, is so constructed that the contents cannot escape. The tube, too, should be perfectly flexible, and the glass rod should on no account be dispensed with. Whatever description of bottle is chosen, everything connected with it—bottle, tube, rod, and mouth-piece—must be kept scrupulously clean and sweet. These must be washed out thoroughly each time the bottle is used, and must then be

laid in cold water until they are again wanted. If this is not done, the particles of food which remain in the bottle will become sour, and will almost certainly disorder the baby's stomach. It is a good plan to keep two bottles, in order that the one may be sweetened while the other is used. A small brush should be employed to clean the nipple, which should be soaked in cold water for some hours before being used.

When a child is being fed by the bottle, its head should be slightly raised, and it should be placed as nearly as possible in the position which it would be in if the natural food could be given to it. While taking food it should be shielded from glare, heat, cold, or noise. As soon as the bottle is empty it should be removed, and on no account should the empty bottle or the teat be left for the child to play with. Fruitless sucking is not only likely to fill the stomach of the child with wind, and so cause it great pain, but it may produce deformity of the jaws. The practice so often resorted to by careless nurses of putting the child into bed, and giving the bottle to it and leaving it there, cannot therefore be sufficiently deprecated. If any food is left in the bottle after a meal it should be thrown away. If these points are attended to it will be found that a baby fed with a feeding bottle will thrive much better than one fed by means of a spoon or boat.

Fee-simple, Fee-tail. (*See next paragraph.*)

Fees.—The term fee is somewhat unfortunate in having a variety of significations really distinct from each other. The primary meaning is said to be cattle, from which it came to denote wealth, property, or any sort of gain. The following applications of the word should be noted:—1. As to the tenure of land, an estate in fee-simple is one over which the proprietor has absolute control; a conditional fee is limited to a certain class of heirs, hence it is also called fee-tail; a base, limited, or qualified fee ceases with certain conditions. In England, all lands, except Crown lands, are held in fee. 2. The reward or honorarium due to a physician or to a lawyer, both of which are guaranteed by legal enactment. 3. Sums of money payable to clergymen for special services, to clerks and others in public offices and in connection with various institutions, the honours or benefits of which are conferred subject to certain fixed payments. 4. In a looser sense, the word fees is applied to gratuities to servants and dependants who have no legal right to them, and only receive them as customary or voluntary gifts, or as actual bribes.

Fees to Servants, &c. (*See* VAILS.)

Feet, Ailments of.—The chief ailments of the feet are:—1. *Deformities.* These usually occur before birth, but may be the result of an accident. (*See* CLUB-FOOT.) 2. *Corns and bunions.* (*See* BUNIONS; CORNS, TREATMENT OF.) 3. *Gout.* The typical seat of this disease is the great toe, though the gouty inflammation may attack any part of the feet or body. (*See* GOUT.) 4. *Tender feet.* Many people suffer very much from this condition. The best treatment appears to be daily bathing the feet in tepid water, drying well after, and wearing very thick socks or stockings, as well as easy-fitting boots. 5. *Cold feet.* This condition is generally due to languid circulation and, it may be, want of proper exercise. To remedy it, thick lamb's-wool socks should be worn, and brisk exercise taken daily. Tonic medicines, as iron, will be of service. 6. *Perspiration.* An undue amount of this, sometimes of an offensive character, is a frequent ailment of the feet. To relieve it the feet should be well washed at least once a day with soap and water, and carefully dried, especially between the toes. They should also be soaked for a few minutes in weak lime-water, with the chill taken off, before going to bed, and well dried after. The general health must be attended to, and tonics, as iron, and aperients, as compound rhubarb pill, given for some time. Powdered zinc dusted over the feet, and especially between the toes, has also been found very useful in this affection.

Feet, Care of.—It is most important that those who are obliged to walk much should take great care of the feet. Thick stockings and well-fitting boots are essential to comfort and easy walking. The foot-bath of warm, tepid, or cold water, whichever is found by experience to suit best, should be used daily, care being taken to dry well afterwards with a soft towel. After a long walk, the foot-bath will afford much comfort; if the reclining bath can be obtained, so much the better. Chafing of the feet, if very slight, will be benefited by simply rubbing them with a little olive oil; if severe, wet lint, with oil-silk or zinc ointment, will be necessary. It is often wise, before starting for a long walk, to rub the feet all over with olive oil. Some persons soap their socks before walking, and with good effect. Laced boots are best for walking, as they afford the most support.

Feigned Sickness, &c.—Sickness of almost every kind has been at some time or other feigned by persons to excite sympathy, extort money, or to shirk duty. Begun in early childhood, to avoid the early rising or the daily school-going, the practice of shamming appears in some cases only to cease when there is no longer occasion for it. Spitting of blood, epileptic fits, swellings, sores, distortions, blindness, deafness, dumbness, and a host of other diseases and disorders are feigned for some special purpose, and the imitation is often so marvellous and clever as for a time to escape detection. Soldiers, sailors, and prisoners have been especially noted for the practice of malingering; and it is only by long and careful watching that the imposition has been discovered. Of course, ingenuity and cleverness in the art of feigning have to be met by the same qualities in nurses and others who have to find out the truth or falsehood of a case, and ludicrous and even painful experiments have sometimes to be made for that purpose. (*See* EPILEPSY.)

Felo de se signifies a felon of himself; that is, a person who, being of sound mind and of the age of discretion, voluntarily kills himself; for if a person be insane at the time it is no crime. This offence formerly entailed a

forfeiture of all chattels, real and personal, which the offender had in his own right; but this is now altered. The barbarous mode of burying such persons which formerly existed is now abolished; the 4 Geo. IV. c. 52, providing that the bodies are to be interred in a burial ground between the hours of nine and twelve at night.

Felony, in the general acceptation of law, comprises every species of crime which occasioned at common law the forfeiture of lands or goods. The word felony includes treason, and under particular Statutes—*e.g.*, 39 & 40 Geo. III. c. 93—the offence of treason may be prosecuted as a felony. The word felony stands midway between treason and misdemeanour. By 33 & 34 Vict. c. 23, it has been provided that no conviction for felony or treason shall hereafter cause any attainder or corruption of blood, or any forfeiture or escheat; and provision is also made for the appointment of administrators of the estate of felons. As to felony in the nature of treason, see 11 Vict. c. 12.

Felspar.—A very common mineral, consisting of a double silicate of alumina and potash, soda or lime. It is one of the principal ingredients of granite, the crystals sometimes varying from opaque white to grey, and at other times from pink to a full red. In porphyry, trachyte, and other igneous rocks, crystalline felspar is also an important ingredient. Obsidian and pumice are amorphous varieties of this mineral. Many of the crystalline rocks in which felspar prevails are readily decomposed by the action of the weather, forming a productive soil, hence the great fertility of many volcanic districts.

Felt.—This very useful material serves many purposes according to its degree of substance. Of it hats, bonnets, skirts, table-covers, druggets, and other articles are made; and it is a thick, warm, and comparatively cheap fabric, owing to the simplicity of its manufacture. Rabbit's fur and the waste wool from weaving-mills, having been cleansed, are made damp, and rolled, beaten, and pressed together; and as the fibres of hair and wool naturally adhere to one another, they form under such treatment a firm strong fabric. This material does not wear so well as those which are woven, because it cannot be so even in texture; here and there a knot or flaw can be detected, or one place where the felt is thinner than the rest; the dye, too, is liable to be rubbed off its surface. French felt is considered superior to that made in this country, on account of its peculiar softness and pliability. For hats, felt is extensively used, being particularly adapted for the purpose. The material is brushed on both sides with shellac, and thus made stiff and waterproof; it is also subjected to heat to make it contract before the hat is made.

Female Servants. (*See* SERVANTS.)

Feme-covert. (*See* COVERTURE.)

Fencing.—In former days fencing, or the art of defence and assault with sword and rapier, was regarded in the light of a necessary accomplishment for all gentlemen; in those times, however, the evil practice of duelling was at its height, and street brawls and fights were frequent. Now that duelling has happily become a thing of the past—in Great Britain at any rate—and now that life and property are respected as probably they have never been before in the world's history, fencing is advantageous rather as an agreeable exercise than as a useful accomplishment, except, of course, for those intending to adopt the profession of arms. As an exercise by means of which to induce quickness of eye, strength of muscle, and suppleness of limb, fencing deservedly holds a high place. It is perhaps needless to add that it takes a prominent position as a study in all military schools. For practice sharp weapons are not of course used, but *foils*, circular bars of highly-tempered steel, blunted at the point with a button, to render them harmless. The faces and hands of the fencers are also protected, the former with a covering of wire gauze, the latter with gloves. Padded fencing jackets also are usually worn.

Fenders.—The fenders now offered for sale are of all shapes, sizes, and qualities, from the plain kitchen fender to the elaborate drawing-room fender. The superior varieties are made with more or less of bronze and steel work, and occasionally of marble.

Fennel, called by botanists *Fœniculum vulgare*, belongs to the natural family *Umbelliferæ*. It is a native of England, where it grows wild on chalky cliffs in the south. It is also cultivated in the garden for medicinal as well as for culinary purposes. The leaves and seeds may be infused in the same way that



FENNEL.

senna leaves are; the decoction may then be used as a tonic, as well as a carminative in colic, flatulence, &c., or it may be used as a vehicle for other medicines. There is no doubt that when employed in sauce, and eaten with such strong oily fish as salmon or mackerel, fennel assists digestion. The blanched stems of the *Fœniculum dulce*—a native of Italy and Portugal, but considered by some botanists as merely a cultivated form of the common fern—are greatly esteemed as a vegetable, and

eaten in the same way as celery. The oil of fennel is sometimes employed in medicine as a stimulant and carminative, the dose being from two to fifteen drops.

Fenugreek.—This is the name of a plant the medicinal properties of which do not appear to be of any value except in veterinary practice. It belongs to the natural order *Papilionaceæ*, and is cultivated principally in the south of Europe and in Asia; one species only (*Trigonella ornithopodioides*) being a native of this country.

Fermentation.—A natural process by which a saccharine solution becomes converted into alcohol and carbonic acid. The juices of ripe fruits ferment more readily than that of the sugar-cane, but they will all do so if exposed to the action of the air at a moderately warm temperature. The process can be greatly expedited by introducing a little ferment, such as yeast, into the solution. The yeast plant, as it is now regarded, germinates with amazing rapidity, and will soon pervade the whole solution, producing a new arrangement of its chemical constituents, which gives rise to the formation of spirit. Milk sugar is also subject to fermentation, producing lactic and butyric acids. The same plant (*Pencillium glaucum*) seems to be the active agent in this as in the fruit and cane sugars. The acetous fermentation by which alcohol is converted into vinegar, or acetic acid, is due to another ferment, the *Mycoderma aceti*. Fermentation takes place most rapidly between the temperatures of 65° and 100° Fahr.; that of boiling water on the one hand, and of freezing on the other, stops it altogether. Sulphurous acid checks fermentation, and is frequently used with this object by the makers of cider and British wines; a little sulphur is burnt in the cask before filling it with the liquor.

Fermented Liquors.—Fermented liquors are beverages that have undergone the process of fermentation; ale, beer, and wine being the principal. The process of fermentation is accomplished by one organic substance acting upon another in a state of decay, so as to produce an entire change. Fermentation and effervescence are not the same thing: fermentation is produced by animal and vegetable substances, and effervescence by the union of certain mineral substances. Ale, beer, and porter are made from malt, which is the parched grain of barley. In England these liquors are made to an enormous extent; in fact, as a nation we are said to be the greatest brewers in the world. The effect upon the system produced by alcohol is not so much to strengthen or nourish the body, as to give tone and energy to the nervous system. This result follows when fermented liquors are taken in moderation, and in cases of weakness or disease prove highly beneficial. The danger to be guarded against is that of taking them in excess, when, instead of being an auxiliary in the great work of maintaining life, they become most injurious. Many things which we take as food, and also many of our medicines, act as poisons when taken in large quantities; and alcohol is one of these.

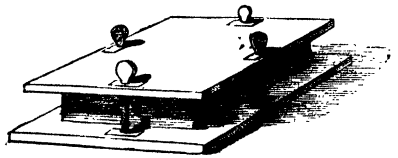
Ferns.—What are termed ferns are in reality plants which possess leaves but have no flowers. They are furnished with roots, which are of a fibrous nature. They have stems and most beautifully and variously shaped leaves called fronds. Now if we examine the surface of the fronds of a full-grown fern, we shall find, usually on the lower side, brown dust-like spots or patches, and these are really collections of the fern seeds, from which the plant may be propagated. The stems of ferns do not, as a rule, in this country peep through the surface of the ground, though some of them may creep along the surface of the earth, and are then usually covered with scales or hairs. The stems, however, of the tree ferns of the tropics grow at times to the height of fifty feet. Fern fronds consist of the leafy portion and the stalk, or *stipes*. The rib-like continuation of the stipes that passes through the leafy part is termed the *rachis*. The stipes is usually covered with membranous scales, generally of a brown colour, and sometimes so numerous as to cause the stalk to appear quite shaggy. The margin of the leafy portion is often scalloped at intervals; the name *pinnatifid* is given to this simple form of leaf. If the leaf has not only its edge scalloped, but is divided quite down to the rachis, it is called *pinnate*; and if each *pinna* is itself divided in a similar fashion, they are called *bi-pinnate*. But a frond may be *tri-pinnate*, or divided even still more intricately, when the term decompound is applied to it. The fronds of nearly all our British species, before they are fully developed, have each rachis rolled upon itself from point to base. Now there are, traversing the fern fronds, little veins, the manner of the arrangement or disposal of which is called the *venation*, and is useful in enabling botanists to arrange ferns into family groups. It is from these veins in some part of their course that the seed clusters arise, and the portion to which the fructification clings is called the *receptacle*. The seed-like bodies are called the *spores*, and are collected in the sporangia, or spore cases, little roundish bodies, which burst when the dust-like seed is ripe, and scatter it abroad. Although ferns belong to the lowest group of vegetation, they form the highest members of that group. They are very beautiful, and well repay one for studying or cultivating them. (*See next paragraph.*)

Ferns, Cases for.—In cultivating ferns it must not be forgotten that in general they require shelter, shade, and plenty of moisture. In growing ferns on rock-work in the garden, each species should be placed in a situation as like as possible to that in which it was found when wild. Nature must be imitated. They may be grown in the house in pots, or in what are called Wardian cases. Pots containing the more hardy ferns may have a northerly aspect. They must be kept cool and moist in summer by frequent sprinkling with water; there must be, too, free circulation of air, more especially at night. The fern cases may enclose pieces of rock, and take the form of a small greenhouse out of doors, or a glass-enclosed projecting window-sash; or in-doors the cases may be made very ornamental and beautiful for room, or hall, or staircase landing. The best kind of soil for ferns is a mixture of equal parts of bog

or peat earth and sandy loam, added to which, for the coarser ferns, should be one-eighth of the whole mass of clean Reigate sand; and for the more delicate kinds, a fourth portion. This keeps the soil from clogging or getting solid. Although ferns need plenty of moisture, the soil must not be kept too wet and stagnant. They do not need manure.

Ferns, To Copy.—There is a very simple way of copying ferns, by placing them upon different materials, which can be utilised in the decoration of many domestic articles of daily use. Having been previously made flat by pressure, and afterwards damped, they are placed upon the surface you wish to render ornamental, grouped so that the form of each is distinctly seen upon the light or white ground. Indian ink of the cheaper kind is then rubbed down in a saucer with water until it is thick, sufficient being made to cover the surface you are about to deal with. A small brush, such as is used for cleansing the nails, and a comb with small close teeth are next required. The former being dipped into the ink, by brushing the comb over the brush a shower of Indian ink will be projected, which you contrive shall fall upon the paper or other surface not protected by the ferns. The spray of ink growing thinner at its outer edge will, if properly directed and repeated, gradually produce a dark ground of a dibbled-like appearance, darkest at the middle and growing softly lighter towards the outer edges and the top. When this is done to your satisfaction, leave it to dry, with a sheet of blotting-paper laid lightly above it. When dry, remove the ferns, and you will find them copied in white with great accuracy and prettiness of effect upon a dark ground.

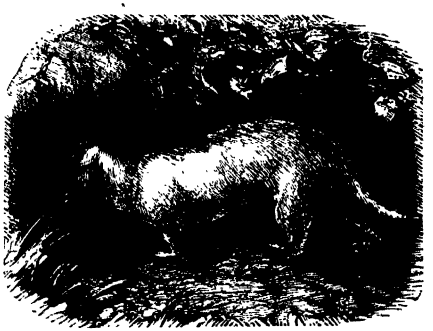
Ferns, To Mount.—Having gathered the ferns you desire to preserve and mount, the first thing to be done is to free the plant from its natural moisture by compression, for which purpose what is called a botanist's press must be obtained. This is a very simple affair,



BOTANIST'S PRESS.

consisting of two smooth-surfaced flat boards, fitted with four thumb-screws passing through holes, protected with brass plates, through which the screws pass. The screws being taken out and the upper board removed, a sheet or two of blotting-paper are placed upon the lower one, on which the ferns are placed. Other sheets of blotting-paper being placed above, the upper board is laid over the whole, the screws put in and turned down until the pressure between is as great as you can command. In this press the ferns should remain some days, until being freed from moisture they are ready to be arranged, in accordance with some picturesque design, on the mount selected, which may be glass, or wood, cardboard, or stout cartridge paper, upon which they are fixed with any ordinary cement or a little gum. For botanical purposes they are frequently mounted in albums, with little strips of paper gummed down over the stems, upon which are the order, botanical and common name of the fern, the date, and the spot where each particular specimen was gathered. These albums are very interesting, the variety of ferns obtainable being so large, and all being so beautiful.

Ferret.—The ferret is called by naturalists the *Mustela furo*, and belongs to the natural family *Mustelidæ*, to which also belong the weasel, polecat, ermine, &c. The ferret is a native of Africa, but is tamed and domesticated in our own country for the purposes of sport. It is, like the weasel, very long in the body and very short in the legs, the former measuring from twelve to fifteen inches without the tail, which is over five inches long. It is very sharp in the snout, with red fiery eyes, and is usually of a pale yellow colour. Rats and rabbits seem to be its natural prey; it finds the latter, however, much more easily managed than the former, and will often fight shy of an encounter with a rat. Ferrets are principally used to frighten the rabbits out of their burrows, that they may fall victims to the gun of the sportsman or the net. In olden times, in order to prevent the ferret from seizing the rabbit and sucking its blood, instead of bolting it, the brutal practice of sewing up the creature's mouth used to be



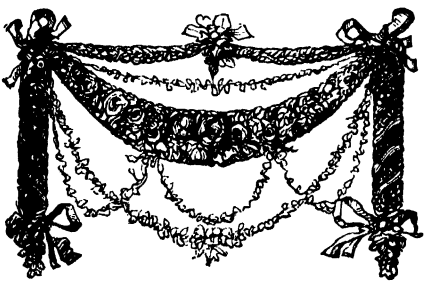
FERRET.

adopted. A less cruel method of securing the same end is now in use. The ferret is simply muzzled, or "coped," which may easily be accomplished with a couple of pieces of soft string. One piece is passed round the neck and tied, leaving two long ends, the other round the under jaw, under the tongue, then back over the upper jaw, where it is tied; the four ends meeting at the back of the neck being there tied together. Ferrets breed twice or thrice a year, there being six or more at each litter. They carry the young six weeks; the young are blind for three weeks or a month; when three months old the ferret is supposed to be ready for work. The three great enemies to the health of ferrets are cold, wet, and filth. For this reason great care should be taken to keep them comfortable. Their hutches should be large, light, and roomy; the floor should either slope a little, to allow the

water to drain away, or there should be a grating at the bottom. There must also be a bench in the hutch for the ferret to sleep upon. The bed, which may be either hay or oaten straw, should be changed at least thrice a week, and the hutch cleaned out and made sweet. They are apt, if not well protected, to have a kind of distemper, especially when young. Their ordinary food is sweet milk and stale bread, but now and then they must have flesh in some form.

Ferret (Material).—A kind of binding made of silk, worsted, or cotton, but of a narrower width than ordinary bindings.

Festoons are ornaments of carved work, representing wreaths or garlands of flowers or leaves, or both interwoven with each other.



FESTOON.

They are thickest in the middle and small at each extremity, a part often hanging down below the knot. In architecture, a festoon is an ornament of carved wood in the form of suspended wreaths or garlands.

Feudal System.—The constitution of fiefs or feuds. It is now nearly thirteen centuries since this system was so universally received in Europe that Sir Henry Spelman termed it the Law of Nations in the Western World. The Conqueror perfected it in this country, and thereby displaced the Saxon laws of property, which was the chief institution of the Middle Ages.

The military policy of the Celtic or northern nations, known by the names of Goths, Vandals, Huns, and Lombards, furnished the original constitution or system of feuds. These people, pouring out into vast multitudes from the same *officina gentium*, or storehouse of nations, overran all the European countries on the decadence of the Roman Empire. They brought the feudal system along with them from the countries out of which they emigrated; and supposing it to be the most proper method of securing their own conquests, they introduced it into their more southerly colonies.

According to this system, the victorious general allotted considerable tracts of land to his principal officers, while they in like manner divided their possessions among the inferior officers, and even those common soldiers who were thought to be the most deserving. Allotments of this kind were named fiefs, fees, or feuds, from a combination of words in the language of these barbarians, signifying a reward or stipend bestowed on certain conditions. The condition upon which these rewards were given was that the possessors should faithfully serve the person from whom they were received, both at home and abroad, in the military way. To this they engaged themselves by an oath of fealty, in the event of a breach of which—either by not performing the service agreed upon, by deserting their lord in time of battle, &c.—the lands were to return to their original possessor.

From the first institution of military service a fine had been accepted instead of actual appearance in the field; as wealth and luxury increased, and the manners of the people became softer, a general unwillingness of following the army into the field became also prevalent. A new tenure, called escuage, was therefore introduced, by which the vassal was only obliged to pay his superior a sum of money annually instead of attending him into the field. Hence originated taxes, and their misapplication; for as the king was lord paramount of the whole kingdom, it thence happened that the whole escuage money collected throughout the nation centred in him. The princes then, instead of recruiting their armies, frequently filled their coffers with the money, or dissipated it otherwise, hiring mercenaries to defend their territories when threatened with any danger; and these being composed of the dregs of the people, and disbanded at the end of every campaign, filled all Europe with a disorderly banditti, which frequently proved very dangerous to society. To avoid such inconveniences, standing armies were introduced, and taxations began to be raised in every European kingdom. New inconveniences arose. The sovereigns in most of these kingdoms having acquired the right of taxation, as well as the command of the military power, became comparatively despotic; but in England the sovereign was deprived of this right by Magna Charta, which was extorted from him, so that, although allowed to command his armies, he could only pay them by the voluntary contributions of his people, or their submitting to such taxation as were virtually imposed by themselves. (*See* CHARTA, MAGNA.)

The duration of the feudal system has by some writers been fancifully distinguished into four ages:—1. In its infancy the lands given to the soldiers, which were not yet called feuds, and perhaps had no name, were held by the will and pleasure of their lord. 2. The second age began when some regard was had to descent, grants being made to a tenant and his sons. 3. In the third age grants began to be made indefinitely inheritable, and lost the name of feuds. (These three periods have been called the infancy, childhood, and youth of the feudal system.) 4. In its fourth stage the age of maturity was reached and the order of descent was settled, collateral relations admitted to inherit, the reciprocal relations of lord and tenant fully understood, &c.

About a century after the Conquest the feudal law received its completion by the book "De Feudis," now appended to the "Body of the Civil Law," and compiled in the time of Frederick I. This book comprises some decretal epistles of popes and some edicts of emperors, with the opinions and decisions of

feudal lawyers, particularly of those from whose collections it was compiled—Gerardus Niger and Obertus de Horto. This was the highest state of the feudal law, in which, like all human things, it continued a short time, and then declined, but not without leaving its traces indelibly impressed upon our legal system, particularly as regards the tenure of land.

Fever.—This is a condition characterised by certain phenomena, the most remarkable of which is preternatural heat. Fever either accompanies certain diseases, especially those of an inflammatory type, or runs a definite course by itself, without necessarily any other disease being present. In the former case it is called symptomatic, in the latter specific fever. The treatment of symptomatic fever will of course depend upon the cause which gives rise to it; remove this, and the fever will subside. Specific fever, on the other hand, requires special treatment. Being due to the presence of a special poison, which in some way or other has got into the blood, the object, of course, must be to adopt such measures as are calculated to pass this out of the body, moderate the excess of fever, and husband the strength until the power of the poison is expended. The presence and amount of fever can be always accurately ascertained by what is called a clinical thermometer. This is a little instrument, the bulbous end of which is placed in the armpit, and allowed to remain there for four or five minutes. It is self-registering, the indicator stopping at the point to which the temperature of the body raises it. As the natural temperature of the body is about 98°, anything above this indicates something wrong. Up to 100° or 101° there need be no uneasiness, unless the condition is persistent, as trifling ailments will often raise the temperature even more than this for a few hours, and the person affected will be certainly in a feverish state. This soon subsides; but when the temperature registers from 102° to 104°, and remains so for some days, then there is a state of fever; and if there are no symptoms of a rheumatic or inflammatory character to account for this, the presumption is that the fever is a specific one, as typhus or typhoid. There is no subject in the whole range of medicine upon which scientific research has thrown so much light as upon fevers. Formerly there was complete confusion in not only the public but even in the medical mind as to their classification. This is now rapidly passing away, and fevers which were formerly described under one head, and named promiscuously, have now received a distinct name, and are known to have a distinct origin and character. (*See* BRAIN FEVER; RELAPSING FEVER; RHEUMATIC FEVER; SCARLET FEVER; TYPHOID FEVER; TYPHUS FEVER.)

Fibres.—Fibre is a word that has a very extensive meaning. It is made use of in the mineral, animal, and vegetable kingdoms, in all of which it is applied to objects of a thread-like nature. In its most popular sense it includes the hair or wool of animals, the fibres of leaves, and the inner bark of plants; also the silk threads of the silkworm, the cells or hairs found in the seeds of plants, and the ordinary materials for textile fabrics. Asbestos, or amianthus, is a mineral fibre which is sometimes made into cloth and paper—its useful quality being that it is indestructible at an ordinary red heat. Gold fibre also has been employed in the loom since a very early date. Among the sacred vestments made for Aaron was an ephod of gold. The use of gold for weaving existed among the Egyptians before the days of Moses. Pharaoh's daughter is mentioned as being clothed in wrought gold; and in the history of ancient nations we read of kings and princes wearing robes and mantles wrought of gold. Silver, too, was woven into a web for garments. Josephus tells us that a dress worn by Herod Agrippa was a tunic made of silver, and wonderful in its texture. Animal fibres are chiefly the wool or hair of quadrupeds and the silk of the cocoons of insects. The wool of the sheep produces far more fibre than any other quadruped for textile fabrics, the hair of other animals not being sufficiently long to be of value. Vegetable fibres are much more numerous and varied than animal fibres. They are obtained from plants of various descriptions, and from different parts of the plant. There are the fibres of the inner bark of trees, such as flax and hemp, and the hairs of the fruit, as cotton. The cocoa-nut palm yields abundance of fibre, both from the tree and the fruit, which is manufactured for various purposes.

Fichu.—The French name of a small handkerchief worn on the neck. The article called by this name, and fashionable of late years, is worn over the shoulders, and metamorphoses a high plain morning dress into *demi-toilette*, suitable for dinner, the theatre, or ordinary evening wear. It is made in muslin, lace, or tulle, and is usually white, or white and black, with coloured ribbons. The shape varies with the style in vogue.

Fictions.—Fictions in Roman law, as in English law, are "those things which have no real essence in their own body, but are so accepted in law for especial purpose." The fictions in Roman law originated in the edictal power, and were designed to provide for cases where there was no legislative provision. A fiction presumed something to be which was not; but the thing presumed to be was such a thing as, being admitted to be a fact, conferred on some person a right, or imposed on some person a duty. It was thus that the notion of legal capacity was extended to artificial persons, merely existing for legal purposes.

Field Glass.—The lens which is introduced between the eye-glass and the object-glass of a microscope to receive the refracted image from the latter, and, by converging the rays, increase the brilliancy and distinctness of the image, is called the field glass. A similar lens does a like duty in the telescope.

Field of View.—This is that space of brilliant light in which the refracted and reflected objects seen in a telescope or microscope are visible to the eye.

Fig-tree.—The fig-tree is a native of Asia and Barbary, though it has been cultivated in Europe for many years. In Turkey, Spain,

Greece, France, and Italy, and even in England, it has attained to perfection in the open air. There are a few small fig orchards in some parts of the south of England which have to be protected during the winter, as they are not sufficiently hardy to bear the frost. The varieties of the fig-tree are very numerous—there are more than a hundred



FIG-TREE AND FRUIT.

species. The common fig-tree, which bears the fruit so well known in England, is one of the most important amongst them. A few of the other trees yield fruit, but all are of a much inferior quality. In its native country the common fig-tree produces two crops of fruit in one year; and several species are celebrated for sending their roots down into the ground, and thus multiplying the stems. The leaves of the tree are so rough that in India they are used for polishing wood and ivory. Cordage for fishing-nets is manufactured from the bark of the fig-tree.

Figs.—Figs are the fruit of the common fig-tree. In the Levant they form an important article of food, though with us they are only used for dessert. They are dried either in the sun, or in ovens made specially for the purpose. The varieties cultivated are very numerous; the finest are those which are imported from Smyrna, and which are called Turkey figs. Figs in their natural state vary in colour; some are bluish-black, others are white, purple, red, and yellow. The amount of sugar contained in figs is very great, and they are considered wholesome and nutritious. Large quantities of common figs are imported to us in the form of fig-cake, which consists of figs and almonds pressed together. In Portugal a spirit is distilled from figs.

Figures.—Characters used to denote numbers; the ten digits by which numbers are expressed. (*See* ARABIC NUMERALS.)

Filberts.—These favourite nuts are produced from one of the cultivated varieties of the *Corylus cupuliferæ*, which is largely grown in the south of England, particularly in Kent. The nuts are imported in large quantities into this country from Spain, but owing to careful cultivation the best ones are found at home. Filberts are distinguished from common nuts by their larger size and lengthened form. They constitute a rich but rather indigestible article of food. They are in season during the months of September and October. The best way of preserving them is to pack them when quite ripe and dry in earthen jars, and to place a thick layer of salt over them. The jars must be tied down securely, and must be kept in a cool place. In this way the filberts may be kept several months. If they get to look dark or mouldy they should be placed in a cullender and shaken gently over a pan of red-hot charcoal upon which a little powdered sulphur has been sprinkled. The fumes will soon remove the discoloration, and make the nuts fit for the table.

Files.—Implements of abrasion, used for cutting or smoothing down rough surfaces of metals and other hard substances. They consist of blades of steel fixed in a wooden handle, the steel being notched or serrated, something in the same way as a saw, *i.e.*, cut all over the filing surface with a series of teeth of various sizes, and known as rough cut, bastard cut, second cut, smooth, and superfine. The files themselves are of various shapes and sections, to fit them for the purposes for which they are required, such as flat, round, half-round, square, triangular, feather-edged, &c. Files are usually made of highly-tempered, fully-hardened steel, so that they are able to shape any metal which is inferior to themselves in hardness. Almost all files are made thicker in the middle than at either end, the object of this being to aid the workman in filing flat surfaces, compensating somewhat, as it does, for the tendency of the hands to move in a curved line, thereby making the surface operated upon convex instead of flat.

Files (for Letters, &c.).—A file in this sense denotes in its literal signification a thread, line, or wire on which letters, papers, &c., may be strung for security and convenience of reference. The file in common use generally consists of a wire, one end of which is pointed and bent so as to form a hook, the other being inserted in a wooden stand. The word has become so far associated with methods of order and neatness in the care of papers, that newspapers, magazines, and documents of every description, when kept in regular order as to date, &c., are commonly spoken of as "on file." For domestic purposes it is always advisable that two files at least should be kept—one for paid and one for unpaid bills.

Filigree or Filagree Work.—This style of workmanship is one which requires great skill and delicacy. The Maltese and Chinese excel more particularly in the art,

which consists in turning fine round wire of gold or silver into various forms and designs, the skill of the artist being shown according to the fineness of the wire and the intricacy of the pattern. Bouquet-holders, bracelets, brooches, necklets, and other adornments are made in filigree. Its chief detriment is its extreme delicacy and liability to be injured; also, when of silver, it quickly tarnishes, and as its fineness prevents any attempt to restore its beauty, the only remedy is to have the article made gilt. This style of work was introduced by the Italians, who speak of it as *filigrana; filo* means a thread, and *grano* a grain or bead. They ornamented their specimens by putting beads on the gold wire or thread.

Fillet.—The word fillet is derived from the Latin *filum*, a thread, and it means a band or strings. When used in cookery it denotes, strictly, something that is bound round with a string. The term is, however, frequently applied to a fleshy portion of meat. Thus we have the fillet of veal, which is the thick part of the thigh; the fillet of beef, or the undercut of the sirloin; fillet of mutton, or the meaty part of the spinal bone of the loin; fillets of fish, which consist of the flesh raised from both sides of the bone; and fillets of game or poultry.

Fillet (Dress).—A royal diadem, anterior in date to the crown. It was made of silk or wool, and in later times consisted of a narrow band of gold or silver. Aurelian was the first Roman Emperor who wore one in public. In the time of Constantine it was embellished with precious stones. About thirty years ago fillets were much worn by ladies, in black and coloured velvet, for the purpose of confining the hair and keeping long curls off the face, as well as for ornament.

Film on the Eye.—This is due to either ulceration or inflammation of the cornea—the transparent horny membrane of the eye. It may occur during an attack of strumous ophthalmia. The existence of cataract will often give the person affected the feeling of there being a film over the eye. (*See* EYE, AILMENTS OF THE.)

Filoselle.—This kind of silk has been introduced into needlework during the last fifty years, and has greatly superseded floss-silk for general purposes. It is much less expensive, and is more easily kept smooth and straight; on the other hand, when great brightness and softness are required, floss-silk is far its superior. Floss-silk is spun from the finest silk, whereas filoselle is composed of the refuse silk, from that which covers the exterior of the cocoon, and other kinds which are considered inferior in quality. Should this silk be found too thick for the work in hand, its filaments are easily divided.

Filters.—A filter is an instrument used for the purpose of straining liquids, and removing from them any substances which may be suspended in them. The liquids which undergo the process of filtration are oils, tinctures, syrups, vegetable juices, decoctions, infusions, and water. Filters are of various forms, their construction, and the substances of which they are composed, differing according to the nature of the liquids for which they are intended. Liquids that filter easily, and in which the matter suspended is large and coarse, are frequently defecated by being passed through a funnel, in the mouth of which a piece of sponge has been placed. Small quantities of liquids which are not of a corrosive nature are passed through filters of unsized paper. Paper filters are indeed very useful for general purposes. They are made both plain and plaited, and of these the latter variety does its work the more effectually. Paper of the proper kind for making filters may be bought stamped in rounds of various sizes, and ready to be folded for use. Bags made of flannel, linen, or cotton are used to filter saccharine, gummy, and acidulous liquids. They are objectionable because they suck up a quantity of the liquid poured into them. Occasionally solid substances, such as porous stone or earthenware, are employed, and these need to be contained in a vessel of some kind.

Filters of different kinds are used for purifying water. Some of these are intended for cisterns, and others for domestic use. It would be invidious to single out the filters of one maker for commendation when almost all are good. In domestic filters, charcoal and sand are the filtering media usually employed, and are well adapted for the purpose. When purchasing a filter, the buyer should be careful to procure one that can be easily cleansed, because the impurities which are taken into it must lodge somewhere, and must be removed. But even when cleaned regularly, the purifying power of the filter needs to be restored from time to time. Dr. Smith gives the following instructions for securing this object: "Take two wine-glassfuls of Condy's crimson fluid undiluted, with ten drops of sulphuric acid and a table-spoonful of pure muriatic acid, and add them to from two to four gallons of water. Then place the whole in the filter for a few hours, after which pass three gallons of pure soft water through." In addition to this process of renovation, the charcoal in filters must be renewed at intervals. A charcoal filter has been manufactured which is intended to purify air that is made to pass through it. It was first made use of in 1854, at the Mansion House in London, in one of the rooms of which the window opened above a spot from which there was a very unpleasant smell. The air-filter was fitted into the place, and at once destroyed the nuisance. Since then several of these filters have been put in the outlets of sewers in London and in two or three country towns. The air which passes through them is rendered both inodorous and innocuous, and the filters offer no obstruction to the proper ventilation of the sewers. (*See also* CHARCOAL FILTERS.)

Finding of a Jury.—This expression signifies the verdict or decision of a jury. They find a mixed verdict, partly of law and partly of fact; and it is competent for them to find the contrary of the truth, for their finding makes even what is false to be true in cases of an exceptional character.

Fine.—A sum of money or mulct imposed upon an offender. As to enforcement of fines, see 22 & 23 Vict. c. 21. A fine of lands was an old-time method of conveyance of lands and hereditaments, rendered obsolete by 3 & 4 Wm. IV. c. 74. It consisted of fictitious proceedings between the vendor and the purchaser, which were no sooner entered upon than settlement was made by "amicable composition and final agreement by leave and licence of the king and his justiciaries." Transfer by fine was at one time considered more efficacious than by ordinary conveyance.

Finger-glasses are placed upon the table at the conclusion of dinner when it has been cleared of everything but the dessert dishes and the decorations. They are put there that the guest may dip his fingers into the water, and so free them from impurity before he touches the fruit; or if he wish to do so, it is permissible that he should dip the corner of his napkin into the liquid, and with it wipe his mouth. The glasses should be of a small size, and should contain a little plain water, or, if preferred, scented water. They are usually placed upon a doily on the dessert plate, and with them a silver knife and fork. On some occasions the finger-glasses are not put upon the table, but a large bowl filled with perfumed water is passed round the table, and with it a napkin for use, and this is made to serve the same purpose.

Finger-nails, Care of.—The finger-nails should be carefully pared once a week, leaving a very narrow edge separate from the quick, not pointed, but well rounded from each side. If the skin be delicate, they should not be cleaned with a brush; the edge of a round appliance of gutta-percha, called a "hand emollient," is far preferable for the purpose, and never occasions what are commonly called "hang-nails," or the tearing down of the skin at the corners—often produced by the use of a brush. The nails should be dried by means of a thin towel or handkerchief passed under each with the nail of another finger, never with a knife or scissors. While wet after washing, the skin should be gently pressed back from them in a half-circle. At night it is desirable to moisten them with a little glycerine or other unguent, to prevent any tendency to cracking.

Finger-plates.—Finger-plates are long, oval-shaped plates made of brass, porcelain, and other materials. They are intended to preserve the door from being soiled by finger-marks. When tastefully chosen they are very ornamental. It is usual for one plate to be placed above the keyhole and the other below it.

Finger-stall.—A cover for a sore finger. The word stall appears to have been taken from the Saxon *stael*, a place.

Fingers, Ailments of.—Of these the most important are rheumatism, gout, paralysis, whitlow, chilblains, chaps, as well as dislocations and broken bones, each of which is referred to under its respective heading.

Finings for Ales, &c.—Finings are substances used by brewers and wine merchants to clarify their liquids, though when the liquids are really good they ought in time, and by being allowed to remain unshaken, to clear themselves. Sometimes, however, when the liquid is inferior in quality, and even when liquors are good, artificial fining is necessary in order to render them saleable. Isinglass, and sometimes cheaper compounds, are generally used by brewers to clarify their liquor. A jelly of the isinglass is first formed, to which is added some of the liquid, as much as will reduce it to the thickness of treacle. This, when put into the liquid, sinks to the bottom, carrying the muddy particles with it. It must not be forgotten, however, that the finings take with them, not the muddy particles only, but some of the real virtue of the liquor, and that when they are used the flavour is more or less diminished, and the liquid is not so likely to improve with age. The greater the quantity of finings used, the less genuine will be the condition of the liquid. The fining process removes the astringent qualities from the ale, and it is owing to the presence of these that old ale is better than new.

Fir-wood.—The wood of the fir-tree varies in its qualities with the species. That from the wild pine, which in this country is better known as the Scotch fir, is commonly called red or yellow deal, according to its variations in colour. Cut across the grain it is largely used for the



BRANCH OF SCOTCH FIR.

breasts of violins. In trees not completely matured, sap-wood is found next to the bark, and it becomes spongy near the pith. The better parts of the wood are those obtained from near the root, and the roots are themselves of great use for a considerable variety of purposes. The wood is most valuable when procured from trees planted by nature, and of slow growth, in cold situations and on light soils.

When grown in a strong clay soil its quality is very inferior, and its worth proportionately less. From trees grown rapidly on rich loams the wood is of an inferior quality. The finest quality of this wood comes from the vast fir or pine forests in the north of Europe.

Fire-arms, Cautions respecting.—Accidents from fire-arms are most frequently due to negligence, and the one great preventive is caution. A sportsman passing through hedges or bushes should not carry his gun in such a position as either to endanger any one near him or himself. No loaded gun should be brought inside a house; hence caps or priming should be removed and charges drawn or fired off out of doors. Before cleaning a gun, the cleaner should see that it is not charged. To keep loaded fire-arms in a house is worse than folly, unless some special emergency requires it, and then they should be out of the reach of children and domestics, and labelled "loaded" in large characters. No one should take up a pistol or a gun and point it at another in sport, as many lives have been lost through such indiscretion. The carrying of fire-arms under the idea of protection is in this country most reprehensible, as at once a danger and a temptation. The treatment of accidents, when they unfortunately happen, depends so much on the kind of injury received, that we can only say apply to a surgeon at once.

Fire-bricks and Clay.—Fire-bricks have been largely used of late years. They are intended to partially fill up the old-fashioned roomy grates still found in many houses. They are to be highly recommended, because not only do they quickly become red-hot and radiate heat from the grate into the room, but this they do with a comparatively small quantity of fuel. Thus they effect a considerable saving in the consumption of coal. They can be ordered and made to fit any grate. When it is not wished to procure fire-bricks, a little *fire-clay* can be purchased at a trifling cost, and this can be pressed into the corners of the grate, and when hard will answer the same purpose as the bricks. Both fire-bricks and fire-clay should be blackleaded with the range.

Fire-dogs. (*See* ANDIRONS.)

Fire-escapes.—The most usual means of escape from a burning house of any size is by the trap-door in the roof, and such houses should be provided with fire-escape ladders; they ought to be made to act with ease and to fit firmly on to the trap-door, the bolts of which should be frequently oiled, to save time and obviate all difficulty of egress in the event of a sudden alarm of fire. In houses where no trap-doors exist, every bedroom ought to be provided with a cord, from a quarter to half an inch thick, and knotted at intervals of about a foot, attached to the window-sill, by which means a man can easily let himself down, or a woman can be tied to the end of the rope and gradually lowered, the man letting the rope pass through his hands over the window-sill. Unfortunately, it too frequently happens that no preparation of this kind is made, and the only thing available at such a time is the bedding; in such a case the cord holding the sacking (if such a bedstead be in use) should be utilised, or the bed-clothes and curtains tied together. Where there is not time for even this primitive course, and the inmates have to jump from the window, first throw out the bedding to break the fall, and then hang by the hands to the window-sill and drop, as the force of the fall is thus greatly lessened. The fire-escapes now in use in the metropolis consist of three ladders, connected to and sliding upon each other by means of ropes worked by a small windlass; a second windlass raises and lowers a cradle, which is supported by ropes passing over pullies at the top of the uppermost ladder. The main ladder reaches from thirty to thirty-five feet, and can instantly be applied to most second-floor windows by means of the carriage lever. The upper ladder folds over the main ladder, and is raised into position by a rope attached to its lever-irons on either side of the main ladder. The short ladder for first floors fits in under the carriage, and is of the greatest service. Under the whole length of the main ladder is a canvas trough or bagging, made of stout sail-cloth, protected by an outer trough of copper wire net, leaving sufficient room between for the yielding of the canvas in a person's descent. This trough is used when the inmates to be rescued are unable, from fear or other causes, to descend the ladder.

Fire, Extinguishing.—The one thing of all others necessary for saving life and property in case of fire is that which will generally be wanting—presence of mind. Without this, all the hints and remedies in the world are of little avail, for nothing can be done at such a moment if hurry and confusion predominate. Should the fire break out in a chimney, a wet blanket should be immediately nailed to the upper ends of the mantelpiece, so as to entirely cover the opening, and the fire will then go out of itself; for this purpose two knobs should be permanently fixed in the upper ends of the mantelpiece, upon which the blanket may be hitched. When the fire commences in a room, doors and windows should be shut at once, to exclude all draught; this fact should be borne in mind above all others, as the slightest current of air *must* increase the force of the fire. Should the bed or window-curtains be on fire, seize, if possible, a woollen garment—if not, the heaviest garment obtainable—and beat it on the flames; if there be time, a wet blanket thrown on the flames is the most efficacious. If the staircase be burning so as to cut off all communication, escape must be made by the trap-door (if there be one) in the roof, a ladder against which ought always to be at hand; when there are other means of egress, escape should be made by crawling on hands and knees along the floor, as the lower part of a room is always clearer under these circumstances than the upper. In case a lady's dress catches fire, she should roll herself, or be rolled, in a rug, carpet, or first woollen garment that can be obtained. Prevention is better than cure; and no householder should permit a fire to be left burning at night on any pretext whatever. It frequently occurs that

the clothes from a family wash remain wet in consequence of the weather, and servants are wont to hang them on a clothes-horse and leave a fire burning to dry them during the night; this should never be allowed. A fire-guard in a kitchen is no preservative in this case, for it has been known that cats, and even rats and mice, have conveyed lighted coals—which have fallen on them by accident, and adhered to their fur—to some contiguous inflammable substance, and have thus caused destruction to a house and its sleeping inhabitants.

Fire-grates are used for holding fuel for common fires. In old times the fire in a room consisted only of a pile of wood, which was burnt on the fireplace, the smoke from which was allowed to escape through a hole in the roof. After a time an iron cage for holding the fuel was adopted, and the modern chimney was invented. From time to time advances have been made in the art of heating rooms, until in the present day we have the elegant grates which are found in most modern houses. Until a comparatively recent period the household ranges were wide, square recesses, with a very large opening for the chimney. In these the draught was very strong, the consumption of coal was great, and a considerable portion of the heat of the fire was sent up the chimney. Now what is aimed at is to effect a saving in the consumption of coal, to throw as much of the heat as possible into the room, and to allow as little as possible to escape up the chimney. Ranges of various kinds have been constructed, all of which are intended to secure this end. One of the most effective of these consists of a large square iron plate set very nearly on the same plane as the wall, and with a hemispherical cavity in the middle, bowed bars in front, and a trapped opening into the chimney. This form of grate gives a good fire and does not burn very much coal. Fire-bricks and fire-clay are frequently put into the back of modern ranges to fill up unnecessary space. Iron grates need to be thoroughly and regularly blackleaded to keep them in proper order. It is a good plan to cover them when new with a light coating of copal varnish. If they are afterwards polished with a blacklead-brush, they can be kept in order with very little trouble. The varnish will need to be renewed about once a year. When grates have been once neglected, they cause a good deal of trouble. If they are in very bad condition, the only effectual way of restoring them is to scrub them all over with some soft soap and water and a hard brush, to take away the dust and grease, and afterwards to paint them with Brunswick black. After this they will for a long time require only to be dusted, though they may be blackleaded if it is preferred. Polished steel grates, when they have been neglected, should be covered with a paste of the thickness of cream, made by mixing sweet oil with fine emery knife-powder. This mixture, when dry, should be rubbed off with a leather dipped in the same powder. When the metal is coarse, a little brick-dust may be mixed with the knife-powder. Burnished steel should never be touched with sand-paper or emery-paper. If begun when it is quite new, it may be kept in good condition for a long time, by being rubbed every day in summer, and twice or three times a day in cold damp weather, with a soft dry cloth. If any spots of rust get upon the polished surface, the best plan is to rub it with soft leather, dipped first in sweet oil and afterwards in crocus-powder. Another excellent polish for bright grates is made by mixing equal quantities of oil, turpentine, and emery-powder.

Fire-guard. — Fire-guards are small screens made of wire which fit on the bars of the grate, and which are intended to prevent ashes and sparks from flying beyond the fender, and also to make it impossible for any one to go too near the bars. Very few nurseries are to be seen which are not supplied with one of these necessary articles of furniture, though nursery guards are made to enclose the whole of the fireplace. The fire-guards prettily designed in brass are both ornamental and useful.

Fire Insurances. (*See* INSURANCES.)

Fire-irons.—Fire-irons vary very much in their shape and quality. They are usually made of bright steel, and they require great care to prevent their becoming dull or rusty. The pretty twisted irons have a better appearance than the plain ones, are more easily kept clean, and do not soon look shabby. Many of the modern designs for fire-irons are very pretty and elegant.

Fire-lighting.—There is a right and a wrong way even of lighting a fire. Some people lay the fire in such a way that it is *sure* to burn; others do it so that it needs to be watched and coaxed and blown, and perhaps after all to be laid over again. In order to lay a fire so that it is *quite sure* to burn, first take eight or ten sticks of *dry* wood, some paper, a handful of cinders, and a few small lumps of coal. Clear the grate thoroughly from dust and ash, then put a thin layer of cinders at the bottom of it. Tear the paper into pieces about the size of a dinner-plate, and squeeze each piece into a ball. Lay these balls on the cinders, and pile the wood lightly in cross-bars on the top, being careful to leave plenty of room between them for the air to pass through. Now lay a few more cinders and the pieces of coal upon the wood, apply a match to the fire, and in a very short time it will burn merrily. If time is a consideration, the paper may be simply placed upon the cinders; but this method is not so certain to be successful as is that of tearing and squeezing up the paper. The reason of this is that, according to the latter plan, the paper burns more slowly and longer, and so the wood has a better chance to ignite. The cinders should be placed first, because if they were not, the shavings and sticks might drop through the bars as soon as they began to burn; and more than this, when the paper is lighted, the cinders get hot, and their heat helps the larger sticks and the coal to catch fire. Cleverness in lighting a fire is shown by the number of sticks used for the

purpose. There are capable housekeepers who boast that they can light a fire with four sticks. Extravagant servants sometimes use a whole bundle. The proper allowance used to be one bundle for three fires; but since wood has grown dearer, the bundles have been made smaller, and now it is one bundle for two fires.

Fire, Precautions against.—To enumerate the more common causes of fires in houses will be the best way to indicate the precautions to be observed. The careless raking out of fires before bedtime is a frequent cause of fires, as lighted fragments are apt to be scattered and left upon the carpet. Reading by a candle in bed and smoking in bed are very dangerous practices. The careless carrying of lamps and candles about bedrooms and among linen, and holding them over open drawers and boxes, are frequent sources of mischief; so are lighting gas and anything else with paper or matches and throwing away the ignited pieces. Lucifer matches left about to be thrown down or trodden upon, or to be played with by children, have caused fires in many a house. Approaching a fire in combustible dresses should be most studiously avoided. Linen hung on a horse to dry before a fire has often fallen and been the cause of a conflagration. Pieces flying from a fire left without a guard may lead to mischief; so may leaving gas not properly turned off or prevented from escaping. Finally, the spilling or overthrowing of paraffin and other lamps is an accident fraught with imminent peril.

Fire-screen.—Fire-screens are made in all sizes, shapes, colours, and materials. The little hand-screens that are placed on the mantelpiece are manufactured in paper, feathers, silk, velvet, needlework, or china. The large screens, too, that are made in a frame to close or open are endless in their variety as to the materials of which they consist. Those covered with scraps are universally admired, many of them being specimens of artistic taste and beauty. They are made also in silk, damask, cretonne, or any other texture, to suit the furniture of the room.

Fire-stoves. (*See* STOVES.)

Fire-wood. — The fire-wood generally made use of for kindling fires is sold in bundles of short sticks, and may be bought in large or small quantities. In some parts of the world where coal is scarce, wood is extensively burnt and highly valued as a substitute for coal. The heat-giving power of wood is, however, not nearly so great as that of coal.

Fireplace. — The lower part of the chimney which opens into the apartment, and which is intended for the grate, is named the fireplace. It is formed in a kind of abutment of masonry, which projects from the walls into the room, having recesses on either side. The upright sides of the opening are the jambs, and the head is the mantel. The broad stone in front is the hearth. The width of the fireplace depends upon the kind of grate it is to receive. A fireplace never looks so comfortable as in the winter, when a bright cheerful fire is burning in the grate. In the summer-time the empty fireplace is usually filled with shavings, or paper or muslin ornaments, and decorated with natural or artificial flowers. A very pretty effect is produced by having curtains drawn half across the fireplace, and having the empty space filled with growing ferns and evergreens.

Fireproof Clothes.—Of late years much attention has been given to the art of making garments incombustible. This object may be effected by soaking the fabric in a saline solution. The objection to this method is that many of the salts injure the texture and destroy the colour of the material. After considerable experience it has been proved that the salts which are the best to be used for this purpose are tungstate of soda and sulphate of ammonia. If the material be soaked in a solution of these, its inflammability will be considerably diminished, while at the same time, though the colour may be made slightly paler, the quality of the fabric will be uninjured. An indestructible texture was made by the ancients from asbestos, a mineral of a fine fibrous character, which was used to envelop the dead.

Fireproof Paint can be made by slaking a quantity of quicklime with water in a covered vessel; when the slaking is complete, add water or skim milk, or a mixture of both, and mix it to the consistence of cream. When milk is not used, a solution of rice paste should be added, by boiling eight pounds of rice to every hundred gallons of paint. When this is prepared, add twenty pounds of alum, fifteen pounds of potash, and a bushel of salt to every hundred gallons of the paint. If the paint is to be white, six pounds of prepared plaster of Paris, and the same quantity of fine white clay, should be added to the above proportions of the other ingredients. When all these are mingled, the mixture should be strained through a fine sieve and ground in a colour-mill. When roofs are to be covered, or when crumbling brick walls are to be coated, fine white sand should be mixed with the paint, in the proportion of one pound to every ten gallons—this addition having the effect of giving the ingredients a binding or petrifying quality. Fireproof paint, as an article of manufacture for resisting conflagrations, is now almost obsolete, that made at the present time being manufactured for the purpose of painting boilers, funnels, &c., or anything that is subjected to exceptional heat.

Fireproof Paper.—Paper is rendered fireproof by dipping it in a strong solution of alum-water, and then thoroughly drying it. This applies to every kind of paper, but some kinds require more preparation than others. When this is the case, a single immersion will not suffice, and the dipping and drying must be repeated till the paper becomes fully saturated. (*See* ASBESTOS.)

Fireproof Safes, &c., should be properly termed "fire-resisting," for though in most cases the contents of a modern fireproof safe are preserved, yet that only means that the safe has resisted the fire for a certain time. They are constructed with double walls and doors of stout iron plates, and the space between the plates is filled with some substance that resists

the transmission of heat. Fireproof safes are principally used by business people for the safety of their books; bankers and noblemen have fireproof strong rooms built for their valuables. The price of a small safe is about £6, and a strong room would cost several hundred pounds.

Fireworks.—Pyrotechny, or the art of making fireworks, is of great antiquity, and was certainly practised among the Chinese at an early period of their history. As might be expected, fireworks do not seem to have been known in Europe until after the invention of gunpowder, and the first public display of any note is said to have taken place in 1588. The principal materials employed in the manufacture of fireworks are gunpowder, charcoal, sulphur, saltpetre, filings of iron, steel, and copper, strontian, lycopodium, common salt, and other substances, used either to give colour or to modify and decrease the combustive power. Fireworks may be divided into two groups—simple hand-pieces, in common use throughout the country on that great day for fireworks, the 5th of November; and specially arranged "pieces," contrived with much mechanical skill and ingenuity, and representing when ignited various devices and pictures. The manufacture of these last has been carried to very great perfection of late years. The principal hand-pieces are Catherine-wheels, crackers, rockets, Roman candles, and squibs, all of which will be found described under their respective headings.

Firing. (*See* FUEL.)

Firkin.—An old measure of capacity for ale and beer, being the fourth part of a barrel, or nine ale gallons. (*See* GALLON.) The word is a diminutive form of *four*.

Fish as Food.—Fish is both a wholesome and nutritious article of diet. It does not contain so much nitrogenous matter as beef or mutton, and is therefore inferior to these in producing muscular growth and development. At the same time, it must be observed that it forms the staple food of many sea-side districts, the inhabitants of which are certainly not wanting in vigour. Perhaps the pure air and healthy exposure, of which the beef and mutton eaters of large cities are deprived, more than compensate for the deficiency in the nutritive qualities of fish as food. The muscles of fish contain a substance which is called creatin, and which is also found in human muscle. Some fish are much more digestible than others, as, for example, sole. This, when boiled, is often made the beginning of a solid diet for the invalid, and its appearance is generally hailed with considerable satisfaction. Some fish are poisonous, as certain kinds of mussels; but it is doubtful whether the effects witnessed are not, at any rate sometimes, due rather to the excess in the eating than to any actual poison in the fish. There is no doubt, however, that symptoms of slight irritant poisoning, as sickness, vomiting, purging, and prostration, occasionally occur after eating certain kinds of fish; but these are, as a rule, soon relieved by a warm emetic, as mustard and water, followed, when the stomach has been thoroughly emptied, by a little brandy and water. An aperient pill may be given at bedtime, to carry off anything that may have passed into the bowels. This will, in most cases, be all that is required.

Fish Carvers.—Fish is carved either with a silver or electro-silver fish-slice, or with the more modern silver fish knife and fork. These are generally kept, when not in use, in a leather case provided for the purpose and sold with them. Fish carvers should be carefully cleaned and put away as soon as they are done with, to keep them from becoming scratched and worn; and if the handles are made of ivory, they should not be put into hot water.

Fish, Carving.—Large flat fish, such as turbot, brill, John Dory, and plaice, should first be cut along the backbone from head to tail, and afterwards square slices should be taken from the thick part and served to each guest. As the gelatinous skin of the fins and the thin part are considered delicacies, they should be helped with the rest. Soles, when large, should be carved as turbot; when small, they should be cut right across through the bone. Salmon should be cut in slices down the middle of the upper side, and then lifted from the bone in firm flakes. A portion of the "thick" or upper side, and the "thin" or under side, is placed upon each plate. Cod is cut like salmon. A small piece of the sound, or a little piece from the cheek, jaws, or tongue, should be served to each person. Mackerel, when small, should be cut through the backbone and served in halves. When large, the fish knife should be passed *between* the upper and under side, and each side divided into half. Trout, perch, gurnet, and haddock may all be served in a similar manner. Small fish are usually served whole. Whiting are curled before being fried. If large enough to divide, they should be cut in two. The shoulder end is the best. Eels are usually cut into several pieces; the thick parts are the best. The *sound* and *liver* of cod, the *cheek* of John Dory, the *fins* of turbot, the *head* of carp, and the *roes* of mackerel are severally regarded as delicacies by epicures.

Fish Glue.—Fish glue, or isinglass, is the purest natural gelatine known. It is made of the dried air-bladder of the fish. Formerly it was obtained only from the common sturgeon; now, however, it is made from the same part of other fish. Since this discovery, instead of its being imported from Russia alone, we have it sent in large quantities from South America, the East Indies, New York, and Canada. The process of preparation is very simple. The air-bag, or swimming-bladder, is boiled in the same way as other materials for the manufacture of glue, then opened, dried, folded, or twisted. The quality of the isinglass is ascertained by its freedom from a fishy odour, and also by its whiteness and its ready solubility in boiling water. Isinglass is extensively used by brewers for clarifying beer.

Fish, Gold and Silver.—The gold and silver fish, so well known as objects of curiosity

and ornament, belong to the carp tribe, and are natives of China. They are of the beautiful order *Cyprinus auratus*, which received its name from Venus, the goddess of beauty. The gold and silver fish have long been abundant in China, and were brought to England about the seventeenth or eighteenth century. When young they are almost black, and not until they arrive at a mature age do they entirely assume their gold and silver hue. Some specimens are variegated with different shades of red, black, and silver, the mixture of the black forming a pretty contrast with the gold and silver tints. Gold and silver fish are now very plentiful in some of the streams of South Europe, and even in England they are prolific, especially in streams which are supplied with hot water from steam-engines. When kept in a glass globe in which there are water-plants it is not necessary that the water should be frequently changed. The fish may be fed on bread-crumbs, worms, flies, and the yolks of eggs dried and powdered.

Fish Kettle.—A fish kettle is a pan entirely appropriated to boiling fish. It is fitted with a drainer, upon which the fish is to be placed, and which is drawn up when the fish is sufficiently boiled. The drainer should be placed across the kettle for a minute, and when the water has drained from it the fish should be placed carefully on the dish. There are three or four shapes in fish kettles, constructed to suit the shape of different fish, such as a salmon-kettle, a turbot-kettle, and a carp-kettle. All are fitted with drainers.

Fish Knives.—Special knives and forks are provided at good tables for fish. They are made either of silver or electro-plated metal, and are considered necessary, because contact with steel would injure the flavour of the fish. When fish knives and forks are not present, it is usual to use a silver fork and a piece of bread in their stead, in order to avoid the unpleasantness of employing a steel knife for the purpose.

Fish Oils.—Of the many liquid oils obtained from animals, fish oils are the most important. They are obtained from the whale, cod, seal, porpoise, herring, and shark. The whale yields an abundant quantity of oil, and this, as well as seal oil, is used for machinery and lamps, the great illuminating power of the oils making them peculiarly adapted to the burning of lamps. Cod-liver oil is the most important of the fish oils, especially since the discovery of its medicinal qualities, and much attention has been directed to the various methods of purifying it and making it as pleasant as possible to the taste. In addition to its value as a medicine, it is used as a lamp oil, and also in the manufacture of soap. Herring oil is an article of commerce, but is not extensively used, its disagreeable smell making it very objectionable. Shark and skate oil are sometimes substituted for cod-liver oil, but they do not possess its valuable medicinal properties.

Fish Sauces.—It is an understood thing that sauce is intended to serve either as a relish or as a finish to the dish it is to accompany. As a rule, fish possesses an extreme delicacy of flavour, which amounts in some cases almost to insipidity. Therefore it is obvious that the majority of fish sauces should be piquant and decided in their character. It has been derisively said of the English that they are a nation of one sauce—melted butter. This might have been true a few years ago, but the reproach is not deserved now. A comprehension of the possibilities of sauces is gradually being diffused amongst us, and this of itself has caused us to estimate the palatability of fish more highly than we used to do. Notwithstanding our insular prejudices, we are compelled to acknowledge that sole with melted butter is quite a different thing to sole with Dutch, or ravigote, or Italian, or Indian, or anchovy, or even good shrimp sauce. The intelligence and good taste of a cook are shown in nothing more certainly than in the choice she makes of sauces for her fish. If these are well made, appropriate, and constantly varied, she may certainly be congratulated upon having mastered one of the difficulties that lie before her. Prepared fish sauces of varying merit may be purchased. These should be procured in small quantities, as they quickly deteriorate in quality, and lose their flavour with exposure to the air. On this account they should be kept tightly corked down when not in use. One of the best known of these—anchovy essence—possesses in a remarkable degree the property of bringing out the flavour of fish.

Fish Serviette.—Fish serviettes are the napkins placed on the dish, under the fish, before it is sent to table. The embossed bordered fish papers are generally preferred to those made of damask; they are convenient as well as inexpensive.

Fish-skin (Disease).—This is a peculiar warty growth of the skin, characterised by thick scales of a dirty grey colour, and situated generally in those parts of the body where the skin is thick and coarse, as the knees, back, and elbows. The disease is painless and unaccompanied by any signs of inflammation. It is usually congenital, *i.e.*, it occurs before birth, and does not appear to admit of cure. Vapour baths and glycerine applications do some little good.

Fish-skin, Uses of.—As the flesh, oil, and bones of fish are all converted into articles of commerce, the skin also is made to supply some of our many necessities. Fish-skins are used for different purposes, according to the nature and quality of the skin. The Dugong, a large fish belonging to the whale family, has a very thick strong skin, and it is likely to form a considerable article of trade. In the neighbourhood of the Orinoco river thongs are made of it for horse-whips, and in our mills and factories it will doubtless soon be found to be invaluable for machine belting. The skin of the white whale, under the name of porpoise leather, is extensively used. When tanned it is almost equal to the best French kid in beauty, durability, and cheapness. Boots are made of porpoise leather, and up to this time no other leather has superseded it. The seal—

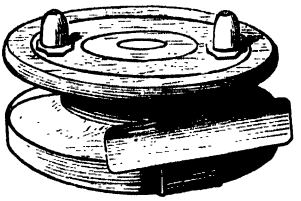
which partakes of the fish nature as much as that of the animal—supplies us, in its skin, with a fur that is both comfortable and elegant. The seal fishery is a most profitable branch of trade in Newfoundland. The skin of the spotted dog-fish, stretched and dried, is used for polishing wood and ivory; and in the arts several varieties of fish-skin are employed. The dressed skin of a fish called the rousette is beautifully transparent. It is cemented on green paper, rubbed down, polished, and used as veneer for fancy articles.

Fish Slice. (*See* FISH CARVERS.)

Fisher-fur.—The beautiful fur of this animal, which is an inhabitant of North America, is comparatively but little known in England, although it rivals sable in appearance. The fur of the fisher is deep, and the hairs on the surface long; the ground is dun-coloured. The best skins are those which are of the darkest shade. The darkness of colour and the depth of the fur greatly depend upon the season when the animals are trapped. Three marten skins are required for a sable muff; one of a fisher will make the same article: this shows the relative size of the animals. The tail of the fisher is very handsome; it is long, full, and tapers to a point. One of these, split in half, forms a fur for the neck. Formerly the merchant Jews in Poland used this as an ornament for the cap it was their custom to wear.

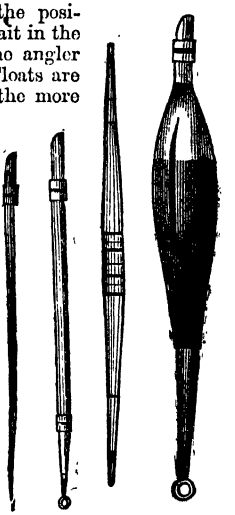
Fishing.—The art or practice of catching fish, whether by net or by hook and line. The art of alluring and catching fish with rod, line, and baited hook is commonly denominated *angling*, while fishing proper is understood to include not only angling, but also, and perhaps more expressly, the capture of fish with some species of net.

The habits and characteristics of many of our fresh and sea-water fish are discussed under their respective headings; in considering angling, therefore, the main point to be noticed is the fishing-tackle. The equipment of the angler may, of course, be very elaborate and extensive, but the actual necessaries of the art are few. Rods, lines, hooks, and baits form the angler's *sine quâ non;* to these may be added reels, tackle-books, fishing-baskets, and landing-nets. The *rod* should be strong, well-balanced, and elastic, bending readily towards the upper point when waved. It should consist of four or five joints, of hickory, bamboo, or ash; in some cases the upper joint may with advantage be of yew, tipped perhaps with whalebone. For bait or bottom-fishing a stiff rod is required, but for fly-fishing a very flexible rod is to be preferred. Bamboo and hickory rods are those most favoured by anglers, and much time has been spent by experts in arguing as to their respective merits. There is much to be said on both sides of the question, bamboo rods being lighter, stiffer, and tiring the arm less, while those of hickory are less likely to break than the bamboo, and are easier to mend. According to one writer, "there is no rod to excel the bamboo for rapidity of strike (most important in roach-fishing) and the facility of killing or securing the fish." For large fish the rod should be fitted with a brass *reel* at the bottom of the first joint, where it is grasped in



REEL.

the hands. On this reel a long line is wound, one end of which, passing along through rings on the rod, is attached to the fishing-line. The reel should wind easily, so that when a large fish is hooked the line may be at once allowed to run out, play being given to the fish until it is exhausted, and can safely be brought to land. *Fishing-lines* may be made of various materials, the most general being the gut of the silkworm, animal gut, horsehair, silk, and cotton; of these, horsehair and gut are to be preferred. The reel-line may consist of spun horsehair or silk. Fishing-lines should be carefully dried after use, and before winding up. For fly-fishing a plain line is all that is required, while for bait-fishing the line must be provided with a float, and must also be "shotted," to balance or "cock" the float in the water. The float is used for a double purpose—to regulate the position of the hook and bait in the water, and to show the angler when he has a bite. Floats are of various materials, the more bulky being of cork, and the lighter kinds consisting generally of swan, goose, or porcupine quills; they vary very much in size and shape, according to the fish to be angled for, and the nature of the water, weather, &c. The weight of the bait itself will not, as a rule, balance the float in the water, and for this reason the line must be "shotted," *i.e.*, provided with split shot which are closed round the line at special distances between the hook and the float. *Fishing-hooks* are small instruments of tempered steel, on which is to be fastened the bait or lure intended to tempt unwary fish. Hooks for fly-fishing require to be lighter in the shank than those used for bait-fishing. A supply of various sizes should be kept by the angler ready for use. *Baits* consist of a great number of materials, living and dead, natural

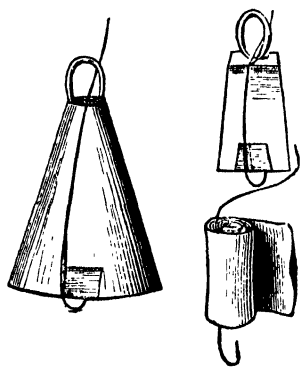


FLOATS.

and artificial, vegetable and animal. Of these the principal are small fish—roach, dace, gudgeon, and minnows—worms, maggots or gentles, insects and insect larvæ, salmon roe, and pastes. The fish which thrive on smaller members of their own species, and for which fish-baits may be advantageously used, are the pike, trout, perch, chub, and eel. Frogs may often be substituted when there is any scarcity of small fish. Worms used as bait are of various kinds, that most used being the lob or common garden worm, to be readily obtained in gardens, and more particularly in any old rich soil. This forms an excellent bait for almost all fresh-water fish, and more especially for trout, perch, barbel, chub, tench, and eels. Other worms favoured by anglers, and especially for perch-fishing, are brandlings and red worms, the former found in dung-heaps, and the latter generally on the surface of the ground directly under old planks, timber, damp woodwork, &c. All worms when procured should be kept in an earthenware jar or pot, filled with clean damp moss, when they will free themselves from slime and dirt. Maggots or gentles are the larvæ of blowflies found in any putrid animal substances, and may be generally obtained at the butcher's or at any fishing-tackle maker's; they are also very easily bred by the angler, if desired. Gentles should be kept in a mixture of bran and sand, when they will scour themselves. They form capital bait for almost all fresh-water fish, and more especially for chub, roach, and dace. Other highly-prized larvæ baits are wasp-grubs, a good bait for carp, and the caddis or cad-bait, the larvæ of the May-fly, inhabiting curiously constructed cylinders formed of straw, stick, and sand, and found under stones, &c., at the banks of shallow streams. Grasshoppers, crickets, and cockchafers are sometimes brought into requisition as baits. Salmon-roe is a most effectual bait for almost all fish. Pastes of very many kinds are also used with great success. The principal of these are made of flour and water, or bread, flavoured and sweetened with sugar and honey; of cheese, shrimps, &c. A well-kneaded bread paste sweetened with honey is an excellent bait for many fish, and the addition of a little whisky has sometimes proved advantageous, especially for carp. *Ground-baits* are often used in bottom-fishing to draw the fish together and keep them in one spot. They generally consist of bran, bread, worms, or gentles, mixed with clay and sand, and rolled up in small hard balls, which may be thrown into the water to sink at the desired spot. For chub, roach, dace, and carp, a ground-bait of bran, bread, or gentles, worked up with clay, will be found useful; while for barbel a similar mixture of greaves and clay or worms and clay may be used to advantage. *Flies*, both natural and artificial, are greatly used by anglers. Of the former, the *ephemeræ* or day-flies, spring-flies, May-flies, humble-bees, &c., are the principal. Artificial flies are of every description, and it is not at all necessary that they should be copies of natural flies. Indeed, *strange* flies, *i.e.*, curious combinations altogether unlike the usual inhabitants of our rivers and streams, are said to be far more deceptive than the best imitations of natural flies. The chief materials used in the manufacture of artificial flies are hair, wool, silk, feathers, fur, gold, &c. As to the remaining paraphernalia of the angler, it is quite unnecessary to go into details.

Of the two distinct kinds of angling—fly-fishing and bait or bottom-fishing—the former is the more scientific. For this, a long pliant rod, fine hair lines, and light hooks, well concealed with tempting flies, are requisite; a dull day should be chosen, if possible, and bright sunny weather should be avoided. There is a great art in throwing the line for fly-fishing, especially a long one, and the beginner should in all cases commence with a short line. A writer on the subject says:—"The best method of casting is to bring the rod slowly over the right or left shoulder, and with a turn of the wrist make the line circle behind you; then, after a pause, fetch it forward again in the same manner, and your flies will descend softly upon the water."

In bait-fishing, the depth of the water should be carefully sounded with a plummet and line,



PLUMMETS.

and the float should then be fixed on the line at such a point as may allow the bait to hang just above the bottom of the lake or river. The hook should be very carefully baited, and care should be taken that no part of its barb or shank remain exposed, for fish are wary creatures, and readily take fright. The baited hook should be carefully dropped in the water, without any splash, and allowed to sink gradually to the bottom. Great dexterity is required in striking for a fish after a bite, especially when the fish be a "nibbler," as roach or dace. In striking, the line should be evenly but quickly jerked with a half side motion, so as to catch the barb of the hook in the fish's jaws. When fishing with paste in quick-running water, the bait is often washed off the hook; this may be provided against by mixing a little wadding with the paste when making it.

Sea-fishing with nets is, of course, almost entirely confined to professional fishermen. Sea-fishing with baits, however, though scarcely profitable sport, is sometimes practised by visitors to the sea-side and persons living on the sea-coast. For angling of this description, strong heavily-leaded lines, and large hooks and floats, are required; if a rod be used it must

also be a strong one. The best baits for salt-water fish are crabs, mussels, pieces of fish, worms, and (for mackerel) bits of bright scarlet cloth.

Fistula.—This is a narrow track or channel, of varying length, and opening externally by a usually prominent orifice, around which are granulations more or less marked. Fistula is the result of an abscess which has not healed, owing to the presence of diseased bone, the passage of irritating discharge, as urine, fæces, &c., through it, and also the premature closing of the external opening from muscular contraction. Fistula is a very common affection, and occurs most frequently at some outlet of the body, as the mouth, rectum, urinary passages, and anus. The last-named deserves special notice, as many persons suffer from it; therefore a few words concerning it may not be out of place. *Fistula in ano*, as it is called, is of two kinds—viz., complete and incomplete. By complete fistula is meant that the channel communicates internally with the bowel, and externally with the surface of the skin. It is said to be incomplete when there is only one opening, either external or internal. The complete fistula begins generally within the bowel, and is caused by some irritating substance, as, for example, a fish-bone having penetrated the mucous membrane of the rectum, and excited inflammation and a small abscess. When this breaks and discharges into the bowel, a little cavity is left, which becomes filled up with the secretions of the bowels, which prevent it from healing. After a time (there being a tendency in matter always to find its way to the surface), a little tunnel is begun, which gradually eats its way through, and opens about an inch from the margin of the anus, thus forming a complete fistula. Incomplete fistula may have the opening internally only, constituting what is called blind internal fistula; or it may have it only external, when it receives the name of blind external fistula. This form of fistula is usually the result of the bursting of an abscess in one or other of these directions, and is usually associated with a bad state of health. The treatment of fistula consists in opening up the fistulous track with the knife, and causing it to heal from the bottom, by keeping the upper edges of the wound apart. The general health must be attended to. The use of the mineral aperient waters will be found beneficial when there is any irritation in the lower bowel.

Fitchet, or Fitch.—The fur of the polecat is known by this name. This animal was at one time common in England, but now the skins which are used are brought from the northern parts of Europe. The fur has a yellow ground, with long, soft, black shining hairs on its surface; these long hairs are extensively used for artists' brushes. The skin of this animal emits an extremely unpleasant odour, which the furrier finds a very difficult matter to dissipate. This fur is not in great request.

Fits.—This is the popular term expressive of a condition of sudden unconsciousness, in which the person attacked may be either calm and death-like, or agitated by violent convulsive moments. As it is of great importance that the exact nature of the fit should be apprehended, the following hints will be useful:—If there is frothing at the mouth, distortion of the jaw, with violent muscular movements of the body, the fit is in all probability epileptic, for the treatment of which, *see* EPILEPSY. If, on the other hand, the face is pale and natural, and the body motionless, then the fit is most likely to be one of fainting, requiring the application of cold water, the use of the smelling-bottle, and free access of air, the dress about the neck and chest being unfastened to permit of this. A little sal volatile, or brandy and water, may also be given at the same time. Again, if the face is swollen and discoloured, the eyes staring, and the breathing loud and snoring, it is almost certain that the fit is one of apoplexy, and medical assistance should be at once procured. If this is not available, half a dozen leeches, for an adult, may be applied to the temples, and two drops of croton oil on a small piece of lump sugar may be put into the mouth. Lastly, if the face is calm, but drawn on one side, and the person is unable to speak, though in some cases conscious, then the fit is in all probability one of paralysis, and must be dealt with accordingly. (*See* PARALYSIS.)

Fives.—A game of very ancient origin, and known in this country as early as the fourteenth century under the name of "hand-tennis." Its present designation is derived from the fact that it is usually played by two sets of five players. It is now a very common game in the playground, and most important schools and colleges are provided with a fives'-court. The game is played by striking a tennis-ball with the palm of the hand against a wall, which last is therefore the only important requisite. A line is chalked on the wall about three feet above the ground, and another line is marked on the ground parallel to the wall and about six feet in front of it; two further lines are also drawn perpendicular to the extremities of the wall and joining the ground-line. The players being ranged in two sides, five or any less number on a side, the game is commenced by one of the number dropping a tennis-ball on the ground and striking it against the wall anywhere above the chalk-line, and hard enough to cause it to rebound beyond the ground-line; one of the opposite side then strikes it in the same manner, either on the rebound from the wall (before it has touched the ground) or on the first bound from the ground. And so the game goes on, the ball being struck alternately by a player on either side, until one of the strikers either fails to hit it, strikes it below the mark, or sends it out of bounds. If the player at fault be on the "in" side, *i.e.*, the side which "served" the ball, the innings is lost; but if he be on the opposing side, those who are "in" score one point, and commence to serve the ball again. It is only when "serving" that the player is obliged to make the ball rebound beyond the ground-line. The side first gaining fifteen points wins the game.

Fixature for Hair.—A compound or any simple vegetable mucilages, a little spirit,

and some perfume. Irish, carrageen, or pearl moss, from quince seed, pale gum-arabic, gum-tragacanth, and malt, prepared in different ways, and combined with eau de Cologne, or alcohol and rose-water, will provide that which ladies employ for stiffening the hair, and preventing the straying of loose hairs over the face in windy weather.

Fixtures.—Articles of an accessory character, annexed to houses or lands, which become, on annexation, part of the freehold itself. The rule originated in England in the case of agricultural buildings; but it was found to operate in discouragement of trade, hence the exception was raised as to "trade fixtures," which may be removed during the tenancy, but not afterwards. This exception was afterwards extended to ornamental fixtures, as to which the same law respecting removal also applies. Fixtures are of a mixed character, being partly interests in land, and partly personal chattels. Thus while fixtures are annexed to lands or houses they are an interest in land, and are ratoable as land, and trover will not lie for their conversion or detention; and yet, even while so annexed, they are not an interest in land within the meaning of the 4th section of the Statute of Frauds. On the other hand, fixtures, even while annexed, are purely personal chattels within the meaning of the Bills of Sale Act, 1854; and yet it has been decided that where they are comprised in one testatum (*i.e.*, the witnessing or operative part of the deed), together with the lands or houses to which they are attached, they are to be treated as part and parcel thereof.

Flags.—Flags and banners, when made of silk, are necessarily expensive, but there are other substitutes which answer the purpose—French merino, cashmere, llama, and glazed calico can be brought into use. Much depends upon the size of the flag and the position it is to occupy. If of small size, and destined to fall directly under the eye of the public, a soft silken material is advisable; but if of large dimensions, other fabrics can be chosen. For flags, the materials should be of a soft nature; for banners, those having more substance; as the object is for the former to droop and the latter to remain extended. A pretty device for flags is that of four squares made in two colours, with a device embroidered in one or more corners. Another style is that of laying designs on a plain colour. Flags should have a very narrow and neat hem round the three sides, and a broad hem on the remaining one for the cord. Banners look prettier oblong than square; they have usually points or vandykes across the end which is loose, and are often ornamented with cord and tassels in addition to the devices and mottoes which they bear on their surface. Embroidering is the most effective, but appliqué work is also used. Gold on white, on crimson, or on blue looks very handsome. White flags and banners betoken specially peace and purity.

Flambeaux.—Torches made of thick wicks—generally of coarse hempen yarn—covered with wax or pitch. Flambeaux were at one time much used in the streets on dark and foggy nights, and are now often seen at illuminations and in processions.

Flanders Brick. (*See* Bath Brick.)

Flanders Lace. (*See* Lace.)

Flannel.—That made of the wool of the Welsh mountain sheep bears the highest reputation; it may be always known by being blue in colour. It is said to be warmer than other kinds, but it has one drawback—its liability to shrink considerably. The yellow flannel is made in the western districts of Lancashire and in the neighbourhood of Leeds; an inferior wool, and sometimes cotton, is introduced, which lessens the price of the material, but at the same time its degree of warmth also. The very thick closely-woven flannel is manufactured in Gloucestershire. In Ireland a coarse kind of flannel is made, which is called Galway. In France and Belgium very fine soft twilled flannel is manufactured, which finds great favour in this country when a superior article is required. In flannel the yarn is more loosely twisted than in other woollen materials, and this gives it the peculiar character.

Flannel, Articles made of.—This most useful material answers a variety of purposes, and articles made of it are specially recommended for the wear of all delicate persons, or for those who suffer from rheumatism. Shirts of coloured flannel for men and boys, skirts, either white or coloured, for women and children, vests and drawers, bodices, night-dresses for children, to be worn over the cotton gown, bands for infants, night-caps in cases of ear-ache, and caps for the use of boaters and cricketers—some of these are necessary articles of under-clothing in a variable climate such as that of England. The thicker kind of flannel is used for boating and cricketing suits. Flannel should be shrunk—that is, washed in warm water—before the garments are cut out, for as it invariably contracts the first time it is washed, the article will not be of the proper size if the tendency to shrink has been overlooked.

Flannel, Washing.—Flannel should not be put into very hot water, or it will shrink considerably; it should not be allowed to remain long in water, either before or after being washed; it should be dried quickly. If there is no wind to dry it quickly, and the air is damp, it should be hung before a fire. The soap should be thoroughly rinsed out of it, or the material will feel stiff and harsh. No soda should be used, and no blue should be put into the water, for both of these spoil the proper whiteness and colour of flannel.

Flasks.—These are narrow-necked vessels for holding liquids, as wine and oil. Salad oil is usually sold in flasks, and these when empty may with a little ingenuity be converted into retorts or receivers such as are required for chemical experiments. They will need only to have the neck cut smoothly with a red-hot iron, and afterwards to be softened in the bright flame of a lamp. When this is done, the edge can be turned over to form a lip, and thus can be made sufficiently strong to bear, without splitting, the insertion of a tightly-fitting cork.

Flat.—The plan of letting houses in flats has been more generally favoured in Scotland than in England, and it prevails almost universally in nearly all the large towns of Europe. The benefits to be derived from it are beginning to be acknowledged even in London, and there houses built for the purpose are becoming more and more common and more and more in demand. As is well known, the idea of the flat is that all houses should be built in a large and commodious style, and that upon each floor there should be a number of apartments constructed to suit the varying wants of a separate family, the amount of rent being determined by the arrangement and position of the rooms. Of course each suite of rooms must be separated entirely from the rest of the house by a door which leads to that flat alone, and one staircase is common to all the inmates of the house. The flat is really a modified representation of the great principles of association and co-operation applied to domestic life; and there is no doubt that if the buildings which are let out in this way are constructed with a due regard to variety in the arrangement of the rooms, to economy in stairs and corridors, and to height, the plan offers great advantages.

Flat Irons are used to smooth household linen and made-up articles after they have been washed. They are too well known to need description. They vary in size from five to ten inches in length, and from two and a half to four and a half inches in width at the broad end. Besides the flat iron ordinarily used, there are the oval iron and the box iron, which are employed for articles of a delicate texture which need to be "got up" with particular care. The box iron is hollow, and is heated by means of a red-hot iron, which is placed inside it. Irons when in use should be perfectly clean, and not too hot. They should be passed quickly backwards and forwards on the material, which should be *pressed* with them, but not *rubbed*. When not in use they should be kept in a dry situation.

Flatulence.—This is an accumulation of gas in the stomach and bowels, due, when in excess, to indigestion. (*See* Bowel Complaints; Indigestion, &c.)

Flavours.—The flavouring substances that are employed in cookery need to be used with both skill and judgment, as otherwise they may spoil the dishes they are intended to improve. When introduced judiciously they not only impart an agreeable taste to food, but they frequently make it more wholesome and digestible. Herbs, spices, fruit, essences, and various artificial and natural products of strong taste and smell are all used as flavourers. The extracts and essences which are so largely used consist of the essential oils of vegetable products, prepared by the process of distillation. Besides these there are what are called compound ethers, which are artificial products made from chemical preparations, and intended to imitate the delicate flavour of natural substances. Unfortunately, some of these are injurious in their effects, and on this account it is desirable that the special character of each flavourer should be thoroughly understood before it is introduced into a dish.

Flax.—Flax consists of the inner fibres of the bark of the common flax-tree, which, though now growing wild in many parts of Great Britain, is a native of Egypt. The Egyptians were famous for the growth of flax, and for the beautiful linen which they wove out of it. Flax formed one of their staple crops; and it is supposed that the hail plague which was sent as a punishment to Pharaoh destroyed the flax just as it was getting ripe. No plant not yielding food is more useful to man than the common flax-tree. Linen, thread, and cloth



FLAX IN FLOWER.

are made from the fibres called flax or lint, and from the seeds contained in the capsules linseed oil is extracted. The product yielded by the flax-tree very much depends upon the thickness of the sowing. When very thickly sown, flax yields a fine fragile fibre suitable for making lace and very fine linen; but when thinly sown, the fibre is thick and strong, and is ultimately used in the manufacture of very coarse textures, such as sail-cloths.

Flax-seed. (*See* Linseed.)

Fleas.—The greatest enemies of these very troublesome little creatures are cleanliness, ventilation, and light. They flourish in dirt, warmth, and darkness. When, however, notwithstanding care and attention, they have effected an entrance into a bedroom and made their home amongst the blankets, the best thing that can be done is to have everything connected with the bed thoroughly cleansed; to have the floor of the room, especially under the bed, washed frequently (daily, if possible) with water in which a little chloride of lime has been dissolved; and to place small bags containing lump camphor here and there among the bed-clothes. The presence of certain strong aromatic plants is said to be particularly obnoxious to fleas, and to drive them away. One of these is named fleabane, because of the peculiar property which belongs to it. Wormwood is valued on the same account. A few sprigs of wild myrtle or pennyroyal,

placed between the bed and the mattress, will also keep away fleas. Most insects have a dislike to the smell of pennyroyal. Some housekeepers, in order to keep away fleas and other insects, make a mixture with an ounce of quicksilver and the white of two eggs, and apply this to the crevices, joints, and screw-holes of the bedstead.

Fleas in Cats, Dogs, &c. — These troublesome pests in cats and dogs are much more easily kept at bay than banished after their arrival. To prevent fleas in one's pets, the utmost cleanliness is necessary. Dogs, and even cats, may be with advantage frequently washed, the former being turned out for a run and a romp immediately after the operation, the latter being well rubbed down with a soft towel, and placed on a warm rug to dry off. A little bit of sweet butter given to the cat will cause her to lick herself well. The mildest soap should be used for cats, the stronger kind for dogs. Persian insect powder is most effectual in killing fleas, but it is cleanliness which must be chiefly relied upon.

Fleecy Wool, &c.—This is not so smooth as that known as Berlin wool, and for this reason is used for different purposes. Its rough properties make it better suited for knitting and crochet than for work on canvas, which requires wool of smoother character. Not being so tightly twisted, fleecy wool when washed does not become hard and stiff. There are various degrees of thickness, which are counted by threads. Four-thread fleecy is the finest; in size it equals that of double Berlin. Six-thread and eight-thread and twelve-thread are the succeeding numbers; the latter is not often used. Fleecy is much less expensive than Berlin wool.

Flemish Lace. (*See* LACE.)

Flesh-brush.—A flesh-brush, like the flesh glove, is used to promote a healthy circulation of the blood after bathing, its application being perhaps a little more irritating. These brushes are made with long handles; those set on a leather back are the best.

Flesh Gloves.—Flesh gloves are used to give warmth to the body and to promote a proper circulation of the blood after bathing. It is impossible for health to be long retained by those who habitually dispense with the use of the bath. The skin is a great breathing organ; but unless its surface be regularly cleansed, the pores become closed, perspiration cannot escape, and the action of the skin is rendered sluggish. This condition very frequently terminates in disease of one kind or another. It is of the greatest importance, however, that a healthy glow should follow bathing. If instead of this a shivering chilliness is experienced, the bath, instead of being beneficial, will be injurious. The vigorous use of flesh gloves is generally found to promote this reaction. They are made of a very rough material in the shape of a small bag, large enough to be placed on the hand.

Fleur-de-lis, in heraldry, is a charge now supposed to represent a lily; it is, however, most probable that this bearing was originally intended to represent the iron point of a javelin. From a very early period the fleur-de-lis has figured in the royal arms of France. It is also borne on the shields of many English and Scottish families who at some past period of their history were connected with France or French affairs.



FLEUR-DE-LIS.

Flies.—The common house-fly is an insect which is too well known to need description. In hot weather it causes a good deal of annoyance to the person, and injures the furniture, upon which it leaves the "fly-marks" so objectionable to the careful housekeeper. Various expedients are adopted for the extermination of these insects, the most usual of which is to place poisonous fly-papers or fly-water in different parts of the room, which are intended to poison the flies. This they certainly do. The majority of these preparations are sweet, and it is an open question whether they do not attract as many flies as they kill. One strong objection which is to be urged against a large number of these poisons is the danger which they place in the way of pet animals, and even of children. A most harmless and at the same time most effectual fly-poison may be made by boiling two ounces of small quassia chips in half a pint of water for ten minutes, then straining the liquid, and mixing with it two ounces of brown sugar or treacle, and one ounce of black pepper. Another effectual fly-poison is very strong cold green tea, sweetened with sugar. Another is made by mixing a tea-spoonful of powdered black pepper with two tea-spoonfuls of brown sugar and two table-spoonfuls of cream. These preparations should, when wanted, be placed in different parts of the room on shallow dishes. It is a fact worth knowing that flies will not pass through a netting of any kind, unless there is a light behind it. Therefore, when there is only one window in a room, it is a good plan to stretch an ornamental netting across the opening, and the flies, although they are numerous outside, will not venture through the meshes. If, however, there is a window opposite the opening, they will fly through without any hesitation. A few years ago fly-papers were publicly sold which were made of paper smeared with some sticky substance, upon which dead and dying flies might be seen in hundreds. It would be impossible to imagine a more disgusting and cruel method of killing flies than this; and these most objectionable fly-papers, which are still seen occasionally, will certainly be avoided by all who lay claim to feelings of humanity or refinement. For the best means of getting rid of the *Musca vomitoria*, the troublesome insect which attacks fresh meat, *see* BLOWFLY.

Flies, Artificial. (*See* FISHING.)

Flint and Steel.—The use of a piece of flint and a piece of steel to produce, by striking one against the other, sparks of fire to fall upon tinder in a box made to contain it, so that by blowing with the mouth sufficient fire might be produced to ignite a thin piece of pointed wood tipped with brimstone and called

a match, no longer exists, having been altogether done away with by the introduction of lucifer matches.

Flip is an agreeable stimulant and restorative, and is of great service when used in cases of extreme exhaustion. It is composed of spirits, ale, and sugar, made hot. Sometimes eggs are added, and cinnamon or any other flavour that is preferred.

Flitch.—One side of a hog which has been salted and cured as bacon. The middle is the best part, and will sell for even more than the ham, which comes next in price; the higher and lower portions are cheaper, and the "hand," or fore-leg, comes cheapest.

Floating. (*See* SWIMMING.)

Flock-beds, Care of.—Flock-beds, like those made of feathers, require to be shaken and rubbed with the hands every day, in order to prevent the flocks becoming fastened together. When the beds have been in use for a time, the flocks should be turned out of the cases and pulled from together, to make the bed light and perfectly free from lumps. The case should be washed, or a new one supplied. Thick strong ticking for the bed-case will give much greater satisfaction than a thin open material, as the former will prevent the dust escaping when the bed is shaken.

Flock-paper for hanging walls is not nearly so usual now as it was a few years ago, for at one time it was found in every dining-room. It has a very good appearance, and wears well, but it is better suited to large well-lighted apartments than to small rooms; in these it has a heavy look, and has the undesirable effect of making them appear less than they really are. One great disadvantage connected with these papers is that when the room is to be re-papered, every particle of the old flock-paper has to be scraped off before another can be hung in its place. The raised figures found upon flock-papers are made of the shearings of woollen cloths, dyed, powdered, and sifted. The paper is printed, but instead of a coloured material an adhesive composition called encaustic is printed upon it, and the powder is sprinkled evenly upon this and adheres to it firmly.

Flocks, or Locks, for mattresses and beds, consist of the waste wool that is thrown off during the process of manufacture. Some of this wool is worked up again into inferior goods; the rest is used for filling mattresses and beds. The shorter pieces of hair from goats and other animals are also used as stuffing for mattresses and saddles.

Floor-cloths.—Floor-cloths are coverings for floors made of very strong canvas, and are principally used in halls, reading-rooms, and places of public resort. The canvas is required to be without seam, and is made very wide, as it is frequently needed to cover a large space of flooring. The principal manufactories for the canvas are in Dundee, and special looms are employed for weaving them. The back of the canvas is first scoured with pumice, and then covered with a solution of size, to prevent the paint penetrating the canvas and making it brittle. Two or three coats of strong oil paint are then laid on the right side, and upon this the pattern is printed. The quality of the floor-cloths depends upon the number of the coats of paint and the time that is allowed for drying. The whole process of manufacture ought to extend over several months, as in addition to the thorough drying of each coat of paint, the whole ought to be exposed in the drying-room for some time. Floor-cloth is much less in request than it was some years ago, it being superseded to a great extent by such materials as kamptulicon, linoleum, and boulinikon, which are warmer to the feet, and also impervious to damp. The tiles, too, are so extensively used now, that the necessity for floor-cloths is not nearly so great. When dirty, floor-cloths should be washed with clean lukewarm water and soap, and dried, then rubbed carefully over with milk, which will impart a fresh glossy appearance. Hot water or soda destroys the paint.

Floors, To Clean, &c.—Wooden floors, when cleaned regularly and frequently, may be scoured with sand and cold or lukewarm water. The constant use of either soap, soda, or hot water has a tendency to darken the boards. If floors are only washed occasionally, or if they are very dirty, it is best to employ fuller's earth for them. This should be dried, and made into a paste with boiling water, and mixed with a third of its quantity in fine sand. This mixture should be sprinkled over the floors, and the boards scrubbed up and down, but not across, with a scrubbing-brush and cold water. If the floor is spotted with grease, a quarter of a pound of pearl-ash should be mixed with a pint of hot water, and the floor should be scrubbed with this and fine sand. Oil and grease may also be removed from either wooden or stone floors with potash. A strong infusion of the potash should be made with boiling water, and as much quicklime should be added to this as will make the preparation as thick as cream. The infusion should then be left for twenty-four hours, at the end of which time the clear part should be poured off and bottled for use. When it is wanted, a little may be warmed and poured on the spots, and in a few minutes scoured off with warm water and soap. If it is left for any length of time, the boards will be discoloured. On a stone floor it may with advantage be left for several hours, although, if the stain is a very bad one, it will be well to put a little powdered hot lime upon it before the potash infusion is used.

Florence.—This is a thin silk taffeta which was originally made in Florence, and thus received its present name. This description of taffeta is now fabricated at Lyons, Avignon, and at Zurich.

Florentine.—A silk cloth which differs from the last-named; it is twilled, figured, and much thicker in substance, and is used for fancy waistcoatings.

Florentine Brilliant.—A celebrated diamond belonging to the Emperor of Austria. It weighs 139½ carats, and is of a yellowish tint. It is supposed to have belonged to Charles the Bold, Duke of Burgundy, and lost by him

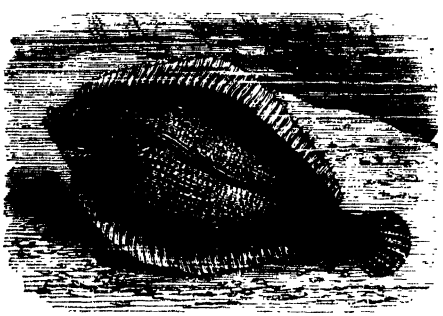
in 1476 at the battle of Granson. A Swiss soldier found it, and sold it for a florin; but eventually it came into the hands of Pope Julius II., by whom it was given to the Emperor of Austria. The value now set upon it is £105,000.

Florentine Lace. (*See* LACE.)

Floss-silk.—The portions of ravelled silk broken off in the winding of the cocoons are called by this name; they are carded like wool, and then spun into a soft coarse yarn or thread. This is used in embroidery, and requires great care in the working, as it very easily becomes fluffy and rough in texture. Floss-silk is also used in the manufacture of common silk fabrics, or those mixed with wool, cotton, and linen.

Flounce.—A decoration for the skirts of ladies' dresses and petticoats, gathered or plaited at the upper edge, with or without a heading (constituting a small frill at the top where attached to the dress), and hanging full and loosely from the lower edge of the skirt. They may be cut on the bias, or the straight way across from selvage to selvage. Their width and fulness vary with the current fashion. Bias flounces are generally scanty, and sometimes are ornamented with a narrow frill at the extreme edge. Flounces are more becoming to tall than to short persons.

Flounder.—The flounder, or *Platessa flesus* of naturalists, belongs to the *Pleuronectidæ*, which also includes the dab, the halibut, the plaice, sole, and other well-known flat fish. The flounder is rather smaller and darker in colour than the plaice. It is very plentiful about our coasts, especially at the mouths of rivers, and even in the rivers themselves. Except in size and colour, the flounder



FLOUNDER.

is very like the plaice. It is furnished with very small scales, and has a row of sharp spines down its back. From January to March, and from July till December, flounders are in season, and they may be caught with a hook baited with a small worm of any kind. The thickest, hardest flounders are the best; but, like many other kinds of fish, they are apt to get flabby and tainted very soon, and ought, therefore, to be cooked as fresh as they can be procured. The Scottish name of this fish is the fluke.

Flour.—The quality of flour depends principally on the fineness of the sieves through which it is passed, and on the amount of bran which it contains. The finest flour of all, which is used for superior pastry and cakes, is the Vienna flour. It is obtained in the first grinding of the wheat, and is passed through silken sieves. It is particularly fine and white, and expensive. The other kinds—biscuit flour, middlings, seconds, pollards, &c.—consist of the flour which remains after the first grinding, which has been ground and passed through coarser sieves. The best finely-ground flour makes better bread than the commoner flour, though the amount of nutrition contained in it is about equal. There is more gluten in the best flour than in the other, and it is this that ensures the lightness and sponginess of the bread. Rye bread is exceedingly wholesome, almost as much so as wheaten bread. In the northern countries of Europe it is much used, the sandy soil being well adapted for the growth of rye.

Flour, Adulteration of. (*See* ADULTERATIONS OF FOOD.)

Flour, American.—The flour imported from the southern portions of the United States is considered to be superior, in some respects, to that grown in this country. Thus it has been found that 14 lbs. of the American flour will make 21 lbs of bread, while the same quantity of the best English flour will produce only about 18½ lbs.

Flour Bin or Barrel.—This is the wooden box or barrel in which the flour is kept which is required for the use of the family. It is provided with a closely-fitting lid, and should be kept in a dry airy place. The supply should be proportionate to the requirements of the family, as flour does not improve with keeping for a great length of time.

Flour Dredgers. (*See* DREDGERS.)

Flour-mites.—The flour-mite (*Acarus farinæ*) is one of the species of insects which are best known to us under the name of mites. These creatures feed principally upon decaying animal and vegetable substances, and this one is commoner than any other. It is really the same mite that is found in cheese, although the cheese-mite and the flour-mite are often described by naturalists and mounted by microscopists as two different species. It is very commonly found in flour, and is capable of a considerable amount of motion.

Flower.—In botany, that part of a plant in which are situated the seed-producing organs. Flowers sometimes grow directly from the stem or branch, but sometimes a flower-stalk, or *peduncle* (*see* PEDUNCLE), intervenes. In its more popular signification, the word flower is used to denote the expanded flower-bud or blossom of a plant.

Flower Gardens. (*See* GARDENS, FLOWER.)

Flower Pots and Stands.—The old red unglazed earthen flower pots have of late years given place, for in-door decorative floriculture, to a variety of flower pots and stands of great novelty and beauty. Some are of china, elegantly adorned with painting and gilding,

some made of the beautiful Palissy ware being particularly rich in colour and effect. Terra-cotta is also used for flower pots. Picturesque stands for flower pots are made of bamboo canes, plain or gilded; of wicker-work, or wire-work, or virgin cork, or carved and gilded wood, and of other materials, including rough pieces of wood with the bark on, varnished or gilded, or left in their natural condition.

Flower Shows.—In order to ensure the success of these, it is necessary to form a committee of management, the members of which should be thoroughly interested in the undertaking. It will be the duty of this committee to collect subscriptions, to arrange the various prizes, to hire the tent and give the details for its arrangement, to appoint the judges, and to attend to other minor matters. There should be prizes for different classes of plants, and three grades of distinction, severally shown by the colour of the ticket which marks the award. White is usually chosen for first prize, blue for second, and green or yellow for third. The tent is most convenient when oblong; the flowers should be placed in tiers on tables (boards placed on trestles), and occupy the centre; the vegetables and fruits should find places round the sides of the tent. Two judges should be selected, if possible from a distance, so that no partial judgments can be imputed. The task of awarding should be completed by midday, so that the show can be ready for public inspection early in the afternoon. The prices of admission should be moderate, and be lowered in the course of the afternoon. If the show is for the villagers, gardeners should be invited to send specimens of their skill in floriculture, but not be allowed to compete. Bouquets of garden and of wild flowers add to the attractions; also miniature gardens. Exceedingly pretty models have been sketched and formed by cottage children, who have employed their leisure in making tiny beds, paths, lawns, and trellis-work in cardboard, &c., and when the day of exhibition has arrived have completed their work by putting clusters of small flowers in the garden plots, fine grass on the lawns, and gravel on the paths.

Flowers, Fancy.—The first attempt at making artificial flowers amongst civilised nations appears to have been the twisting of ribbons or silk of various colours into something resembling flowers, and fastening them to wire stems. These were succeeded by feathers, which were more elegant in appearance, although the difficulties of dyeing them to imitate the natural colours are so great that even modern science has not succeeded in getting them to take the dyes. In Italy the cocoons of the silkworm are sometimes used in the fabrication of flowers, and these take a brilliant dye. The French have long been famous for the exquisite beauty of the flowers which are made by them from French cambric, Scotch cambric, jaconet, muslin, and coarse calico; wax is also largely employed. Paper flowers are also made by them so perfectly to imitate nature that they are frequently mistaken for it. Chenille flowers are made in many different ways, but cannot be said to represent natural flowers, unless the chenille be united to ordinary flower-making. Wool flowers are made by forming fine wire into the shape of leaves, and winding wool of the proper colours upon them. Wax flowers are made of the purest virgin wax, and are, perhaps, the closest imitation of nature which can be made. The wax is purchased in sheets, either white or coloured; the leaves are generally made in small moulds of wood or plaster, all the tools used being completely wetted to prevent the wax from adhering to them. The other materials that have been used to fabricate flowers are straw, shells, palm-leaves, porcelain, wood, marble, human hair, soap, chocolate, &c. As the method of flower-making must be learnt in order to be successfully practised, it is unnecessary to enter into the particulars of their manufacture.

Flowers, Language of. (*See* LANGUAGE OF FLOWERS.)

Flowers, Painting.—The style of flower-painting has completely changed within the last few years, a broader touch having superseded that of stippling. The most usual method of painting them is in water-colours; lessons from a master may be superfluous if a good handbook be studied, together with the careful copying of the best examples of style exhibited in the galleries. Specimens of flowers should be copied at home. Besides cardboard, they may be painted on silk, satin, velvet, and on glass, when not exposed to the weather. For tile-painting there is an especial process. Flowers may be treated either conventionally or naturally.

Flowers, To Dry and Preserve.—Gather on a fine day, and carry home in a tin box. If the leaves be damp, stand the stalks in water, to keep them alive till dry. If the leaves be thick and the stems succulent, they must be killed by plunging them in hot water before being placed in a drying press. When quite ready, place between layers of bibulous paper (botanical paper), having carefully spread and arranged the several parts of the specimen, and lay all in the press, applying a gentle pressure at first, and increasing the weight as the plant dries. The paper should be removed at least every second day, and the damp sheets dried for future use. When the moisture is gone and the plant flattened, place on a sheet of paper, and fix by means of thread, gum, or small bands of paper gummed on, inscribing the genus, species, and locality where found. Camphor or corrosive sublimate will preserve from insects.

Flue.—This name is given to a narrow passage in the wall of a house constructed for the outlet of smoke. It is often regarded as being synonymous with the term chimney, but strictly speaking it applies to the space from the funnel to the top of the chimney, or it leads from one passage to another—so that one chimney may have three or four flues. When a number of flues are built together in a wall between two houses, the wall is called a chimney-stack, and the part that rises above the roof is the chimney-shaft. The walls which separate flues built side by side are called withs. Very

often when flues are built side by side in the wall between two houses, they are made to wind about. When these curves cannot be avoided, they should be as gradual as possible, as otherwise the soot may accumulate in the passages, and the draught of air may be impeded, and this may cause the chimney to smoke.

Fluke. (*See* Flounder.)

Fluor Spar.—This substance occurs both in masses and in a crystallised form. It is a combination of lime and fluoric acid, and is popularly known as Derbyshire spar, owing to its being plentiful in that county. The crystals are of various colours, and resemble the emerald, the sapphire, the topaz, and the amethyst; but whatever the colour, it is usually pure, and the crystals are mostly of a cubic form. One sort is either blue or green, according to the position from which it is viewed. When in masses it is of different colours, which appear in wavy bands and blend in a beautiful manner. Though capable of a high polish, it is soft and easily scratched. It is manufactured into cups, vases, and other ornamental articles. The fluoric acid is very corrosive, and is employed for etching designs upon glass; but it requires to be used with caution, as its action on the skin is powerful and painful. Satin spar, selenite, and alabastrite are closely allied to fluor spar.

Flux.—A term derived from the Latin word *fluxio*, a flowing. Fluxes are used in chemistry and metallurgy to render other bodies fusible. Borax is much employed for this purpose in soldering, in blow-pipe analysis, and in enamelling when a readily-fusible enamel is wanted. A flux is necessary in iron-smelting, limestone being used as such, which unites with the clay of the iron ore, and makes with it a liquid slag, from which the metallic iron separates. Fluor spar, which is much associated with copper pyrites, acts as a flux when mixed with silica, clay, and iron oxide, in the smelting of copper. The property of this mineral is indeed indicated in its name. Kryolite, a mineral found in Greenland, and containing aluminium, sodium, and fluorine, is imported in considerable quantities for use as a flux.

Fly.—A double-seated carriage chiefly let out for hire, and drawn by a single horse. The name was long ago given to public conveyances or coaches, which were supposed to travel with extra speed; hence we read of fly coaches and flying coaches. Of later years the term has been applied to hackney carriages or cabs, which in some parts of the country are still called flys.

Fly. (*See* Flies.)

Fly-papers. (*See* Flies.)

Fogs.—Dense watery vapours resting like a thick cloud on or near the surface of the earth or water, and resulting from the cooling of the atmosphere. When warm moist air is rapidly chilled, it cannot hold as much moisture as before; part of it is, therefore, precipitated in the form of a cloud, and becomes visible as fog. Cooling of the atmosphere occurs when a warm stratum of air comes into contact with a cold stratum, or with any part of the earth, such as a hill or mountain. And herein is the reason why clouds so commonly envelop the sides and brow of a hill at certain seasons. The surfaces of rivers, lakes, &c., are also often covered with fog, and this phenomenon may be explained as follows:—The air at night being colder than the water, the layer of air nearest the water becomes warmed, and absorbs and is saturated with moisture; this warm air then rises, and meeting with the colder air above, is chilled, and precipitates much of its moisture, which hangs as fog over the surface of the water. Fogs are seldom seen over water when there is much wind or disturbance of the atmosphere, as at such times the uniformity of the air temperature is kept up. Fogs occur, as a rule, at night and early morning, but gradually disperse as the temperature rises during the day, and as the air becomes capable of absorbing more moisture. The thick yellow fogs that often hang over large towns owe their colour to the presence of smoke and other impurities.

Foil.—In fencing, a foil is a rod of steel with a handle or hilt at one end, and a leather button at the other to prevent accidents. The length ranges between thirty-one and thirty-eight inches, and of course it represents a sword. Foil is also the name of thin sheets or leaves of metal, especially when used in jewellery in order to give colour and lustre to transparent stones or their imitations. Colourless quartz or glass paste may in this way be made to appear of any tint that is desired, while real stones of a pale colour, as amethysts and carbuncles, can be much improved in appearance. The use of foil is very extensive in jewellery, as it enables dealers to offer articles which look better than they are at a low price.

Folding Bedstead. (*See* Camp Bed and Bedstead.)

Folding Chairs are not a modern invention. They appear to have been used in England during the Middle Ages, although they were then rare. Now they are met with in every well-furnished house. They are very convenient, and are made in numerous styles. The variety best known is the American folding chair. Easy-chairs are also made to draw out and fold up; and according to a modern improvement, a folding chair can at pleasure be drawn out to form a bedstead. The cost of these articles depends, of course, upon the style of design and the quality.

Folding-doors.—Double drawing-rooms with folding-doors between them are very usual in modern houses. They possess advantages and disadvantages. They are very convenient on extraordinary occasions, when a large handsome room is required for company, or when charades or amateur theatricals have to be performed, but for daily occupation they are a little draughty. It is a good plan to have curtains hung over the inside of the doors. These can be drawn aside at pleasure, and they not only add to the appearance of the room, but help to keep the objectionable currents of air away.

Folding Dresses. (*See* Dresses, To Fold.)

Folio.—A word imported from the Italian, in which language it means "a leaf." In account-

books each page is commonly termed a folio. A book is said to be in folio when each sheet of paper on which it is printed is folded once only, so as to make two leaves or four pages.

Fomentations.—These are applications, usually of hot water, either alone or in combination with some medicinal agent, as laudanum, poppy-heads, turpentine, &c. Fomentations are generally applied by means of the sponge, cotton-wool, spongio-pyline, or flannel. They are most useful in certain forms of inflammation, as erysipelas and abscess, and likewise some affections of the bowels, as cramp and colic. They also afford great relief in painful bruises and sprains.

Food.—Food is the material by which the body, with its various organs, is built up, sustained, and rendered capable of performing its proper functions. As has already been explained under the heading of DIET, the amount of food taken must be always proportioned to the waste going on, the greater the work the greater the waste, and the greater the need of abundant food to replace it. As fire cannot be kept alive without fuel, so the body, if not supplied with food, literally dies out by the combustion of its own elements. Food is generally classed under two heads—viz., the nitrogenous and the non-nitrogenous. The nitrogenous or flesh-producing food includes such things as beef, mutton, bread, &c.; whilst the non-nitrogenous, respiratory, or heat-producing food comprises such things as sugar, rice, oil, fat, wine, and spirits. Mixed food appears best adapted to the wants of man, and hence it happens that in infancy milk, which contains both the nitrogenous and the non-nitrogenous principles, is sufficiently nourishing for that period of life. With regard to the digestion of food, it may be remarked that fresh animal food is much more nutritious and easily digested than vegetable food, but is retained longer in the stomach. Vegetable food passes very soon out of that organ, and is digested in the small bowel; but the rapidity or slowness of the process depends very much upon the wants of the system at the time. If this is urgent, assimilation takes place quickly; if not, a great portion will pass out of the body undigested. Vegetables are very important articles of food, as they supply certain salts and inorganic elements which contribute to the development and growth of bone, and supply the blood with such material as will prevent the occurrence of certain diseases, as scurvy. Water is an important article of food, and enters, as a rule, very largely into its elementary composition. Thus 100 lbs. of potatoes will contain 75 lbs. of water; the same quantity of cabbage will contain 92 lbs.; whilst flour, meal, peas, and rice contain only about 14 per cent. of this fluid. It follows, therefore, that in using the former as food, less fluid is required for the purposes of drink than in using the latter. Beef and lamb contain 50 per cent. of water, milk 86, mutton 44, veal 62, and bacon 30 per cent. Water is used largely in tea, coffee, soup, &c., and is generally preferred in the hot state, as it aids digestion; whilst cold or iced drinks, though very refreshing and under certain conditions most desirable, have this objection, that they lower the temperature of the stomach, and thus impede digestion. Sugar, starch, &c., are the respiratory and heat-producing foods. They contain no nitrogen, but consist of carbon, hydrogen, and oxygen. The two latter being present in equal quantities, unite in the lungs to form water, whilst the carbon unites with the oxygen of the air which it meets there, and forms carbonic acid, which is exhaled by the breath and skin. In this process, which is purely chemical, heat and force are produced. Fat, butter, and oil are essential articles of food, as they not only assist in the process just described, but they also make fat, which is essential to the health of the body. Moreover, they materially aid digestion, and are, therefore, most valuable medicinal agents in wasting diseases, as consumption (*which see*). The nitrogenous or flesh-producing foods are composed chiefly of albumen, fibrine, and caseine. The two first are very much alike, and all three contain the four elements—carbon, hydrogen, nitrogen, and oxygen. Albumen is found principally in the blood, and is taken as food in the form of eggs, meat, &c. Fibrine is used in the form of meat, and enters largely into the formation and nourishment of the muscular tissues of the body. Caseine is taken in the form of milk or cheese. Lastly, salt is an important article of food, as it imparts to the blood a necessary element of nourishment or preservation. It is present in the human body to the extent of about three ounces. To sum up the foregoing, it may be observed briefly that food, to be wholesome and nutritious, should consist (1) of nitrogenous or flesh-producing foods containing the proteine elements of albumen, fibrine, and caseine, and contained in eggs, meat, milk, and bread; (2) of heat and force-producing or respiratory food, as exemplified in starch and sugar, fat, &c.; (3) of mineral food, as contained in salt and vegetables; (4) of such food as may be called auxiliary, as tea, coffee, wine, &c. (*See* DIET.)

Food for Domestic Animals.—The greatest favourite as an in-door pet is generally the dog, and to keep him in health one cannot be too particular in regard to his feeding. Twenty per cent. at least of his food ought to be flesh; the bread or biscuits on which he is fed, if soaked, should have added thereto a liberal supply of sheep's-head broth, with a portion of the meat. This, with boiled lights, horseflesh, well-cleaned paunches, rice, oatmeal, and an occasional bit of boiled liver or cabbage, forms his staple food; while bones, greaves, sweets, and grease of all kinds must be avoided. *Cats* are generally fed from the scraps of the table. They need, like dogs, a good supply of flesh, and nothing can be better for them than boiled bullock's lights or a little nicely-cooked horseflesh; fish is likewise a great treat to them. Oatmeal porridge and milk should form their breakfast, and they ought always to have water to drink. When a cat is ill, the diet should be low at first; when recovering from sickness, it ought to be at first tasty and afterwards abundant. *Birds.* For the food of

canaries, *see* under the heading of CANARY. Blackbirds may be fed upon the ordinary bird or German paste, but they may also have bread, and occasionally a little meat. Starlings will eat almost anything; in addition, however, to the ordinary paste, small worms, flies, and fish may be given to them; also some green food occasionally. Larks ought to have hemp-seed, oats, poppy-seed, barley, and bread-crumbs. Thrushes need a little raw beef cut fine, bruised hemp-seed, or German paste. Bullfinches, if allowed to run about, may be fed on German paste, varied with a little hemp-seed; if kept in the cage, on rape-seed soaked in water, a little plain biscuit occasionally, and in summer some green food. Nightingales want ants' eggs in summer, with three or four mealworms a day, ox or sheep's heart roasted and chopped fine without the fat, or even lean meat, roasted and grated with carrots, may be mixed with the ants' eggs; and in autumn, elderberries, if good and ripe, in addition to ants' eggs. *White rats* should be fed principally on bread and milk, an occasional bit of biscuit, nuts, hard-boiled eggs, meat, or the usual scraps of the table, excepting ham, cheese, or anything salt. *White mice* require bread and milk, grain of any sort, oatmeal, or biscuits, but nothing salt. *Squirrels* are fed on fruit, nuts, acorns, filberts, beech-nuts, almonds, &c., but they are also very fond of bread and milk. *Tortoises* ought to be turned out in the garden to forage for themselves; in winter they go to sleep. *Guinea-pigs* should have barley or oats twice a day, and some green food, such as parsley, sow-thistles, &c.; they are also fond of fruit, and of bread and milk. *Monkeys* are best fed on farinaceous diet, such as bread, and the best milk—not skimmed. Give nuts and fruit occasionally; and if at all delicate, give in autumn from half a tea-spoonful to a dessert-spoonful of pure cod-liver oil twice a day.

Food, Seasonable.—The times when meat, poultry, fish, and vegetables are considered to be in season are as follow:—

Meat.

Beef	All the year round.
Mutton	Do.
Veal	March to July.
House Lamb	Christmas to Lady Day.
Grass Lamb	Easter to Michaelmas.
Pork	November to March.
Sucking Pig	All the year round.

Beef is always in season, and can always be obtained in good condition. It is, however, best in winter, as it may then be kept long enough to make it tender. Mutton, too, is best in winter. During the hot weather it should be chosen with care, as the sheep are then liable to become diseased. Pork also is considered unwholesome in hot weather.

Poultry.

Capons	October to December.
Chickens	April to November.
Ducklings	March to May.
Ducks	June to February.
Ducks, Wild	September to February.
Fowls	April to November.
Geese	September to January.
Green Geese	March to November.
Grouse	August to October.
Hares	September to February.
Leverets	March.
Moor Game	August to October.
Partridges	September.
Pheasants	October.
Pigeons, Wild	March to August.
Plovers	September.
Rabbits, Tame	All the year round.
,, Wild	June to November.
Teal	September.
Turkey Poults	April to November.
Turkeys	October to January.
Venison, Buck	June to Michaelmas.
,, Doe	November to January.
Wheatears	July.
Widgeons	September.
Woodcock and Snipes	November.

Fish.

Brill	August to April.
Carp	December to April.
Cod	April and May, and October to January.
Crab	April to August.
Dory	Do.
Eels	August to January.
Flounders	August.
Grayling	Every month but April and May.
Haddock	July to December.
Halibut	April to November.
Herrings	March to May.
Lobster	April to August.
Mackerel	May to June.
Mullet, Red	April to September.
,, Grey	June to August.
Oysters	September to April.
Perch	January to April.
Pike	All the year round.
Plaice	January to September.
Salmon	February to September.
Skate	April.
Smelts	November to May.
Soles	January to December.
Sturgeon	March to August.
Tench	December to April.
Trout	April and May.
Turbot	March to September.
Whitebait	March to July.
Whiting	All the year round.

The seasons for fish vary, the spawning-time being regulated by the heat or cold of the weather. Particular attention should, however, be paid to the proper seasons, as many fish are very unwholesome when out of season.

Vegetables.

Angelina Stalks for preserving	May and June.
Artichokes	July to September.
,, Jerusalem	September to February.
Asparagus	April to July.
Beans, Kidney	June to August.
,, Scarlet	July to September.
,, Windsor	June to August.
Beetroot, Red	January to December.
,, White (the leaves)	July.
Borecole or Scotch Cale, or Kale	November to January.
Broccoli	October to March.
Brussels Sprouts	Winter and spring months.
Cabbage	May to end of year.
,, Red	July to September.
Cardoons	November to February.
Carrots	May to August.
Cauliflowers	June to August.
Celery	September to January.
Chervil	March to December.
Corn Salad	May to July.
Cucumber	June to September.
Endive	June and through the year.
Eschalots	August to November.
Leeks	September to February.
Lettuce, Cos	April to August.
,, Cabbage	Do.
Mushrooms	May to October.
Onions for keeping	Sept. and rest of the year.
Parsnips	October to May.
Peas	June to September.
Potatoes	May and through the year.
Radishes	Mar. and following months.
Salsify	July to February.
Sea Kale	April and following months.
Sorrel	All the year round.
Spinach, Spring	Mar. and following months.

Spinach, Winter - -	Oct. and following months.
Tomatoes - - -	August to October.
Turnip Tops - - -	March to June.
Turnips - - - -	May and following months.
Vegetable Custard Marrow - - - -	June to September.
Vegetable Marrow -	Do.

Fool (Cookery).—The word fool, used in cookery, is a corruption of the French *foulé*, milled, mashed, or pressed. Thus a fool is any fruit (principally gooseberries) which has been boiled till it is soft, mashed, pressed through a sieve, and mixed with cream. "The good people of Northamptonshire, however, maintain that the cooks who make the fool in this way are themselves little better than fools." They simply wash the fruit, and dispense with the use of a sieve or cullender, declaring that a fine natural flavour resides in the skin of gooseberries which no art can replace, and on this account they do not separate the skins from the pulp.

Foolscap.—A size in paper, the word being supposed to be a corruption of the Italian *folio-capo*, a folio-sized sheet. If so, however, such corruption must be of very ancient origin, as from a very early date the water-mark of this paper has consisted of a fool's cap and bells.

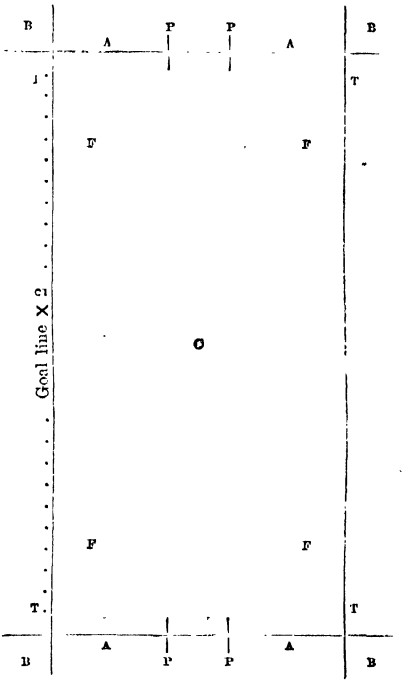
Foot. (*See* Feet, Ailments of; Feet, Care of.)

Football.—This is one of the most ancient English sports, although the game as at present played is of comparatively recent origin. In the olden times, towns and villages were often matched against one another, the whole of the able-bodied inhabitants of the rival places generally taking part in the contest. There does not seem to have been much science in these old-fashioned games, the ball being kicked or carried at will, the object of each side being, of course, to bring it to the desired goal; the goals themselves were often miles apart, and usually consisted of natural objects, as bridges, brooks, or rivers. The game thus played still lingers in some old towns and villages in England and Scotland, and makes its appearance on certain special days of the year.

At the present time, several modes of playing football are in actual use, many of the public schools still retaining their own peculiar rules. These variations in the rules have, however, always militated seriously against the popularity of the game, and several attempts to bring about uniformity have been made. The result of these was to establish some years ago two great associations of football clubs in all parts of the kingdom—the Rugby Union and the Football Association—each of which has drawn up a code of rules by which the game is governed. These two codes differ greatly in several fundamental points to which attention will be drawn, but the scope of this work altogether forbids publication of both codes in detail.

In all football—whether as played at the public schools, or by Rugby Union, or by Association clubs—the prime object of the rival players is to drive the ball towards their opponents' goal, and to score "a goal." What this goal is will be seen from the accompanying diagram of the field of play, which, it may be remarked in passing, should be turf, and as level as possible.

The ground from goal to goal should never be less than 100 yards in length nor more than 200 yards. Its width from touch-line to touch-line should vary from a minimum of 50 yards to a maximum of 100 yards, according to its length. The lines of touch are usually marked out by flags, five for each line. Each goal for the Rugby Union game is composed of two upright posts, exceeding 11 feet in height from the ground, and placed 18 feet 6 inches apart,



PLAN OF THE FIELD.

AA. Goal Lines.
PP. Goal Posts.
F. Field of Play.
C. Centre of Play.
TT. Lines of Touch.
B. Touch in Goal (for Rugby Union Game).

with a cross-bar 10 feet from the ground. For the Association game the posts should be 24 feet apart, with a tape or bar across them 8 feet from the ground. Now in the Rugby Union game a goal can only be obtained by kicking the ball from the field of play direct (*i.e.*, without touching the ground or the dress or person of any player of either side) *over* the cross-bar of the opponents' goal, whether it touch such cross-bar, or the posts, or not; but if the ball goes directly over either of the goal-posts, it is called a poster, and is not a goal. In the Association game, on the other hand, a goal is won when the ball is kicked between the goal-posts *under* the tape or bar. The balls in use themselves vary for the two games, that in vogue for the Rugby Union being *oval* or *egg-shaped*, and that used by the Association being *round*. Another salient point of difference between the two games lies in the fact that the Rugby Union rules allow a player to *take*

up the ball whenever it is rolling or bounding, and run with it towards his opponents' goal, while the Association rules strictly forbid any player to *carry* or *handle* the ball, under any pretence whatever, except in the case of the goal-keeper, who is allowed to use his hands in defence of his goal, either by "knocking on" or throwing, but he must not carry the ball. For this reason the Association game consists principally of *kicking*, and the Rugby Union of *running with*, the ball. Be this as it may, both games demand a large amount of pluck and endurance in the player, and strength of limb, speed and nimbleness of foot, quickness of eye, and a cool disregard of knocks and bruises, all help to make up the football player *par excellence*. Very much has been said as to the dangerous character of the game of football, and it cannot be denied that in common with most other hardy sports a certain element of danger does attach to the game. It may even be allowed that the dangerous element in football somewhat exceeds that in other sports—except, of course, hunting—but this notwithstanding, nay, perhaps rather as a natural result of this (for what boy is there who does not love a spice of danger?), football is becoming daily more popular, and now bids fair to rival cricket itself as the great national sport of the youth of the country.

Foot-pan, or Foot-bath.—This is a small vessel of iron or earthenware in which to wash the feet, which, as it usually forms a piece of furniture for the bedroom, is painted in a bright and somewhat decorative way, in imitation of the particular toilet ware, ewers, basins, &c., used for that apartment.

Foot-warmer, Foot-bottle.—There is an old saying that if a man could keep his head always cool and his feet always warm he would never die. This is, of course, an impossibility; but it is an acknowledgment of the necessity of keeping the feet warm if health is to be preserved. To secure this end, foot-warmers and foot-bottles have been invented. Foot-warmer is the name given to pans filled with hot water, and placed under the feet in railway carriages and elsewhere. Foot-bottles are large stone bottles intended to be filled with hot water, and used for the same purpose. Though in cold weather and in cases of illness these inventions are invaluable, their constant use by those in robust health should be avoided, as they are liable to induce susceptibility to cold.

Footman.—In a complete establishment a footman has quite a round of daily duties. In the morning he assists in rubbing furniture in dining-room and library, cleans windows, sets out in the butler's pantry articles required at the breakfast-table, and afterwards cleans and puts them back in their places. Later he has to be ready to attend the carriage, to answer bells, and to obey orders given by his employers. He may have to attend members of the family in their walks. He helps to prepare the table for dinner, and attends at that meal, after which he cleans and puts away the things. At tea he waits again; and when the tea-things are put away, his daily work is usually done. A sole footman brushes the gentlemen's clothes, polishes their boots, lays the cloth for breakfast, places cups and saucers, &c., on the table, and sees that the water boils. The china, plate, &c., used at breakfast are cleaned and put away by him; he cleans candlesticks, trims lamps, rubs furniture, and cleans windows; he answers bells, accompanies his mistress with the carriage or in her walks. Other duties are obligatory, but attention to the table at which he waits is most important, and it is his place to keep glass, plate, knives and forks, table-cloth, and other articles in order in every way. Candles are put into the candlesticks by him; he carries up chamber candles, he places his master's slippers, closes windows and shutters, locks up doors, and counts plate, &c., at night. His duty, as regards personal appearance, dress, and demeanour, calls for no remark; and it is needless to say that, considering the trust reposed in him, his aim should be to cultivate high principle. The position of a footman is by no means a sinecure, or one which can be worthily filled by a dilatory or otherwise inefficient person. In the matter of livery, the footman is on a level with other livery servants, both as to privilege and duty; he has both dress and undress suits from his employer, and has only to find linen, stockings, shoes, and washing. Wages and sundry other matters are subject to private agreement when engaged.

Footman (Furniture).—A metal plate of brass or copper, with feet, intended to stand within the fender before the fire and support plates, dishes, or keep toast, tea-cakes, muffins, &c., from getting cold at meal-times.

Foots.—This name is given to refuse sugar, the scrapings of the sugar-bags, waste, and dirt, and is sold to the publicans, who use it in the adulteration of their beer. It imparts briskness to the ale and enables more water to be mixed with it.

Footstools are used to support the feet of those who sit. They are generally made to harmonise with the carpet, and are convenient appendages to a room. In Paris, upon the entrance of a lady into a café or salon, a footstool is usually brought out immediately and placed before her.

Forcemeat.—Forcemeat is an indispensable accompaniment to many made dishes, and is intended to give an additional relish to the meat with which it is served. The French word for forcemeat is *farce*, and this word admirably expresses the use to which the French apply their forcemeat. They surround and swell out their meats with it to such an extent that very often the dish professing to be solid meat proves to be more than half a farce. The ingredients of which forcemeat is composed are very numerous, and must be so thoroughly incorporated and well proportioned that no one flavour shall predominate. The judicious use of herbs in the French forcemeats is one great secret of their superior flavour. Some mild meats require a highly-seasoned forcemeat, while the strong meats need only a delicate accompaniment. For the different forcemeat recipes for game, meat, and fish, see "Cassell's Dictionary of Cookery."

Forceps.—This is an instrument very much used for anatomical and surgical purposes. It varies in shape and size according to the use to which it is intended to be applied. An ordinary pair of forceps (dissecting) consists of two curved steel blades, joined at the one end and springing apart at the other. These are made rough on the inside, in order that when the opposing ends are made to grasp any object, by the action of the finger and thumb upon the blades, they may retain a firm hold. Midwifery, bullet, polypus, tooth, and other forceps are more elaborate in their construction.

Foreign Bonds.—Shares, bearing interest, in the debt of some foreign country. These shares are not usually issued at *par* (i.e., at their full nominal value), but at some price less than par varying according to the credit of the country issuing them. Many foreign bonds are repayable at par, either at some definite future period, or by annual drawings spread over a fixed number of years. With the bonds are usually issued series of coupons (*which see*) for the payment of interest.

Foreign Enlistment.—This is the subject-matter of two Statutes known as the Foreign Enlistment Acts. The first of these is the 59 Geo. III. c. 69. It enacts that if any natural-born subject of Great Britain (without licence, obtained under the royal sign-manual, or by Order in Council, or by proclamation) shall accept any military commission or enlist as a soldier or sailor in any foreign service, or go to any foreign country with an intent to enlist, or endeavour to procure any other person so to enlist, and if any person within the realm shall fit out any armed vessel for the service of any foreign state, or issue any commission for any such vessel, or alter the number of guns, or be concerned in augmenting the force of any foreign armed vessel arriving in this country, he shall be guilty of a misdemeanour, and may be punished with fine or imprisonment, or both. A ship having on board such a person may be prevented from proceeding on her voyage, and the master thereof, if he know that such a person is on board, may be fined £50 for every such person. A proclamation, gazetted May 14th, 1860, prohibited the interference of British subjects in the war between the States of America. During the Franco-Prussian war of 1870-1, the other Foreign Enlistment Act, which is of a more stringent character, was passed—viz., the 33 & 34 Vict. c. 90, "to regulate the conduct of her Majesty's subjects during the existence of hostilities between foreign states with which her Majesty is at peace." By it provision is made, *inter alia*, for the prevention of illegal enlistment, illegal ship-building, and illegal expeditions, &c.

Foreigners.—This topic is partly explained under the heading of ALIEN, but a few words may be added here. A foreigner is required to render local or temporary allegiance while he remains in the country, and is therefore subject to the same general obligations as ordinary citizens. His right to property has been stated in the article above referred to; but he is also allowed to employ servants, and to follow any trade, business, or occupation. The courts of law and all the ordinary privileges of citizens are available to him; indeed, he enjoys most of the immunities of natural-born subjects, and is generally in much the same position until he either leaves the country or is naturalised. (*See* NATURALISATION.)

Forfeiture is a punishment annexed by law to some illegal act or negligence of an owner or tenant of property, whereby he loses his interest therein, together with his title, the same going to the party injured by such act or negligence. By the Statute 33 & 34 Vict. c. 23, forfeiture or escheat of lands on the ground of treason or felony is abolished, but of course remains for any other cause. The law of forfeiture is still applicable between landlords and tenants for breaches of covenants contained in leases; but the Courts have now more extensive powers to relieve against such breaches than formerly. (See the Statutes 15 & 16 Vict. c. 76; 22 & 23 Vict. c. 35; the Common Law Procedure Act, 1860; and 23 & 24 Vict. c. 126.) (*See* ESCHEAT.)

Forfeits.—Forfeits are a feature of what are called round games, to which the "crying of forfeits" is supplementary. Two young people are selected as crier and teller. The crier sits down, and the teller kneels blindfold before her. The forfeits are handed to the crier by the collector. One by one these are held over the teller's head, with a question as to what its owner is to do, and the teller imposes a task or penance upon each. The penitents, as the owners are called, have to do what they are bidden, which is usually something puzzling, and should always be amusing. A good list of these is given in Vol. II. of "Cassell's Popular Recreator." Of course the forfeits are restored on the performance of the penance, which should never be either very difficult or likely to cause any unpleasantness, and should always be suited to the age and accomplishments of the penitent.

Forgery is where a person counterfeits the signature of another with intent to defraud, which, by the law of England, is made a felony. Forgery may be committed by making a mark in the name of another person; it may also be committed in the name of a person who never had any existence; and it may be committed of an instrument, although such an instrument as the one forged does not exist either in law or fact. Endorsing a real bill of exchange with a fictitious name is forgery, although the use of the fictitious name was not essential to the negotiation. The falsely making or counterfeiting of any coin resembling or intended to pass for the current coin of the realm is specially made felonious by Statute 24 & 25 Vict. c. 99, and subjects the offender to penal servitude for life, or for any term not less than three years, or imprisonment for any term not exceeding two years, with or without hard labour, and with or without solitary confinement. A forged bank note (although the word pounds is omitted in the body of it, and there is no water-mark in the paper) is a counterfeit note for the payment of money. Forgery at common law was a misdemeanour, but the

law of England and Ireland on this subject has been consolidated by the Statute 24 & 25 Vict. c. 98. Capital punishment for forgery is abolished, and the punishment is penal servitude, varying from life to five years, or imprisonment for not more than two years. As to the forgery of stock certificates, see further 26 & 27 Vict. c. 28, s. 14—16, c. 73, s. 13—15, and 33 & 34 Vict. c. 58. (*See* BANK NOTES.)

Forget-me-not.—This flower is a hardy perennial, and as it grows very freely it requires, when once planted, only to be thinned out, and when it needs transplanting the smallest piece will root. It is exceedingly useful for making a border, and when in blossom the brightness of its blue colour forms a pretty



FORGET-ME-NOT.

variety. It also looks well planted in large masses in shrubberies or large borders, and if well watered will keep in flower a long time. It may be grown in pots for the window or conservatory, and when so done water should always be kept in the saucers. It is propagated by seed or cuttings. The latter should be placed under a hand-glass.

Fork-handles, Care of.—Steel forks and knives should on no account be laid into boiling or hot water to wash them. They should first be wiped on a dish-cloth, then plunged into a jug which contains as much soda and lukewarm water as will barely cover the steel part, and whisked round and round for a few minutes. When they are clean they should be rinsed in cold water and dried in a cloth. If by any chance the handles are allowed to touch the hot water they will be liable to become loose, or if they escape this they will become discoloured, and lose their handsome appearance.

Fork-handles, To Fasten.—When through carelessness or accident the handles of steel knives or forks have become loose, they should be pulled quite out, and the pointed part of the steel should be put into the fire till it is red-hot. Meantime the vacant hole in the handle should be filled with finely-powdered resin, and when it is ready the point should be pushed gently into its place till the bone touches the top of the blade. This must be done carefully, or the bone will be cracked. If any of the melted resin run over the side of the hole it should be wiped away before it has time to dry. Fork-handles mended in this way should no more be put into hot water than when in their original condition.

Forks.—Forks were not in general use as accessories to the table until a comparatively recent period. The Greeks, Romans, and other ancient nations knew nothing of them, excepting those used in the field and for taking meat out of pots. The cooked meats placed on the table were cut into small pieces, and could easily be taken in the fingers. It is most probable that to Italy belongs the merit of this very useful invention. The Italians as far back as the fifteenth century were acquainted with the use of forks. These were made of iron and steel, silver ones being very rare. A traveller of the name of Coryate is thought to have been the first to introduce the use of the fork into England, though some writers are of opinion that they were known by our Anglo-Saxon forefathers. In 1834, when cutting a deep drain in North Wilts, a box was found in a decayed state containing seventy Saxon pennies, some sovereigns made in the eighth century, some articles of personal ornament, a spoon, and a two-pronged fork. The first royal person in England who is known to have possessed a fork was Queen Elizabeth. Several valuable specimens were presented to her, but she seems to have kept them as ornaments rather than for use. Even after the introduction of forks into our country their use was not universally adopted for some time. The manufacture of steel forks at Sheffield, however, by making them within the reach of nearly all, caused them to be used much more extensively, and now they take their place with other utensils as articles of necessity. Forks are supplied for distinct purposes: we have dinner forks, dessert forks, fish and pickle forks, each of which has a shape and design peculiar to itself.

Form.—A long seat or bench. Forms are provided in many schools instead of chairs for the use of the pupils. They are objectionable, as being likely to produce suffering, weariness, and it may be serious mischief, such as distortion of the spine. Ordinary comfortable chairs, with properly sloping backs, are much to be preferred. There is no advantage to be gained by the child in connecting his idea of study with discomfort.

Form (Legal).—The legal exterior or wording of a document apart from its substance. The observance of prescribed forms in legal matters is very important, as from some apparently slight neglect or omission in them the most serious consequences sometimes result. Hence it is always most advisable, if not imperative, to act in legal matters with professional assistance.

Formâ Pauperis, In.—In the character of a pauper. This is, in law, when a person has just cause of suit, but is so poor that he cannot defray the usual charges of maintaining an action; in which case, on making oath that he is not worth £5 in the world, excepting his wearing apparel and the matter involved in the action, he will be permitted to sue "*in formâ pauperis*," i.e., without paying fees of court, counsel, or solicitor; the Statute 11 Hen. VII.

c. 12, having enacted that counsel and attorneys, &c., shall be assigned to such poor persons gratis. No person can sue *in formâ pauperis* unless the case laid before counsel and his opinion thereon, with an affidavit of the party or his solicitor that the same case contains a full and true statement of all the material facts, be produced before the Court or judge to whom the application is made; and no fees are payable to counsel and attorney, nor to any official of the court, by reason of a verdict for such pauper exceeding £5. A person admitted to sue *in formâ pauperis* is not in any case entitled to costs from the opposite party, unless by order of the Court or a judge.

Fortune-tellers.—Persons pretending or professing to tell fortunes. They are punishable as rogues and vagabonds.

Foster-child.—A child nursed by a woman not the mother, or bred by a man not the father.

Foulards.—This material came originally from India. It has been successfully imitated, especially in France, where it is manufactured at Lyons and Avignon, but as yet the Indian foulard surpasses the European. The only defects in the former are the eccentricities displayed in patterns and colours, for a favourite choice is that of yellow designs on red ground. French designs and shades of colour are particularly artistic. Dresses of foulard are very light and especially cool and pleasant for summer wear. This material can be washed with impunity; its chief drawback is its liability to tear, and when torn its liability to rove very quickly, so that a neat darn is often impracticable.

Foundations.—In general, a foundation is an institution which owes its origin to the beneficence of some one who has established and endowed it for some useful object. Colleges and free grammar-schools mostly originated in this way, and are more or less supported by their endowments. Students or pupils who are received on the foundation are taught out of the funds of the institution either wholly or in part. Foundation scholarships are usually estimated at a certain annual value, and their holders profit to that amount for a specified time.

Four-post Bedstead. (*See* BEDSTEADS.)

Fowls, Domestic. (*See* POULTRY.)

Fox.—The common fox of our own country is termed by naturalists *Vulpes vulgaris*, and belongs to the natural family *Vulpidæ*. The fox is now considered by most naturalists to differ in a great many points from the genus *Canis*, the principal of these being the elongated pupil of the eye, bullet head, and pricked ear, long body placed on short legs, and bushy tail. These differences, however, with the single exception of the pupil of the eye, are to our mind more apparent than real. The tails of some Landseer (or white and black) Newfoundlands are quite as bushy as that of the fox, we have pricked ears in the Dalmatian, and a long body on short legs in very many breeds. The general appearance of the common fox is too well known to need description. It burrows in the ground like the rabbit, but prefers a ready-made home to making one for itself. Its food is game of all kinds, and it likewise has a *penchant* for farmyard stock; but if everything else fails, it does not hesitate to make a



COMMON FOX.

meal of insects or worms, or even the shell-fish it may pick up about the sea-shore. The Arctic fox (*Vulpes lagopus*) is somewhat like a Pomeranian dog in appearance, but is much sharper in the muzzle. Unlike our own fox, it is very cleanly in its habits, and emits no unpleasant odour. There is also a Persian fox (*Vulpes Flavescens*); an American fox (*Vulpes Fulvus*), not unlike our own; and several other varieties.

Fox Fur.—Of the different varieties, all of which chiefly exist in North America, that called the black and silver fox is the most highly prized, a fine specimen of this being worth very many guineas. In this fur a few silver hairs are scattered through the black, which add much to its beauty; owing to this peculiarity it is sometimes called the black, and sometimes the silver fox. The common fox, like that of England, is found in America, through all shades of grey; whitish hairs are intermixed with those of leaden colour, and this combination forms a silver-grey. Light-coloured furs are not much esteemed in England, and therefore these furs, with the exception of the black fox, are not often brought to this country, but find a ready sale in other lands. A couple of skins alike in colour are worth much more in proportion than single skins, as one alone is not sufficient for a trimming of any kind. The fur of the red fox which inhabits Northern Asia is particularly fine; it is much used in Persia and China for the trimmings and linings of robes; the fur is further ornamented by having the black paws of the animal introduced, which form a good contrast to the brilliant colour of the fur itself.

Foxglove, Purple. (*See* DIGITALIS.)

Foxhound.—This is the dog, or hound, used in this country for the purpose of fox-hunting. Great care is taken to breed it up to the highest standard of excellence, the qualities aimed at being speed, scent, endurance, strength, intelligence, and obedience to command. The following are the points of this

noble animal: head small and light, forehead a little wrinkled, and appearance of countenance wise; the neck thin, long, and clear, with no throatiness or dewlap; ears set low, and lying close to head; chest and ribs deep; shoulders placed obliquely; legs bony and muscular, and as straight as darts; feet round, and toes moderately well arched, with a staunch hard sole (Beckford says that a hound weak at the knees or out at the elbows should never be taken into the pack); back broad and straight; loins strong and muscular; hind-quarters strong, wide, and square; thighs long and well developed; tail carried high, and somewhat curved, thick, and ropy, but stingy at the tip; coat abundant, but smooth. The colour of the fox-hound varies. We have the Belvoir tan, viz., black-tan with a little white. We have hare-pied and badger-pied hounds, as well as hare and badger tans, and yellow and blue mottles.

Fractions. — In arithmetic, or algebra, a fraction is any part or collection of parts of a unit or whole number, and always consists of two members—the numerator and the denominator. Of these the denominator shows into how many equal parts the whole is divided, while the numerator denotes how many of those equal parts are taken to form the fraction in any given case. Thus in the fraction $\frac{2}{3}$, 2 is the numerator, and 3 the denominator. We know, therefore, that in this case the whole unit is divided into three equal parts, of which two are taken to form the fraction. Fractions are either *vulgar* (or common) or *decimal*. In the case of the latter the denominator, which is understood and never expressed, is always 10 or some multiple of 10. (*See* DECIMALS.) Vulgar fractions may be either *proper* or *improper*. According to Colenso's definition, "a *proper* fraction is one whose numerator is *less* than the denominator, and which is itself, therefore, *less* than the whole in question; as $\frac{5}{8}$, $\frac{4}{7}$. An *improper* fraction is one whose numerator is *equal* to or *greater* than the denominator, and which is itself, therefore, *equal* to or *greater* than the whole in question; as $\frac{8}{8}$, $\frac{11}{7}$." A *compound* fraction is one which consists of several numerators and denominators, or in other words it is a *fraction of a fraction*; as $\frac{1}{2}$ of $\frac{1}{4}$ of $\frac{3}{4}$. A *complex* fraction is one in which either numerator and denominator or both are a fraction; as, $\frac{2\frac{1}{4}}{4}$, $\frac{3}{1\frac{1}{2}}$, $\frac{3\frac{1}{2}}{5\frac{1}{4}}$. A *mixed* number consists of a whole number and a fraction; as $3\frac{1}{2}$.

Fractures.—This subject is fully dealt with under the heading of BROKEN BONES.

Frames, Embroidery. (*See* EMBROIDERY FRAMES.)

Frames, Gilt, To Clean.—If you take about as much soft soap as will cover a shilling and mix it with half a pint of rain-water, and add to this, in a bottle, half a wine-glassful of spirits of hartshorn, you will have a liquid which may be effectually used for cleaning old gilt frames. In using it apply with a soft camel-hair brush, and after it has remained on the frame a minute or two, wash it away by the free application of soft clean water, and allow it to dry by placing it in the sun or a draught. On the following day the gilding where burnished may be rubbed very slightly with a piece of new wash-leather, to restore its brilliancy.

Frames, Picture, To Gild.—The mouldings are prepared for gilding in lengths of about six feet, to be afterwards cut to the requisite sizes and *mitred* together. To secure a smooth polished surface, upon which the beauty of the gilding may be most effectually displayed, the moulding is coated with a somewhat thick coating of size and whiting, applied in repeated coats with a brush, the first being used very thin, and afterwards smoothed down with pumice-stone and sand-paper. This is afterwards coated with oil gold size, upon which, when it is partly dry, the gold leaf, sold in small books, is carefully laid, and smoothed down lightly with a brush and a piece of wool. The gold leaf is removed from the book with a knife sold for the purpose, and dexterously placed flat and smooth upon a padded leathern cushion, upon which it is cut to the required sizes with the knife, the pieces so cut being taken up with the aid of a peculiar brush sold for the purpose, and applied where they are intended to remain on the moulding. The gold is sometimes afterwards coloured, rendered dead, or burnished, wholly or in parts. Where the frame is carved, the preparatory mixture is used thinly. The art of gilding is a very ancient one, and is spoken of in the Bible, as well as by Homer, Herodotus, and others. The Carthaginians are supposed to have been the first people who applied gilding to the decoration of their homes.

Framework Knitting.—Machines have been brought into use by which both plain and fancy knitting stitches are closely imitated. Shawls, veils, vests, clouds, cardigans, and a great many other articles are made in this manner, in great variety of pattern and stitch. The cost of these is considerably less than those similar knitted by hand; indeed, they may be reckoned as being one-third the price. Those knitted by hand are, however, much superior in wear and durability. They possess more warmth, they are softer and more pliable, and they have one very great advantage—that of looking none the worse when washed. This is one of the chief drawbacks to framework knitting, that white articles so made turn a yellowish tint, and all are liable to contract and lose elasticity when subjected to the process. Notwithstanding this, woollen articles of this description are brought within the reach of many, owing to the cheapness with which they can now be made.

Franchise.—In law, the words franchise and liberty are used by some as synonymous terms; and their definition is "a royal privilege or branch of the Sovereign's prerogative, subsisting in the hands of a subject." Being therefore derived from the Crown, they must arise from the Sovereign's grant; or in some cases may be held by prescription, which presupposes a grant. The kinds of them are various and almost infinite. The principal are, to be incorporated and subsist as a "body corporate," with

a power to maintain perpetual succession and do other corporate acts, and each individual member of such corporation is said to have a franchise or freedom; to hold a court-leet; to have a manor or lordship; to have waifs, wrecks, astrays, treasure-trove, fisheries, &c.; to hold fairs and markets—the remedy for disturbance in any of these being by action. The right to vote in the election of members of Parliament also generally passes by this title. (*See* ELECTORAL FRANCHISE.)

Frangipani.—This perfume was invented by a Roman noble, the Marquis Frangipani, who was "Maréçhal des Armées" of Louis XIII. of France. It was a powder or sachet, composed of every spice then known in equal proportions, to which was added ground orris-root and musk. The liquid of the same name was invented by his grandson, and is prepared by digesting the Frangipani powder in rectified spirits. It is considered the most lasting perfume known.

Frankincense.—A gum-resin, very inflammable and, when burnt, very fragrant. The name itself is said to be derived from the freedom with which this resin diffuses its odour. Its commercial name is *olibanum*, and it is the produce of *Boswellia thurifera* or *serrata*, growing principally in the Levant.

Fraud is infinite in character. Some of the instances at law are as follow:—Falsely and fraudulently warranting a specific article sold; falsely and fraudulently representing a man as a safe customer, where the representation is intended to be acted upon, and is in writing (under 9 Geo. IV. c. 14, s. 6); recklessly asserting, without any knowledge of the matter, or, what is worse, with a disbelief of his own assertion, the existence of a certain state of circumstances, and inducing any one in reliance thereon to act upon an erroneous assumption, to his loss, &c. An action for damages will generally lie in every case of fraud. *Suppressio veri* (suppression of the truth), or *suggestio falsi* (suggestion of falsehood), in deeds or agreements affords sufficient ground for setting them aside. There are also many instances in which a person standing by, and by silence contributing to fraud, may be compelled to remedy the mischief his fraudulent silence has occasioned. The term "constructive fraud" indicates such acts as, though not originating in any base design or contrivance to perpetrate fraud or injury, yet by their tendency to deceive or mislead, or to violate public or private confidence, or to injure the public interests, are equally reprehensible with positive fraud, and therefore equally prohibited.

Freckles.—A discoloration of the outer surface of the skin, in small round spots the size of a pin's head, usually produced by exposure to the sun and hot summer wind. Freckles are of a yellowish colour, and disappear with the warm season. In some cases they are permanent. To remove summer freckles a solution of bichloride of mercury or Goulard's lotion will be found very beneficial as an external application.

Freehold.—Frank-tenement (*liberum tenementum*) is land or tenement which a man holds in fee-simple, fee-tail, or for term of life. Freehold is of two kinds—in deed and in law. The first is the real possession of land or tenement in fee, fee-tail, or for life; the other is the right a man has to such land or tenement before his entry or seizure. A freehold by the common law cannot commence *in futuro*, but it must take effect presently, either in possession, reversion, or remainder. Whatever is part of the freehold goes to the heir, and things fixed thereto cannot be taken in distress for rent, or in execution, &c. No man shall be disseised of his freehold by Magna Charta, c. 29, but by judgment of his peers, or according to the laws of the land; nor shall any distrain freeholders to answer for their freehold in anything concerning the same without the Sovereign's writ. Freehold estates of certain value are required by statutes as a qualification for jurors, electors of the knights of the shire in Parliament, &c. The two distinguishing qualities of a freehold estate are—(1) immobility—that is, the estate must be either land, or some interest arising from or annexed to land; (2) indeterminate duration—for if the utmost period of time for which an estate can endure be fixed and determined, it cannot be a freehold.

Freemasonry.—This is a very ancient and powerful institution, so termed because its early founders are said to have been masons. Much speculation has been indulged in as to its origin, some tracing it back to the building of Solomon's Temple, and others even to so remote a period as the building of the Tower of Babel; others again variously trace it to the times of the Pharaohs, the early Roman Emperors, and the Knights Templars. By freemasons themselves the first of these dates—that of the building of Solomon's Temple—is generally received as that of the origin of the institution. The masonic brotherhoods of the Middle Ages seem to have been associations of architects, builders, and masons, originating in the fact that such men were compelled to travel in the course of their work from place to place and in various countries. To them their secret brotherhood, with its signs and symbols, afforded not only a certificate as to their qualifications, but also a means by which to lay claim, without fear of refusal, to the hospitality of a fellow-brother. Of this nature seem to have been the masonic societies introduced into England and Scotland about the thirteenth century. The professional character of these institutions seems, however, to have been gradually dropped, owing, no doubt, to some extent to the suspicious eyes with which they were regarded by the Church of Rome. In 1425 a severe Act against freemasonry was passed, but never came into active force; and some years later the office of Grand Master was held by King Henry VII. himself, he being the first of many succeeding kings and princes of this country to hold that post. The first grand lodge of the freemasons was established in London in 1717, and similar grand lodges rapidly appeared in foreign countries. The freemasons of Great Britain and Ireland are now a very numerous body,

but, other than in certain signs, symbols, and ceremonies, the professional nature of the society has disappeared, its place being taken by certain moral and social principles. There are three grades in freemasonry—those of apprentice, fellow-craft, and master-mason—each of which has its peculiar ceremonies of initiation; the full rights and privileges of brotherhood are, however, allowed to the last only of these grades.

Freestone.—As the term freestone signifies any rock which admits of being freely cut and dressed, the colours of each formation vary respectively one from the other. In Scotland the freestone is synonymous with sandstone, which is of a yellowish-drab shade. Granite and limestone have so been designated because one of the definitions of freestone is that the rock has no tendency to split in one direction more than in another, and thus can be worked freely in every way. Thus the colours may be white, bluish-grey, or reddish, and mottled.

Freezing Machines are constructed for the purpose of freezing liquids artificially. The manufacture of ice tends so much to increase our comfort and our enjoyment during the hot weather, and also is of so much assistance in various industrial processes and in the preservation of animal food in seasons and climates which hasten putrefactive changes, that the practical importance of these contrivances is increasing day by day. Very pretty little machines are now made for freezing ice for domestic purposes. They may be purchased at a reasonable cost, and can be worked with little difficulty. They are to be had to be used with ice and salt only, or with a chemical freezing mixture. The latter, however, is the more expensive of the two methods.

Freezing Mixtures.—The absorption of heat in the passage of bodies from the solid to the liquid state has been used to produce artificial cold. This is effected by mixing together bodies which have an affinity for each other, and of which one at least is solid, such as water and a salt, ice and a salt, or an acid and a salt. Sulphate of soda and hydrochloric acid may be used. Equal parts of powdered nitre and powdered sal ammoniac, mixed in about half as much again of water, will reduce the temperature to about 10°. When ice or snow can be obtained, a very effective freezing mixture may be produced by mixing it with about half its weight of common salt: this will reduce the temperature to nearly zero.

Freezing Point.—The freezing point, unless otherwise stated, is to be understood as that of fresh water, which is represented by 32° of Fahrenheit's, or zero of Reaumur's and Celsius's (or the centigrade) scale. It would be more correct to call it the melting point of ice, for still water, if great care be exercised, can be cooled below 32° without ice forming. The freezing point of sea-water is a few degrees lower, according to its saltness. That of mercury is 70° lower than that of water, or 38° below Fahrenheit's zero point.

French Beans. (*See* Beans.)

French Bedstead. (*See* Bedsteads.)

French Berries are the unripe fruit of the *Rhamnus infectorius*, belonging to the buckthorn family of shrubs, of spreading procumbent growth, and growing in rough rocky places. They are imported from Persia, the Levant, and the south of France. Some writers affirm that the Persian are of a distinct species from the French—the *Rhamnus amydalinus*. The decoction from these berries gives a yellow dye to cloth, when used with a mordant of alum, tartar, or protochloride of tin; an olive colour with sulphate of copper; and an olive-green with red sulphate of iron. It is chiefly used for dyeing morocco leather yellow; the dye is rich in hue, but fugitive, on which account it has been much superseded by mineral dyes.

French Bread.—Fancy breads, rolls, &c., are generally known by the name of French bread. This kind of bread is usually made of the finest wheat flour, and it is sometimes enriched with butter or eggs, and moistened with milk instead of water. The law which regulates the trade in bread provides that bakers must weigh their bread before selling it, but French bread is made an exception to this rule. It is said that the best bread in the world is made in London by French bakers from Hungarian flour. This, though exceedingly delicious, is not considered so nourishing as the ordinary English bread.

French Cambric. (*See* Cambric.)

French Chalk. (*See* Chalk, French.)

French Plums. (*See* Prunes.)

French Polish, To Apply.—French polishing is the process of coating wood with a fine smooth surface of varnish, and it can only be done properly by those who have been initiated into the art. The polish must not be laid on with a brush, but must be rubbed into the wood with a soft piece of woollen material. This rubber must be well oiled before use, as the lac would stick to a dry rubber and drag it from the wood. Plenty of time must be allowed by those who undertake the business of French polishing, and great care and patience must be exercised. A small quantity only of the preparation must be applied at once, and this must be rubbed continuously until dry. Several coatings have to be laid on to produce the desired effect.

French Polish, To Make.—The different varnishes sold as French polish are very numerous, and might with advantage be still further multiplied, as most of them require to be modified to suit the wood to which they are applied. Shellac is an important ingredient in all French polishes; to this oil and spirits of different kinds are added, according to the different recipes. Different preparations are used to impart the varying colours required. Dragon's blood is used to give a red, and gamboge a yellow tinge. When a dark-brown shade is required, brown shellac is used, while a little oxalic acid serves to keep the wood a light shade. It is not necessary to clarify French polish, as it is not requisite that it should be perfectly clear. The following ingredients, mixed

thoroughly, will form a French polish easy of application, and excellent for general use: twelve ounces of shellac, two pints of naphtha, and half a pint of linseed oil.

French Porcelain. (*See* PORCELAIN, FRENCH.)

French Wines. (*See* WINES.)

Fresco-painting.—Fresco-painting is a process of painting on fresh or wet stucco grounds of lime, or gypsum, with mineral and earthy pigments which resist the chemical action of lime, by which vegetable pigments would be injuriously affected. The pigments are those which have been burnt, ground in water, and in some cases mixed with lime, milk, or other suitable mediums. Of all kinds of painting, it is one which requires the most precision in execution. It is sometimes confounded with distemper painting (*which see*), from which, however, it is quite distinct. The earliest specimens of this branch of art are those of Egypt, which were painted upon the smooth unpolished surfaces of stone walls or columns, with pigments prepared with a medium which seems to have been composed of the yolks and whites of eggs, and a little vinegar to prevent cracking. The Greek frescoes are known by a few fragments, which exhibit a masterly and vigorous use of the process, and it seems that this style of painting was less practised, in consequence of the greater popularity of encaustic painting (*which see*). The ancient Romans employed fresco-painting, which they appear to have derived from the Etruscans, and afterwards from Grecian artists. Fresco paintings have been found in the ancient temples of India and amongst the ruined buildings and tombs of ancient Mexico and Yucatan. In the Middle Ages fresco-painting continued to be practised, and in the latter part of the fourteenth and early part of the fifteenth centuries a large number of remarkable fresco paintings were executed, some of which still retain much of their original brilliancy, clearness, and beauty. A great element of the wonderful durability of fresco-painting—the quality from which it derives its greatest value—is in the preparation of the surface on which it is produced, and the degree of care exercised in excluding from the materials all saline or alkaline matter, such as is produced by the decomposition of all animal and vegetable substances, and by which moisture, the great element of destruction in these paintings, is absorbed from the atmosphere. In reference to this subject a well-known architect says—"In the preparation of walls and ceilings for fresco-painting, no expense should be spared; battens and laths are obviously perishable materials, and therefore ought to be avoided; the damp from exterior stone walls may be guarded against by lining them with brick; and now that the use of cast-iron is so well understood, the girders or joistings of the houses where fresco-painting is contemplated should be of iron, arched with bricks between, and thus a perfectly level ceiling may be formed of the most durable kind."

Fresh Food. (*See* FOOD.)

Fret-saws.—These saws are those used in fret-cutting, an amusement of a very popular and attractive kind in many households. They are thin and narrow in the blade, with teeth formed like those of the hand, tenon, and dovetail saws; they run in length from three to fourteen inches, and have from thirty to ninety teeth to the inch.

Fretwork.—In classical architecture the fretwork means ornament composed of interlacing bands or fillets, intersecting at right angles, to form a more or less simple or complicated pattern; but the term is chiefly now used as the name given to a method of rendering wood decorative by sawing and cutting away the spaces between interlacing fillets, so designed as to form a large variety of ornamental patterns, such as are used commonly for the upright fronts of cottage and similar pianos. It is usually associated with carving in wood, under which heading we have given the names and descriptions of the tools required for fretwork. A beginner should fix first on one of the simplest kinds of fret, which may be transferred to the wood by the usual process of tracing, and executed with saws having thin small blades (*see* FRET-SAWS), with or without the aid of the fret-cutting tables, which give greater certainty and ease to the process. In "Cassell's Household Guide" a variety of designs are given for fretwork, together with a detailed account of how the art may be acquired by amateurs—a subject too extensive for practical treatment in the present work.

Friars' Balsam. (*See* BALSAM, FRIARS'.)

Fricassee.—This word is probably derived from the French *fricasser*, to fry, although some authorities maintain that it is a corruption of a Provençal word which means something nice. *Fricand* is dainty, and *fricot*, a dainty dish. A fricassee consists simply of a chicken, rabbit, or other small animal which has been cut up, prepared by semi-frying or stewing, and served in a highly-flavoured sauce. The dish is a favourite one, and may be enriched to any extent.

Friction (as a Remedy).—Friction, or simple rubbing with the hand, often does a great deal of good. It is a very soothing process, allaying the pain of flatulence, and calming muscular irritability and spasm, as in cramps of the bowels and legs. In India the practice of rubbing is a favourite one, and is resorted to by many persons nightly to induce sleep. It often proves highly efficacious. (*See* EMBROCATIONS.)

Friction of Metals, &c., To Diminish.—Whatever heat is developed by the friction of one body upon another represents so much effective work lost. Hence it is important to reduce friction as much as possible, independently of the fact that the greater the friction, the more the wear and tear. The heat produced may even, in some cases, set woodwork on fire, and cause the metal-work of machinery to become red-hot. The bearings of marine steam-engines often become so hot that the vessel has to be stopped, and cold water poured upon them; the axles of the

wheels of railway carriages often become similarly heated, rendering the stoppage of the train imperative. The best preventive of friction is the introduction of some substance of a greasy nature between the parts of the machinery which work upon one another. Any of the following substances are suitable: mineral, animal, and vegetable oils, except those which are known as drying oils, tallow, lard, soap. The selection of the unguent will depend very much on the articles to which it has to be applied. For watches and other delicate instruments the purest olive oil should be used; for machinery generally, any limpid oil, wherever it can be kept from running away too rapidly; for railway carriage wheels, an article of greater consistency, such as palm oil and tallow, is appropriate, as it soon becomes sufficiently liquid from the heat of the box; for cart-wheels a mixture of pitch and grease; and a wooden shoot, down which heavy packages are to slide, may be lubricated by being smeared with soap or tallow. Powdered black-lead, mixed with a little oil or lard, is a very good compound for easing the friction of woodwork.

Friendly Societies are institutions which have been established in comparatively recent times throughout the country for the maintenance, relief, &c., of the members and their families. There have been passed numerous Statutes for regulating these societies, among which are the Friendly Societies Act, 1875, and the Amendment Act, 1876, by which previous Statutes have been wholly or in part repealed, the law applicable to them amended and consolidated, and the purposes for which these societies may be formed enlarged and extended. In addition to the above purposes, they may now be formed for providing payments on birth of a member's child, or on the death of a member, or for the funeral expenses of the husband, wife, or child of a member, or of the widow of a deceased member; for the endowment of members at any age; for the insurance of cattle or of tools against fire; for working-men's clubs, or for any other purpose authorised by the Treasury. Before any such society can be established, its rules must be transmitted to and approved by the Central Office for the Registration of Friendly Societies. Formerly "building societies" were enrolled under the old Friendly Societies Act, and regulated by it so far as applicable; but these have now for some time been the subject of distinct legislation. (*See* BUILDING SOCIETIES.)

Frieze.—A coarse shaggy cloth somewhat resembling baize. It is made of wool, and its chief peculiarity is that of having a rough nap, and that on one side only; it is much used by the Irish for outer garments. On account of its name it has been erroneously supposed that this cloth came from Friesland; but the explanation is that the word frieze means the nap on cloth, and thus the designation has arisen.

Frilling.—A trimming, either for outer or under clothing, composed of cambric, muslin, ribbon, and various other materials. It is usually machine-made, and is sold by the yard. The muslin and lace frilling now attached underneath the edge of the skirt of a silk or velvet dress is known by the French name of *balayeuse*, or sweeper, as it performs that office for the dress, and thus preserves its cleanliness. Frillings were formerly hand-made, but the comparative cheapness of machine-work has occasioned its universal adoption.

Frills are composed of muslin, cambric, net, lace, tulle, and crape, either plaited or gathered at one side, and sewn into a band. They are cut the width way (across) of the material, of twice the length of the article to which they are to be attached, and are generally from an inch to an inch and a half in depth. For children's dresses they are frequently made of embroidered jaconet or muslin.

Fringes.—This form of trimming and decoration for dress and furniture is of very ancient date, and is mentioned in the Pentateuch in connection with the hangings of the Tabernacle and Temple, and the vestments of the priests. It is formed of ends of silk, linen, worsted, and gold or silver twist, according to circumstances, and depends from a band of the same material. The length of the fringe depends on the article it is designed to decorate. For furniture it varies from two to four inches in depth, and there are three descriptions—plain head, plain head and bullion, and gimp head. For dress their depth varies from half an inch to two or three inches. The epaulettes of naval and military officers are of bullion.

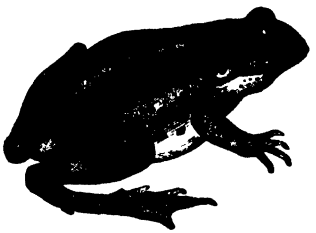
Fritters. — Fritters are preparations of batter. Fruit of different kinds is often added to them, such as currants, apples, peaches, or pine-apples. Sometimes the fruit is soaked in brandy and sugar, or vanilla or lemon essence is added; the distinctive name given to each variety depending upon the flavouring. In Germany fritters are eaten on New Year's Eve. Marie Antoinette, when Dauphiness of France, after travelling in Vienna, instructed her French cooks in the art of making fritters: these were made with jam, placed in the batter, and then fried on both sides. Afterwards they were drained, sprinkled with sugar, and called "Beignets à la Dauphine."

Frivolité. (*See* TATTING.)

Frocks.—This designation was in former times applied much more frequently to the garments which are now termed gowns and dresses: it really means a short outer garment which is put over others; thus a shepherd's frock and a smock frock, or carter's frock. The term is used in contradistinction to gown, which applies to long-skirted garments; thus an infant's dress when long is spoken of as a gown, but when short as a frock. A frock-coat is that which has a skirt joined to the body of the coat, the whole not being cut in one piece, as in ordinary coats.

Frogs.—These are well-known animals, and belong to the natural order *Amphibia*. About the month of March, or somewhat earlier in open weather, may be seen, in stagnant clear water near marshy places, large masses of clear gelatinous substances thickly studded with little

black globules. These globules are the spawn, or ova, of the frog; in the gelatinous mass they are fecundated, and in somewhat over a month a little tadpole emerges from each ovum. The peculiarity of the tadpole is that it lives in the water and swims and breathes like a fish. The body is elongated, the tail vertically flattened,



FROG.

and it possesses gills; its little mouth is furnished with hook-like teeth, and it has, moreover, on the lower lip a small sucker, by which it can attach itself to leaves or stems of aquatic plants. This is the frog in its first stage. By-and-by the gills disappear, and lungs are established; the tail shrinks and is absorbed; first the posterior limbs are developed, then the anterior; the shape of the intestines changes, and the whole circulation; and so gradually from being an aquatic animal, living on herbs, it becomes to a large extent terrestrial, and at the same time carnivorous. The muscles of the abdomen are very highly developed; and if we watch a frog swimming we cannot help being struck by the strange similarity of its hind-legs to the lower extremities of man. By means of those limbs not only is the animal able to swim well, but owing to their powerful development it can project itself across a space full fifty times as long as its body. The *Rana pipiens*, or bull-frog of North America, is olive-coloured on the back, and greenish-white, with spots, on the abdomen. It is very large, measuring four inches in width and twice that number in length. Its voice is supposed to resemble the bellowing of a bull, and hence the name. There is also the *Hyla Leucomystax*, or tree-frog, found not only in America and Asia, but in many parts of Germany, France, and Italy. We may also mention the African frogs, called the *Dactylethræ*, because some of their toes are covered by a conical horny claw.

Fromenty. (*See* FURMETY.)

Frontiniac.—This luscious, rich, spirituous wine is comparatively little known in England. It is one of the Rhone wines, and is named after the place in Languedoc where it is produced. It is white, sweet, and moderate in price. An imitation of it is occasionally met with made from elder-flowers and raisins, flavoured with lemon-juice.

Frontiniac, Imitated. (*See preceding paragraph.*)

Frontispiece.—In bibliography, the ornamental page or engraving at the commencement of a book. The frontispiece commonly consists of an engraving in wood or steel printed on paper superior to the rest of the book, and facing the title-page.

Fronts, Dress.—The styles of fronts of dresses were formerly divided into the full and the plain. The former has been out of fashion for some years. The latter has been subdivided into the *gilet*, or waistcoat-front, and the *plastron*. (*See* GILET; PLASTRON; WAISTCOAT.)

Frost-bite. (*See next paragraph.*)

Frost, Effects of, and Remedies.—The effects of frost upon the human body are both local and constitutional, and vary from what is known as chilblain to complete death of the part frozen. The local effects are a stiffness, numbness, and blanching of those parts where the circulation is most feeble, as the tips of the ears, nose, fingers, toes, &c. If relief is afforded at this stage, vitality being only suspended, the parts will recover, with some degree of inflammation, indicated by burning, tingling, and redness. If, however, this stage passes without proper attention, then complete death of the part, indicated by shrivelling, blackness, and complete loss of sensation, takes place, the extent of which, if the person lives, will in the course of a few days be clearly defined by what is called the line of demarcation—viz., the line which separates the living parts from the dead. The constitutional effects, when they do not end in sleep and death, are those which result from severe shock and subsequent inflammatory action—viz., intense fever, congestion of internal organs, &c. The treatment of frost-bite in the stage of suspended vitality is to at once thoroughly rub the affected parts with snow or flannel, or with the hands if these are not available. They should be afterwards wrapped in warm cotton-wool; a little warm tea, milk, or brandy and water may be given at the same time. It must be borne in mind, in the treatment of these cases, that the chief object is to avoid raising the temperature too suddenly. This must be done gradually, and therefore, in severe cases, the room into which the sufferer is brought must be cool, the temperature being raised afterwards. When death of the part has taken place, and Nature has drawn her line of demarcation, it is usual to allow her to complete the amputation herself. But if the dead part is of considerable extent it may, under certain circumstances, be advisable to have recourse to a surgical operation.

Frost, Effects of, on Food.—The application of cold has a powerful effect in retarding putrefactive changes in animal food. Flesh packed in ice may be kept for several weeks; and in cold countries where the temperature is constantly at the freezing point, meat will continue fresh for an indefinite period. For a long time a knowledge of this fact has enabled fishmongers and other dealers in perishable articles of food to preserve their stock in a fresh condition; and attempts have been successfully made to utilise ice more extensively than ever, making it the agent by means of which meat has been brought to England in a frozen condition from America, and even

from Australia. But there is no doubt that the cold lessens, if it does not somewhat change, the flavour of the substance, so that though this frost-preserved meat is very excellent, it is not fully equal to fresh meat. This defect is, however, exceedingly trifling. In domestic economy, ice is continually employed as a preservative agent. The refrigerator will preserve edibles for a considerable time, and even when this apparatus is not possessed, ice can usually be procured for a few pence, which will preserve butter, milk, and other ingredients in good condition for some time.

Frost in Water-pipes, &c. — Those who have experienced the inconvenience which arises from the bursting of water-pipes will be glad to know how such an annoyance can be prevented, and unless the frost be unusually severe, this with a little care may easily be done. When the tank is outside the house it must be kept closely covered with a wooden board, and over this a strong covering should be placed, consisting of matting, old carpet, or any strong woollen material that will impart a little warmth to the water. Another efficient preventative to the freezing of the water in the pipes is to keep the tap turned and the water running. When it can be done without inconvenience, the water may be drawn off, and the tank kept empty. This will, of course, do away entirely with all fear of the pipes bursting when the thaw comes. If the water cannot come into the cistern on account of the frost, it may often be set free by pouring a canful of boiling water over the taps. In the country where the water is supplied from the main pipe, a stop tap is usually fixed near the coal-cellar or elsewhere. This should be turned off during the night, and also during the day when the use of the water can be dispensed with. If one or all of these suggestions be acted upon, much annoyance and discomfort may be avoided.

Frost, To Protect Plants, Fruits, &c., from.—It is essential in the colder months of the year that the gardener should carefully preserve the flower-beds and tender plants from severe frost and heavy snow. Severe frost is very destructive to the tender parts of exposed vegetables, or when they are imperfectly protected. Short dry litter, four or five inches in thickness, will protect the beds in which the early spring crops are sown. This covering can be raked off when the days are fine and mild, to give the seedlings air, and replaced before the night comes; and this protection should be employed till all fear of the night frosts is over. Frost takes effect more readily on roots that have been dug up for store; these should therefore have complete protection, otherwise it is better to let them remain in the ground. Plants in pots are also more liable to injury by frost than plants are in the open gardens, although exposed to the same temperature, because the fibres of the roots in the one case are affected through the sides of the pots, for which reason it is desirable to bury the pots in the ground.

Frosted Glass. — Glass rendered semi-opaque by grinding, or by a process of stippling with white paint, or by the use of Epsom salts applied in ale, is frequently described as frosted.

Fruit, Artificial. — Imitations of fruit made in sugar or almond paste, and flavoured with fruit essences, are extensively manufactured and used for dessert. These artificial fruits are usually made in moulds of plaster of Paris, which have been taken from models either of copper or tin. The fruits are painted and made to resemble nature as closely as possible, and even the velvety bloom found on peaches, plums, and apricots is imitated. Care and taste, as well as considerable intelligence, are required for the practice of this beautiful art.

Fruit as Food.—Fruit is very useful as food, as it contains certain inorganic matters and acids which aid digestion, increase the action of the bowels, and impart purity to the blood. In the form of lime-juice it is a specific against scurvy. Fruit should be always taken in a ripe condition, as when unripe it is most indigestible, often producing troublesome diarrhœa and sickness.

Fruit, Choice of.—Fruit is in a state of perfection for eating when it is fully ripe and before it begins to turn. When it has once reached this point it very soon loses its flavour. It forms an agreeable and refreshing kind of food, and possesses in a high degree the power of counteracting the unhealthy condition which is induced by a close restriction to dried and salted meat. All fruit is not, however, equally wholesome. Acidulous fruits, for instance, although they quench the thirst and are very refreshing, afford little nourishment. They are aperient, diuretic, and slightly attenuant. They are occasionally used in medicine in bilious and dyspeptic disorders, and in putrid affections, but they are apt to produce both diarrhœa and flatulence. Saccharine fruits, or those which abound in sugar, are both nourishing and laxative. They need, however, to be eaten in moderation, or they may disturb the stomach. Stone fruit is more indigestible than any other. It very frequently deranges the bowels. Oily fruits (nuts) are also not particularly wholesome. Dried fruits are, weight for weight, far more nourishing than any fresh fruit. With regard to all fruit it should be remembered that while the juices are wholesome, the skins, or cellular structures in which they are contained, are very unwholesome. It may be accepted as a general rule that the variety of any fruit which yields the richest juices in the greatest quantity, whilst the cellular framework is the least perceptible on mastication, is the best and the most digestible.

Fruit, Gathering.—All fruits should be gathered in dry weather and in the middle of the day, as by noon the moisture caused by dew and rain will have had time to evaporate. Soft fruits, such as raspberries, currants, and strawberries, are seldom gathered until quite ripe, as they are either eaten or cooked immediately; apples and pears, however, of some kinds are often taken from the trees in an immature condition, for the purpose of storing. Oranges

gathered for export are not allowed to become ripe; the fruit fully formed is chosen, but with the colour just turning from green to yellow. In gathering fruit of any kind it is advisable to handle it as little as possible. The beauty of many hothouse fruits, such as peaches, apricots, and grapes, greatly depends upon their delicate bloom, and this, without great care, is easily destroyed.

Fruit, Preserved, &c.—It is very important that a sufficient quantity of fruit should be preserved for winter use, as each kind of fruit is seasonable only during a few of the summer months. A very efficient method of preserving fruit is that of boiling it with sugar. This is done extensively, both for private use and for sale, and it can be performed so that the flavour of the fruit is very little diminished. Another way of keeping fruit fresh and good is that of putting it into jars or bottles, then placing it in a cool oven for a few hours, after which it should be corked up tightly while it is still hot. When this is done fruit will keep good for years.

Fruit Stains, To Remove. (*See* STAINS, TO REMOVE.)

Fruit, Stewed. (*See* COMPOTES.)

Fruit, Storing.—Ripe fruits should be stored in a cool dry situation. They are usually placed on shelves so that they do not touch each other, or they are packed in sawdust or bran or straw, or any similar substance which will preserve them from the action of the air and keep them quite dry. Fruit is often preserved for the London market in layers, with straw or paper between the layers. Brown paper, however, ought not to be employed for this purpose, as fruit packed in it acquires its peculiar flavour. Sometimes these layers are placed in hampers in cool cellars. Dessert fruits are generally wrapped, each one separately, in a piece of dry soft paper, and then packed into small wide-mouthed jars. These jars should be put one upon the other in a cool airy place where the frost cannot get to them, and in order thoroughly to exclude the air the space between the jars may be filled with a paste made of plaster of Paris and water. The jars should be taken down one at a time as their contents are required, and the fruit should be laid out in a warm dry room for a few days, in order to bring out the flavour. The topmost jar should be covered with a plate. In America, common raw cotton is used for putting between layers of fruit. Grapes are by this means kept fresh all the winter. The bunches are carefully laid in glass jars with cotton between them, and the jar is closely corked and resined to exclude the air.

Frumenty. (*See* FURMETY.)

Frying.—In the article on BOILING it has been explained that when meat is plunged into boiling water, the albumen on the surface coagulates during the first five minutes, and so the substance is surrounded with a thin hard covering, through which the gravy and flavour cannot escape. The same effect is produced, only more quickly and decidedly, when meat is fried instead of boiled. The only difference is that fat of some kind instead of water is the medium employed, and fat is chosen because it transmits such a large amount of heat. The objection which is often urged against frying, that meat cooked in this way is rendered greasy, is a mistake. Fish or other substances, when properly fried and drained, cannot be greasy, for the heat of the boiling fat has surrounded them with a crisp unbroken surface, through which grease cannot penetrate. The fish is greasy when the frying process has not been properly performed, when the cooking has been unequal, and the fish has been half fried—that is, put into the pan with a small quantity only of fat, and in this way subjected to a high temperature on one side and to a low temperature on the other. As a result of turning it over and about, the crisp surface is broken, the fat makes its way underneath it, and the fish becomes greasy. What is wanted is for the thing to be fried to be completely immersed in boiling fat until done enough, and placed for a few minutes on a hot cloth to absorb the grease which is on the surface before it is served. It has been said that fat should be boiling before anything is fried in it. In order to ascertain when this point is reached, it is a good plan to throw a little piece of bread into the kettle. If the fat should fizz and throw up little bubbles, it is hot enough.

Of the various fats used for frying, oil is perhaps the best, and lard is decidedly the worst. Lard is almost sure to make food look greasy. Oil is expensive, and care and experience are required when it is employed. It needs to be heated gently over a slow fire, and as it has a tendency to rise quickly and boil over, it needs to be heated for at least twenty-five minutes before it is ready for use. Butter also needs to be heated very slowly, as it burns quickly. Fresh sweet dripping and the clarified skimmings of saucepans are as good as anything that can be used. When dripping is not at hand (and it is not always plentiful in small households), it is well to purchase a little beef fat of the butcher, to cut it up into small pieces, melt it gently, and strain it off for use. Every time it is used it should be clarified before it is put away; and if this is done it may be employed again and again, twenty, thirty, or even forty times.

Frying-pan.—The flat frying-pan so well known in England—that is, the shallow pan made of iron or copper, with a long handle attached—is, properly speaking, a sauté-pan. To sauté anything is to toss it lightly in a small quantity of fat; to fry anything is to cook it by immersing it in plenty of boiling fat. The true frying-pan is often called a frying-kettle or fish-fryer. It is in shape not unlike a preserving-pan, and is fitted with a closely-made wire lining, with handles on each side. The article to be fried can be placed on this and plunged at once into the hot fat, and when done enough can be lifted out and drained without being broken. Both frying-pans and sauté-pans should be kept scrupulously clean, and should on no account be put away dirty.

When not in use they should be kept in a dry airy place where the dust cannot settle upon them. One pan should be kept exclusively for fish, and on no account employed for anything else.

Fuchsia.—This flower—which is easy of culture, and with ordinary care repays the grower for his trouble—has of late years claimed the attention of florists and amateurs from the great beauty, size, and colour of its blossoms. To raise the fuchsia from cuttings, the plant should be placed in a little heat, to stimulate it and force the young shoots, which,



FUCHSIA.

when sufficiently large, may be taken off, put into pots, and then into slight heat. In a short time they will be rooted, and when so, re-planted in small pots, well shaded from the sun, and when well established, re-potted in larger pots or in the borders. The mould for the pots should be of a light character, and for the young cuttings silver sand should be placed at the top. The fuchsia can be raised from seed, and the object in producing them in this way is to obtain variety and general improvement in the flowers.

Fuel.—The word fuel is generally applied to combustibles used for the production of heat; sometimes also to oils used for lighting purposes. The principal substances employed as fuel are coal, oil, spirit, turf, and wood. Coal is by far the most valuable combustible, though for some purposes the inferior fuels are more applicable. Coke, which is used in locomotive engines and in the smelting of metallic ores, is coal divested of the smoke. This substance evolves a large amount of heat. When coal cannot be obtained, or where it is an article of scarcity, wood forms a very good substitute for it, and in some parts of Europe trees are planted for the sole purpose of supplying fuel. In many parts of Europe where the scarcity of fuel is great, material is gathered up for use which in our country would be burnt as waste. In districts where these are plentiful, peat and turf are much used by the lower classes. Fire-clay balls, and many articles of a similar kind, have been invented to assist in the production of heat, without great expense being involved.

Fuel, Economy in.—During the last few years much thought and consideration have been devoted to the subject of economy in fuel, owing to the high price that has been set upon coal, and also to the fear that the coal-pits are failing in their supply. The construction of stoves is a matter of very great importance, as it has been proved that an immense amount of waste has been occasioned thereby. A badly-made stove, with an imperfect draught, will consume double the quantity of coal consumed by a well-made modern stove, and even then the heat imparted will be imperfect. Economy in fuel in domestic arrangements may easily be effected by method and determination. (*See* COAL, ECONOMY IN.)

Fuller's Earth.—Fuller's earth is a soft, yellowish-grey or greenish kind of clay, containing silica, alumina, and oxide of iron. It has a remarkable power of absorbing oil and grease, and has been very much used for fulling cloth. It is, too, of great service as a cool, healing application for sores. Not long ago its value was so highly appreciated, that its exportation from England was prohibited, under severe penalties. It is found in Kent, Bedfordshire, Nottinghamshire, and at Maxton, in Scotland. At Nutfield, in Surrey, there are two distinct beds of fuller's earth—the one a green colour, the other blue.

Fulminating Powders, &c. (*See* DETONATING COMPOUNDS.)

Fumes, Noxious.—Some simple bodies, such as phosphorus and bromine, give off noxious fumes at the ordinary temperature; others, such as charcoal, on exposure to the action of fire. (*See* CHARCOAL FUMES.) Many compound bodies yield highly poisonous fumes. Hydrochloric acid gas is given off in the soda manufacture in such large quantities as to be destructive of the vegetation all round the works; and when taken into the lungs it acts as an irritant. Sulphurous acid is likewise destructive of vegetation, and hence the barrenness of the Swansea valley and other places where pyrites are roasted; in smaller measure it is evolved in burning coal and gas. The fumes of nitric oxide are also objectionable; and those of the cyanides (such as are used in electro-plating) are very poisonous, cyanogen being the active principle in prussic acid. The oxide of cacodyl gives off arsenical fumes which are highly poisonous; and several of the compounds of phosphorus are of the same nature.

Fumigation.—The diffusion of certain vapours through the air for the purpose of preventing infection. Fumigation by burning sulphur used to be extensively practised in lazarettos, to check the spread of the plague, both the individuals and their effects being subjected to it. This precaution is not adopted so constantly now. Infected clothes or rooms are most effectively purified by the use of chlorine. (*See* DEODORISING; DISINFECTION AND DISINFECTANTS.)

Funds. (*See* NATIONAL DEBT; PUBLIC FUNDS.)

Funeral Arrangements.—When a death occurs in a household, the arrangements for the funeral are usually undertaken by the head of the family. The first thing which requires attention is the registration of the death. For this a medical certificate of the cause of death must be obtained, which is usually given by the doctor who attended the deceased in his last illness. The certificate must be written on a printed form supplied by the local Registrar of Births and Deaths. This certificate must give the full Christian name and surname of the deceased, his age last birthday, the date when he was last seen, and the date and cause of his death. The nature of the disease is given from the time of its commencement till the time of death. This certificate must be taken to the registrar by some person present at the death, or failing this, by some relative or person in attendance during illness. If there be no person thus properly qualified, the occupier of the house must undertake the duty; or if the occupier himself be the defunct individual, some inmate of the house in which the death shall have happened must perform the duty. Besides the details mentioned above, the informant must be prepared to give the rank or occupation of the deceased. If the latter be a child, the position or occupation of the father will be required; if a widow, that of the husband. When all particulars have been satisfactorily given, and the informant has signed his name, the registrar fills up, signs, and delivers to him a certificate. This is to be given to the undertaker or person in charge of the funeral, who is to produce it at the funeral, and give it to "the minister or officiating person who shall be required to bury, or to perform any religious service for the burial of the dead body, and to no other person." The registrar is not entitled to make any charge for this certificate. If, however, as frequently happens, a certificate of the death is required for legal or other purposes, such certificate can be obtained at the General Register Office for Births, Deaths, and Marriages, Somerset House, London, W.C., on payment of the statutory fees. This certificate, when sealed, or stamped with the seal of the General Register Office, is to be received as evidence of the death to which the same relates, without any further or other proof of the entry. The fees thus required amount to 4s. 6d. Of this sum, 1s. is paid for the search in the register, 1s. for the Inland Revenue stamp, and 2s. 6d. for the certificate. The next business which requires attention is the choice of an undertaker and the selection of a place of burial. The undertaker takes the arrangement of the minor details into his own hands. The customer needs only to determine what the character and style of the funeral shall be. If he prefer simplicity and quietness, it will be desirable for him to express his wishes very decidedly; for occasionally undertakers are possessed with the mistaken idea that an ostentatious funeral is a mark of respect for the dead. The directors of cemeteries usually require that notice of the burial shall be given at least thirty-six hours before the interment. If a vault or brick grave be wanted, however, four clear days' notice will very likely be necessary, or if it be not given, extra charge may be made for overwork. The orders of interment may be given at the office of the cemetery company, and the fees must, as a rule, be paid at the same time. These offices are commonly open every day, excepting Sunday, from ten to five; on Saturdays from ten to two. The name of the parish or ecclesiastical district from which the body is to be removed is generally required. At all cemeteries there are certain fixed hours during which interments may take place. These vary according to circumstances; but if the ceremony is performed at any other time, an additional fee is exacted. (*See also* BURIALS.)

Funeral Customs.—Kindly feeling, as well as etiquette, requires that the relations and intimate friends of the deceased should be communicated with as soon as possible after his death. At an early date invitations should be given to those who are desired or who have a right to attend the funeral. For a long time it has not been usual for the female members of the bereaved family to follow the corpse to the grave. This rule has of late years been broken in one or two notable instances. The question whether they should do so or not is a matter for personal choice and feeling. If any satisfaction can be derived from the performance of the last sad duty to the departed, there is no reason why women should not share it as well as men, always supposing that they can restrain their feelings. If there is any fear of their not being able to do this, they are much better at home. Private feeling and private grief should not be displayed in public, and the solemnity of the service for the dead should not be disturbed by an exhibition of the sorrow of the living. The dress of the chief mourners is, for ladies, stuff and crape; for gentlemen, black suits, black tie, and black kid gloves, with crape hat-bands, and crape scarves when these are used. At the funerals of young persons, white is mixed with black in the mourners' dress. At the time appointed for the ceremony the friends who are invited assemble at the house. If the ladies have decided to accompany the *cortége* they do not join the company, but go at once from their rooms to the mourning-coaches. The relatives and friends of the deceased follow in the order of their kinship or intimacy, and the procession is frequently attended by the empty and closed carriages of those who desire to show their respect for the deceased and their sympathy with the family. When the rite is performed, the mourners separate, each one going his own way. The family alone return to the house, and the will is read by the lawyer. The window-blinds are usually drawn down as soon as there has been a death in the house, and they are kept down until the funeral has left, when they are drawn up. The female members of the family do not either pay or receive formal visits for a time. Friends and acquaintances may express their sympathy by leaving a card, on which a message of inquiry or condolence may be written under the name. When the members of the family are able to receive callers, they will send out cards of acknowledgment of thanks for these attentions.

After there has been a death in the family it is customary for black garments only to be worn by its members, for a longer or shorter period, according to the nearness of the relationship to the deceased of those concerned. Widows and widowers, fathers and mothers, sons and daughters are supposed to wear deep mourning for about a year. Widows and widowers usually continue to wear it in a lighter form six months longer. Uncles, aunts, nephews, nieces, and cousins wear black from three to nine months, according to their own wish and the degree of intimacy they enjoyed with the deceased. Gentlemen wear hat-bands the depth of which is determined by the degree of relationship. When worn by a husband for his wife, seven inches is regarded as the proper depth. A son for his father or mother, a father for his son or daughter, wears five inches. In other degrees of relationship the depth of the hat-band varies from two and a half to four inches. The distaste for ostentatious funerals which is spreading so extensively amongst the cultivated classes of the community is felt also towards many of these funeral observances: it is probable that in time they will pass away. Meantime they are in themselves of little importance. They are, of course, no sign of real grief; but they are practised by many whose common sense condemns them, because a natural reluctance is felt to do anything which might be regarded by others as a slight to the memory of the departed. And even common sense should not be too harsh in its condemnation, for there is no doubt that these practices owe their origin to the desire of affection to display itself in acts of love and devotion.

Funerals, Expense of.—When limited to the quality and position of the deceased, funeral expenses are legally regarded as a privileged debt allowed before all other debts. If the proper parties neglect to give decent burial to the dead, a stranger may do it, and he may recover his expenses out of the effects of the deceased before the heirs can inherit or the executors can administer the estate. There is no sum fixed for the funeral expenses, but for any one who dies in debt it must not exceed £10. According to the law of England, a widow can make no claim for mournings, but in Scotland this claim is allowed. The expense of a funeral depends upon the style in which it is conducted. If nodding plumes, sable coverings, mutes with truncheons and wands, and other paraphernalia are desired, the expense may be expanded to an indefinite extent. Fortunately the ostentatious parade which a few years ago was considered necessary at funerals has been discountenanced by people of good sense and refinement, and it is very generally acknowledged that real grief does not need to make a parade, but may shelter itself behind simplicity and quietness. The charge of the funeral is usually handed over to the undertaker. He will supply whatever is wanted, and if it is wished will give the customer particulars as to the different classes of funerals, and the prices at which they may be performed—these prices varying from £3 to £60. A funeral may, however, very easily cost much more than the latter sum, the expense depending largely upon the number of mourning-coaches which are ordered. Kid gloves, hat-bands, and scarves, worn and retained by the mourners and friends, add very considerably to the cost of a funeral, and they are not usually included in the general estimate. In addition to all these there is the price of the grave, which is determined by its style and its position. The choice lies between brick vaults, private and public catacombs, brick graves, and graves in first, second, and third class grounds. An interment in third class ground may be purchased for a few shillings. A private brick vault will cost from £30 to £50. It is evident, therefore, that the funeral expenses must be regulated by the circumstances of the bereaved family. In order to lessen the cost of funerals, many of the cemetery companies have very properly arranged not to allow gratuities to be taken by their officers.

Fungi.—The name fungi is meant by botanists to include not only the various forms of mushrooms and toadstools, but also those microscopic plants to which the names of mould, mildew, &c., are given. The common mushroom, or *Agaricus campestris*, may be taken as the type of this natural order, although many fungi differ very much from this type. The vegetation system of the fungus—the mushroom or toadstool, for example—grows underground in a soil rich in some sort of decaying matter, and consists of a network of filamentous cellular tissue, to which the name *mycelium*, or spawn, is given. It is the fructification we see growing above ground in an umbrella-shaped disc on a stout stem; the disc itself is termed the *pileus*, on the under side of which are numerous gill-like plates that radiate from the stem top to the margin of the disc. Widely, however, as the largest and most fleshy of the family may seem to differ from such microscopic fungi—as the ergot of rye, the bunt of corn, or hair-mould—in development, in propagation and in chemical character they are the same. With few exceptions, fungi agree in the absence of starch from their cells, in the absence of green colouring matter in their tissues, and in their dependence for life on decaying vegetable or animal matter. Fungi, as a rule, are very short-lived, and the ravages which some of the minute forms commit are often very great. The potato disease, for example, is due to a species of fungus, the spores of which are so minute as to defy attempts to protect the crop, and which, moreover, multiply very fast. Many fungi are not only esculent and edible, but highly nutritious; while, on the other hand, a large number of species are poisonous. Too much caution, therefore, cannot be adopted in choosing them. None should be eaten that are either unwholesome or sickly-looking in colour. None should be eaten that do not taste or smell nicely, or that leave a bitter, burning, or astringent taste in the mouth. Avoid also fungi that grow in deep dark woods, or, in fact, in any place out of the open; also fungi of even the most edible kinds which are beginning to turn or decay. The flesh of edible fungi ought to be somewhat compact and friable, not soft and watery-looking.

The name of fungus is also given to a vegetable parasite which infests plants, animals, and human beings, and is capable of being communicated from one to the other. These fungi, when once they have been implanted on either animal or man, do a great deal of mischief, producing in the latter various diseases, as ringworm, scald (*favus*), baldness, fungus foot, &c. They can generally be got rid of by such agents as are destructive to vegetable life, as sulphurous acid, carbolic acid, tar, &c. (*See also* MUSHROOMS.)

Funnels.—A funnel is used to prevent waste in passing liquid from one vessel to another. Tin funnels should always be scalded and dried perfectly after being used.

Fur. (*See* FURS.)

Fur in Boilers, &c. (*See* INCRUSTATION OF BOILERS, &c.)

Furmety—also called Fromenty, Frumenty, Frumety, and even Thrumety in some parts—is an ancient and popular dish consisting in its simplest form of wheat first baked or boiled in water, and then boiled up again with milk and a little flour. Other ingredients are usually added, such as sugar, spices, currants, raisins, eggs, and lemon-peel.

Furnished Apartments are usually hired by the week. The payments are made according to an arrangement between the householder and the lodger, part of the sum fixed upon being regarded as rent for the rooms, and part as consideration for the use of the furniture. The removal of goods from furnished lodgings with intent to steal constitutes felony. The notice to quit on either side depends on how the lodgings were taken. If by the week, a week's notice will be sufficient; if by the month, a month's notice will be required; and if the tenant leave without notice, he is liable to be called upon for rent for the time specified.

Furnished Houses are usually let by the quarter. When any particular stipulations are made between the parties concerned, it is desirable that there should be a written agreement drawn up and signed by each. For this a stamp will be necessary. These agreements generally declare the terms which have been decided upon, and provide that the tenant shall, at the termination of the tenancy, deliver up the house, with the fixtures and furniture which it contains, in as good condition as they were at the time of his entrance into the house—reasonable wear and tear being, of course, allowed. An arrangement is also made by which the tenant shall replace any articles of crockery, china, or glass that may be broken or injured. The inventory or list of articles found in the house is usually given with the agreement.

Furnishing, Estimates for. (*See* ESTIMATES FOR FURNISHING.)

Furnishing, Hints on.—When there is plenty of money at command, the task of furnishing is comparatively an easy one. Individual taste, whether it is refined or otherwise, can be followed without any difficulty; or if no decided preferences are felt on the subject, the advice of a first-class upholsterer can be taken and followed, and the business can be accomplished without any trouble at all. When, however, economy is a consideration, it is best to look ahead before taking a leap. The available money is to be spent to the best advantage, and, as an assistance in doing this, it would be well to draw out a list of things absolutely necessary. These should be procured thoroughly good and well made. Experience tells us that it will be more likely to prove satisfactory if simple and graceful rather than elaborate and extravagant in design. There is no economy in buying inferior, ill-made articles because they are cheap. They will either get to look shabby or will need repair in a very short time, and in the end will prove the more expensive. All articles of furniture should in size, material, and shape be suited to their position and surroundings, should be adapted to the special purpose to which they are to be applied, and they should harmonise well with each other. Excepting in very large rooms, or in conformity with a fixed idea, large patterns, extravagant designs, and striking colours should be avoided. Subdued (but not dingy) colours and small patterns are much safer than large masses of colour, and the brightness of the room should depend rather upon the table-covers, books, flowers, and other adornments, than upon the colour of the carpets and curtains. Large furniture is out of place in a small room; slight, spare furniture is not suited to a large room. The designs for carpets and floor-cloths should be adapted for horizontal surfaces and for being trodden on. In a dining-room the patterns and colours should be rich, deep, and warm; in a drawing-room they should be light and delicate. When the rooms have a northerly aspect, the colours in the dining-room should not be too dark or sombre; in the drawing-room they should not be cold. Bedrooms should be bright, airy, and cheery. In all the rooms the furniture should not be too much crowded, and stiffness should be avoided as much as possible.

Furniture.—To furnish a house well does not necessarily call for a lavish expenditure of money. Much more depends upon good taste than upon large means; and any one who possesses the former may furnish a house beautifully and still have due regard to economy. Success in furnishing depends very largely upon the suitability of each article to its surroundings, and its adaptability to the purpose for which it is intended, and also to the general sense of harmony which pervades the whole. It is very desirable that the walls and carpets in a house should be of such a colour and design that they may serve as a background, and offer a pleasing contrast to the furniture in the room, especially to the ornaments, pictures, and minor details. On this account it is best that they should be quiet and unattractive in colour and design. There should be uniformity in the furniture itself. The articles in each room should be of the same wood and be of a like character. Thus if the table is rectangular, the lines of the sideboard, chairs, &c., are best

straight. If, on the contrary, the table is round or oval, the lines of the chairs should be curved. Unless these points are attended to, the room will look as if it had been furnished a little at a time, and this will very much detract from its elegant appearance. The ornamentation, too, should be uniform in style and character. If the sideboard is elaborately carved, the chairs and tables should be carved also. If the sideboard is simple in design, the chairs and tables should correspond with it. Another point which requires careful consideration is the harmony in *colour*. It is much the safest plan to avoid very decided glaring colours; therefore the primary colours—blue, red, and yellow—should be sparingly used in their pure state, and the masses of colour found in the carpets, table-covers, curtains, &c., should consist of the secondary colours—green, purple, orange, and grey. It will be found that an harmonious blending of colours contributes more than anything else to the elegance of a room, while a confused mixture of all sorts of colours thrown together without arrangement is particularly offensive to refined taste.

Furniture, Bed.—Until the time of the Norman Conquest, England scarcely kept pace with other countries with regard to domestic furniture; indeed, it appears that it was not until a comparatively late period in their history that our countrymen were acquainted with the real value and comfort of anything like a modern bedstead. The furniture of Anglo-Saxon houses was rude and simple, and bedsteads were only used by the ladies or principal people of the family. Before the end of the thirteenth century, however, a great advance was made in articles of comfort and luxury, and both beds and bedrooms seem to have been furnished elegantly and comfortably. Still, they were closely hung round with heavy hangings made of tapestry and woollen materials. It is now, however, acknowledged that hangings to beds are not conducive to health. It is very desirable that plenty of fresh air should pervade sleeping apartments, and that nothing should be provided that would be likely to prevent a free current of air passing through the room. The large substantial beds with heavy hangings used by our ancestors excluded the fresh air from the sleeper, and this, with our enlightened ideas, seems to us to have been a mistake. Of course the bed looked comfortable; but appearance should never be studied at the expense of health. Most of the modern beds require little furniture in the way of hangings. What there is should, if possible, be made of cotton rather than of woollen material. They should also be either white or of a very light colour, so that the dust and dirt may easily be seen, and thus it will be found a matter of necessity to have them frequently cleaned. It is very important that everything about a bed should be kept scrupulously clean.

Furniture, Chippendale.—The taste for furniture of the kind introduced by Thomas Chippendale, a London carver and furniture-maker who flourished in the middle of the last century, has of late years been so completely revived that more than one large firm have devoted all their efforts to reproducing them; and the demand for good examples of real Chippendale furniture has caused such things—however old or dilapidated—to fetch singularly high prices at sales and in auction-rooms. At the time of their introduction they were exceedingly novel; but now-a-days their fantastic designs and elaborate ornaments are regarded rather as curious than artistic, and the mania which has for a time restored their popularity will, probably, soon die away. Thomas Chippendale's designs followed the French style of his period, until he introduced, to gratify the mania for Chinese ornamental objects, what were called Chinese designs. Some of the first furniture made in mahogany came from his workshop. Thomas Chippendale had a son of the same name, who shared his father's reputation as a cabinet-maker.

Furniture Pastes, Oils, and Polishes.—Many preparations, differing widely from each other, are sold for renovating furniture, most of which are composed of some kind of oil and spirit well mixed together. Though, perhaps, it may be less expensive to make polish at home than to buy it, it is very doubtful whether by so doing much advantage is gained. Many of the furniture polishes offered for sale are so genuine and so reasonable in price that they are sure to merit approval. In cases where the furniture requires cleaning as well as polishing, it will be found advisable to clean the wood first with spirits of turpentine.

Furs.—Ermine, stoat, sable, marten, fiery-fox, red-fox, and silver-fox, nutria (a cheap substitute for beaver), sea-otter, seal, beaver, chinchilla, squirrel, minx, racoon, badger, musk-rat, lynx, rabbit, buffalo, bear, tiger, leopard, wolf, wolverine, lion, deer, mole, common otter, hare, cat, skunk, Norwegian and Russian rat, &c. For manufacturing purposes, furs are classified into the *felted* and the *dressed*. In the former case the fur is removed from the pelt, and the hair and filaments are made so to interlace or entangle as to form a close and firm plexus. In the latter case the fur and pelt are not separated, and the pelt is converted into a kind of leather, so that both may be used together. The greatest source for obtaining furs is the Hudson's Bay Territory.

Furs, Cleaning.—To cleanse furs from grease, the skins should be steeped in a liquid containing bran, alum, and salt, and well scoured in the same, and then with an application of soda and soap; lastly, they should be washed in clear water and dried. Beavers' skins, being very greasy, require a thorough scouring with fuller's earth. Nutria skins need much washing in soap and boiling water; and so do those of the otter, and all skins naturally full of oily matter. For the ordinary cleaning of furs already dressed, pounded white French chalk mixed with a little bran, well rubbed on the fur backwards and forwards with a clean flannel, is a good method. Light furs may be rubbed with magnesia, after a good scouring with bran made moist with warm water.

Furs, Preserving.—Furs may be preserved by placing a little colocynth pulp, or spice

(cloves, pimento, &c.), in muslin bags among them. Pepper sprinkled all over them is also of use; or they may be washed in a very weak solution of corrosive sublimate in warm water (ten or fifteen grains to the pint), and afterwards carefully dried. They should be kept in a dry place; taken out once at least during the summer, well shaken, and laid in the sun; brushed with a soft brush, and replaced with a fresh sprinkling of pepper or camphor, or bags of the above-named spices packed up with them again. (*See* CLOTHES MOTH.)

Fusees, properly so called, are made with a coarse kind of cardboard which is saturated with nitrate of potash and cut into strips, the ends of which are prepared to take fire on the application of friction, by receiving a coating of a kind of paste composed largely of phosphorus, in conjunction with a little chlorate of potash, a little fine sand or glass powder, glue, and nitrate of potash, or some similar ingredient to serve its purpose—that of promoting rapid ignition. These fusees, principally used by smokers for lighting tobacco, have now, however, been to a great extent superseded by the cigar-lights commonly known as "vesuvians." The name of fusee is also applied to a tube used in firing shells, as well as to that portion of a watch round which the chain is wound.

Fusel Oil is one of the products of the fermentation of grain and potatoes. It is separated from the ordinary alcohol by distillation, as it has a higher boiling point; and from it amylic alcohol is derived. It possesses a peculiar odour, by which potato spirit may be easily distinguished from spirit of wine.

Fustians.—Under this name are included various materials, such as corduroy, moleskin, velveteen, thickset, pillaw, and cords. They are made of thick coarse cotton, and after the same manner as velvet, double threads being introduced in addition to the warp and weft: these threads are eventually cut close to the surface, and form a pile more or less thick and deep. Fustians are particularly strong and thick, and for this reason are in general use for the suits of labourers and men engaged in rough work of any description. The material being of cotton, is not so warm as cloth, but it is not so liable to be torn, and therefore is much more serviceable, besides being less expensive at the outset.

Fustic.—Two distinct dye-stuffs are commonly known by this name. The dye is produced from the *Morus* or *Maclura tinctoria*, a species of mulberry-tree, growing in South America and the West Indies, which is sent to England in logs of two to four feet long and eight inches in diameter. These are used for mosaic cabinet work and for turning, as well as for a dye-stuff. Used for the latter purpose, the two dyes called fustic are distinguished one from the other by the terms "old" and "young." A decoction of the former, or *bois jaune*—which is the real dye-stuff of the name—gives a yellow of different shades, according to the mordant. Alum, tartar, and spirits of tin brighten, and acetate and sulphate of iron darken it. Olives and browns are produced with sulphate of iron; with the indigo vat and sulphate of indigo, green. These colours are permanent. "Young fustic" is the name erroneously given to zante wood. Its colours are not very permanent.

G

Gable.—This term is applied to that part of the upright triangular end of a house which extends from the eaves or cornice to the top of the building, and indicates a sloping roof. The term was formerly employed to indicate the entire end wall of a building of this kind, for which reason even now we frequently hear the large window of a church, on the side terminating with the triangular top, called a gable-window. The term belongs to Gothic architecture. The proportions of gables vary with the style. In the *Norman* it is most acutely angular; in the *Early English* the gable is usually more nearly an equilateral triangle; in the *Decorated* and *Perpendicular* the gables are frequently much lower. In the *Perpendicular* style the sloping sides of the gable are broken by a series of steps.

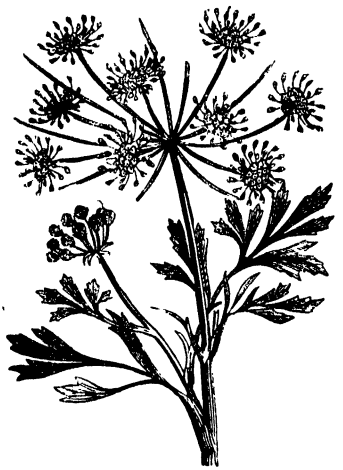
Gablets.—The small ornamental gables or canopies formed over niches, &c., are called gablets.

Gadroon, or Godroon.—This is, in architecture, a species of inverted fluting or beading. The same term is used for describing a certain kind of plaits on ladies' cuffs and caps which resemble these inverted flutings or beadings.

Gaiters.—A covering for the ankles and instep, which sometimes extends upwards to the knee and considerably above it. They are composed of thick leather—buff or black, glazed and otherwise—cloth of various colours, and of jean. They are used in military uniforms, by woodsmen, hedgers and ditchers, and by private gentlemen; also in the livery of coachmen and grooms. Short gaiters made of cloth or American leather are worn by ladies in very cold weather, or in walking on muddy roads in the country. All gaiters have a strap to hold them down tightly to the instep, which passes under the sole of the foot; the gaiter is always buttoned up on the outside; is lined, if of cloth or jean; and is rounded in a half circle over the instep towards the toes.

Galbanum.—A gum-resin exuding from the stem of the *Bubon galbanum*, an umbelliferous plant growing in Africa. The taste is strong, acrid, and bitter, and the smell unpleasant. It is used in the arts, in the manufacture of varnish, and also for medical purposes, being useful as a stimulant, anti-spasmodic, expectorant, and deobstruent. Used externally, spread on leather as a plaster, it is combined with simple diachylon (two pounds to half a pound of itself and four ounces of yellow wax), and is used to dispel indolent tumours, and is beneficial to weakness of the

legs from rickets. Taken internally, it is employed in chronic cases of rheumatism and hysteria. The tincture is composed of two ounces of galbanum and two pounds of spirits



GALBANUM PLANT.

of wine. Of the gum, from ten to thirty grains may be taken in pills; and of the tincture, from fifteen minims to one drachm. Galbanum can be made into an emulsion with mucilage. It was used in ancient times by the Jews for incense.

Galena is the sulphide of lead, and the most abundant of the ores of that metal. It forms extensive veins in Northumberland, Cumberland, Derbyshire, Cornwall, Wales, Scotland, and the Isle of Man. It occurs also in great quantities in Spain, Germany, Australia, and the United States of America. Few ores are so easily recognised. It is distinguished by its metallic lustre, its dark-grey colour, and its great weight. It usually contains some silver, and when containing two parts or more of silver in 1,000 of lead is denominated argentiferous galena, or silver-lead ore, because even one five-hundredth part of silver can be profitably extracted from the lead after the ore has been smelted.

Gall.—This is the secretion of the liver (*See* BILE.) It is of an extremely bitter taste, and hence the term gall has been largely used to express bitterness, rancour, anger, &c. It was customary amongst the Jews, as well as amongst the Greeks and Romans, to administer to those who were about to suffer the extreme penalty of the law a mixture containing gall, avowedly for the purpose of lessening the pain; but as most bitter matters were called gall it is probable that the ingredient used for this purpose—as, for example, in the cup offered to our Saviour before His crucifixion—was myrrh.

Gall. (*See* GALLS.)

Gall-stones.—These are concretions of bile, varying in size from a pea to a walnut or even larger, which frequently obstruct the bile ducts and even the bowels. When small, they as a rule pass out of the body without pain or inconvenience; but when so large as to become impacted in the duct, they give rise to the most excruciating pain. This is felt chiefly over the stomach, right side, and back, and is accompanied by nausea and vomiting, cold perspirations, weak pulse, pallor of the face, and generally yellow discoloration of the skin (jaundice). Whilst the pain lasts, the sufferer writhes in agony, and this recurs again and again, with intervals of ease, until the stone has passed out of the duct. This sometimes takes place very suddenly, just as the paroxysm is at its height, and, as may be imagined, the relief is intense. Gall-stones consist of cholesterine and the colouring matter of bile; they generally accumulate in the gall-bladder, and may be either many in number, or one large one only; when numerous, they appear as little brown bodies with smooth surfaces. If their presence is suspected, the secretions from the bowels should be largely diluted with water, when, if there are stones, they will float on the surface, and may be examined, the number of facets or smooth surfaces affording some indication as to whether there are many or few. The treatment of gall-stones must have for its object the relief of the urgent and distressing symptoms present during an attack, and the prevention, if possible, of their recurrence. To accomplish the first, opium and the warm bath should be at once resorted to; the former should be given in full doses of (for an adult) from thirty to forty drops of the sedative solution of opium, or laudanum, if the stomach will retain it; if not, morphia may be injected under the skin. Chloral may also be tried; and if the sickness is very troublesome after the pain has subsided, ice and soda in effervescence with tartaric acid will be found useful. If the pain recurs, the opium or morphia injection must be repeated. As gall-stones usually occur in persons of sedentary habits, especially women, it is necessary for those who suffer from them, in order to prevent their recurrence, to take active exercise and live plainly. If practicable, a course of mineral water at Carlsbad or Ems will be desirable; but if this cannot be done, either Pullna or Hunyadi Janos water should be frequently taken, to prevent constipation. Gall-stones are often associated with gout (*which see*), and when this is the case, the remedies suitable for that disease must be employed. It may be remarked here that an attack of gall-stones does not always terminate favourably. The stone may ulcerate through the duct into the cavity of the abdomen and cause death. It may also perforate the bowel; but this process may have been so gradual and attended with adhesion between the duct and the bowel, that the stone may pass into the latter without danger to life. Gall-stones are seldom found before the middle period of life.

Gallic Acid is extracted from nut-galls, the small round excrescences which commonly appear on the stems and branches of oak-trees. It turns copperas or green vitriol black, and hence galls are largely used in dyeing and in making black ink. Pyrogallic acid, which is used in photography, is made from it, by exposing it to a temperature of 410° Fahr.

Gallina. (*See* GUINEA-FOWL.)

Gallipot.—Gallipot is the name given to a vessel, painted and glazed, used by apothecaries for containing medicines. The origin of the name is doubtful. Some think the word galley applies to the shape, though this is not very probable, as glazed coloured tiles are called galley-tiles. In jest or derision, the word gallipot is sometimes given as a nickname for an apothecary.

Gallon.—The standard measure of capacity for liquids and dry goods in Great Britain and Ireland. By Act of Parliament passed in 1825, the imperial gallon is to contain 10 lbs. avoirdupois of distilled water, at the temperature of 62° Fahr., weighed in air, with a barometric pressure of thirty inches. This makes the contents of an imperial gallon 277·274 cubic inches. There were formerly three gallons in common use—one for wine, containing 231 cubic inches; another for beer, containing 282 cubic inches; and the third for corn, known as the Winchester gallon, containing 272¼ cubic inches. For the relation of the gallon to other measures, *see* WEIGHTS AND MEASURES.

Galloon. — A very thick, strong, and closely-made lace, having an even selvage at each edge. It is woven with threads of gold, silver, wool, silk, or a combination of cotton with silk or worsted; it is made plain, watered, and figured. Galloon is used for the bands and binding of men's hats, for the trimming of curtains, and, in the present day, of ladies' dresses. The finest is made at Lyons and at Amiens, where it is manufactured mostly of wool. In France, bands of galloon are used to denote distinction of grades in the army, also for the ornamentation of churches.

Galls.—Nut-galls are formed on the stems and branches of several species of the genus *Quercus*, or oak, being caused by the action of the deposited eggs of the *Diplolepis gallæ tinctoriæ*. In the excrescence which soon forms, the larva of the insect is hatched, and when developed the perfect animal eats its way out, leaving a little circular canal, which penetrates to the interior of the gall. The galls of different countries vary greatly in size, shape, and weight. They are imported into this country chiefly from the Levant. We get three different kinds—the black or blue, the green, and the white. The former vary in size from that of a pea to a hazel-nut; the largest of these are called the green, the smallest the black or blue. They are gathered before the insect has decamped, and are of greater strength and value than the white from which the insect has escaped. They are also imported from the East Indies. Galls form a most valuable vegetable astringent, from the large proportion of tannic acid they contain. They may be used either in powder or tincture, as well as externally as an unguent. In hæmorrhages from the bowels, as well as in old-standing cases of diarrhœa, they are of much use; and they also make a good antidote in many cases of poisoning, as in those from opium, nux vomica, ipecacuanha, colchicum, &c. The ointment, which also contains powdered opium, is chiefly recommended for the cure of piles. (*See* GALLIC ACID.)

Galop.—This is a very simple *danse à deux temps* which appeared originally in Hungary, and was introduced into England from Paris about thirty years ago. The movement is quick and lively; it somewhat resembles the polka, and is often chosen as the opening and concluding dance at a ball because of its inspiriting character. The galop differs from the galopade: in the former the couples turn round as in the polka and waltz; in the latter they *chassez* round the room with a quick step.

Galopade. (*See* QUADRILLES.)

Galoshes. (*See* GOLOSHES.)

Galvanic Battery. (*See* BATTERY, GALVANIC.)

Galvanised Iron. (*See* IRON, CORRUGATED.)

Galvanism has been so named after Galvani, of Bologna, who first noticed its effects upon the legs of a dead frog. It was more fully worked out by Volta, another Italian physicist, and hence is more appropriately called Voltaic electricity. It differs to some extent in its action from frictional electricity; so that the use of the one or the other is determined by considerations of efficiency or convenience. (*See* BATTERY, GALVANIC; ELECTRICITY.)

Gambling and Gambling Games.—Dr. Johnson defines a gambler as "a knave whose practice it is to invite the unwary to game, and cheat them." At present the term gambling applies to the reckless passion for betting and playing games for money, and also to various risky commercial speculations of doubtful propriety. In all its forms gambling denotes the attempt to procure the money of others without offering an equivalent in marketable value, and by means of clever calculation and manual dexterity, or by reliance upon mere chance or luck. Consequently gambling is a vice, and destructive of high moral sentiment and honest industry; its pursuit as a profession is scarcely separable from practical fraud, and its casual or regular victims are very likely to arrive at utter ruin of reputation and estate. And yet it was at one time allowed in England, as in various other countries and states, some of which have resorted to its patronage as a sure but vile and disgraceful agency for enriching the public treasury. This condition of things is rapidly passing away, and our laws in particular are severe against gambling, whether public or secret. Various games of skill are allowed to be played for money, where equal skill gives equal chances; but even these have restrictions imposed upon them, and they are unlawful on Sundays, Christmas Day, and Good Friday. Others are absolutely prohibited, and even lotteries and raffles are unlawful. Some games which are not necessarily gambling games may be used as such, and are of doubtful character, écarté being an example. Among the games resorted to for gambling purposes are faro, rouge et noir, roulette, E. O., brag, and blind hookey, of which

Captain Crawley says:—"The gentlemen who wish to become proficient therein will find no difficulty in learning all they want to know, and perhaps a little more." By our laws no one is allowed to keep a *bank* with chances in his favour, and the keeper of a common gaming house is liable to a fine of £500, or twelve months in prison with hard labour.

Gamboge.—A gum-resin of a yellow colour, used as both a pigment and a medicine; but for medical purposes it should not be employed without a doctor's advice, when it may be a valuable remedy in cases of dropsy, apoplexy, and internal parasites. It is a powerful drastic and anthelmintic. The dose is from two to six grains, in the form of pills, combined with colocynth, soap, rhubarb, or bread-crumbs.

Game as Food.—The flesh of game is nourishing, tender, of a delicate flavour, and easily digested. The aromatic bitter taste peculiar to it, which is so highly appreciated by epicures, belongs to it only when the meat has hung for a time before being cooked, each kind of game possessing a taste peculiar to itself. Owing to its nutritive properties, and to the fact that it is easy of digestion, game forms very suitable food for invalids, or for those troubled with weak stomachs. If kept too long the flesh becomes very rich and highly flavoured, and will be likely to prove injurious.

Game, Choice of.—The choice of game calls for the exercise of both judgment and discrimination. In order to bring out its full flavour and to make it tender, game should be kept for a while before it is dressed. This custom has, however, been frequently abused, and the meat, instead of being tender only, has been left hanging until it was actually putrid. The custom of eating food in this condition is contrary to instinct and the rules of common sense; and though game must be kept a certain time before the proper flavour can be developed, when once this point is reached it should be used at once. Feathered game has for ages been considered choice and delicate food. The ancient Greeks commenced their repasts with little roasted birds, and among the Romans feathered game was served as the second course. M. Soyer says that some modern nations—the French amongst others—formerly ate the heron, crane, stork, crow, swan, cormorant, and bittern. The preservation of game depends quite as much on the sportsman as on the cook. A bird or hare mangled in shooting will taint more quickly than if killed scientifically. Besides this, birds that drop into the water taint sooner than those that drop on land. The age of birds is known by the legs and spur: when the animal is young the legs are smooth and the spur short. As a trick, poulterers have been known to shorten the spur. The skin of the birds should be clear, white, and finely grained, the breasts broad and full-fleshed, the toes pliable and easily broken, and the weight of the bird should be in proportion to its size. Venison, like mutton, is not in perfection when young; it requires to be of a certain age before it is brought to table. In the best venison the fat is thick, clear, and bright, and the lean dark. When a hare is fresh the body is stiff, and if it is young the claws are smooth and sharp, and the ears easily torn. The same rules may be applied to rabbits as to hares.

Game Feathers, Prejudice against.—It is a very common opinion among uninstructed people that the feathers from game birds, such as partridges and pheasants, must not be used for stuffing pillows, beds, and bolsters, because they will bring some fatality if so employed. The notion is a very silly and superstitious one, though as a fact the feathers condemned are not the most suitable for the purposes indicated, unless carefully selected and mixed with others.

Game-fowls.—No variety of fowl has been so enthusiastically regarded by amateurs as the game-fowl. The varieties are innumerable, and their merits are many and various. Game-fowls are in some points superior to other poultry. They are very elegant in shape, and hardy, bold, and fearless in spirit. Although they are not usually regarded as a profitable breed for domestic purposes, they yet rank in the first class as layers, and their flesh is characterised by extreme delicacy of flavour. They are kept with little expense, as they eat very moderately; and the hen is a kind, devoted mother, defending her young to the last gasp. They are, however, small in size, and this renders them of little value as market fowls. The eggs are also small, but very rich in flavour. The best proof of good blood in game-fowls is the colour of the eyes. The best fighters are those with black or red eyes. The quickest fighters are those called the red Cheshire piles, with red eyes and white legs; the red-breasted ginger reds, with red eyes and yellow legs; and the whites, with red eyes and white legs. The best layers are the black-breasted reds and red Cheshire piles. A game-fowl is always judged with reference to its fighting qualities, and anything that interferes with them makes the bird of less value. The names of the birds that usually take the prizes and cups are the brown-red, black-breasted red, silver duckwing greys, and piles.

Game Laws.—Under the comprehensive description of game are popularly comprised all sorts of birds and beasts that are the objects of chase. A statutory definition of game is given in the Act 1 & 2 Wm. IV. c. 32, under which hares, pheasants, partridges, grouse, heath or moor game, black game, and bustards are included. Some of the provisions of this Act extend to woodcocks, snipes, quails, landrails, and conies; also to swans, wild-duck, teal, and widgeon. This Act repeals the old Act for the Preservation of Game (22 & 23 Car. II. c. 25), and provides that the right to kill game upon any land shall be vested in the owners (occupiers for short terms excepted), or in any person with their permission. A yearly certificate is necessary for all persons killing or taking game, and a yearly licence for all uncertificated persons selling it. There are also contained in this Act penal provisions

for the preservation of game and the protection of land from trespasses in sporting. (See also 5 & 6 Wm. IV. c. 20, sections 20 and 21.) It is unlawful to kill game on a Sunday or Christmas Day, or between the days and seasons when game may be killed. This prohibited period is, for partridges, between the 1st of February and the 1st of September; for pheasants, between the 1st of February and the 1st of October; for black game (except in the county of Somerset or Devon, or in the New Forest, in the county of Southampton), between the 10th of December and the 20th of August (or in the county of Somerset or Devon, or in the New Forest, between the 10th of December and the 1st of September); for grouse, commonly called red game, between the 10th of December and the 12th of August; for bustards, between the 1st of March and the 1st of September. As to grouse season in Ireland, see 37 Vict. c. 11. As to the killing of hares by the occupiers of enclosed lands without a certificate, see 11 & 12 Vict. c. 29, and 23 & 24 Vict. c. 90. As to the taking or killing of hares or rabbits in a warren in the night, see 24 & 25 Vict. c. 96, s. 17. As to the appointment of gamekeepers and their authority, see sec. 13 of the above-quoted Statute (1 & 2 Wm. IV. c. 32). See also the Act for the Prevention of Poaching (the 25 & 26 Vict. c. 114), which contains provisions for facilitating the search for offenders against the Game Laws.

Gamekeeper.—The servant so called has the care of the game upon his master's estate. It is his duty to protect it against the depredations of poachers and of vermin, and generally to promote its preservation and increase. A special licence is required for a gamekeeper, and his appointment must be registered with the clerk of the peace. He may seize the guns of unauthorised persons, but not hounds or game; neither may he carry or use fire-arms for the capture of poachers.

Games, In-door.—These are very various in their character, and include in their number some calculated to amuse all classes, whether old or young, grave or gay, studious or pleasure-seeking. Very many of these games, too, may be played without any expensive paraphernalia, thus making them equally within the reach of rich and poor. All the more important in-door games will be found fully described under their respective headings. (*See* Acting Charades; Acting Proverbs; Backgammon; Bagatelle; Billiards; Chess; Dominoes; Draughts; Forfeits; Go-bang; Tableaux Vivants, &c.; *also* Amusements, In-door, and various card games.)

Games, Out-door.—As with in-door so with out-door games, there is no lack of either by means of which a pleasant hour may be spent by all alike. For the more important out-door games, *see* Amusements, Out-door; Badminton; Balls, Games with; Bowls; Cricket; Croquet; Fives; Football; Golf; Hockey; Lawn Tennis; Marbles; Quoits; Rackets; Tennis, &c.

Gaming. (*See* Gambling and Gambling Games.)

Gammon.—This is the name given to a portion of bacon, consisting of the thigh of the hog, pickled, and smoked or dried. A smoked ham, too, is sometimes called a gammon.

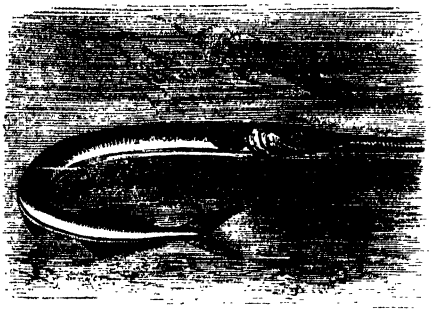
Gangrene, or Mortification, signifies the death of the part affected. It is a condition characterised by unnatural coldness, insensibility, discoloration, and a peculiar odour of putrid matter. Gangrene may occur in any part of the body, from disease, from arrest of the circulation, from bruises and other injuries, from some specific poison, as diseased grain—ergot of rye, for example—used as food, or from snake and other venomous bites. When it occurs during the course of some internal malady, its presence is generally manifested by a cessation of pain, by hiccough, vomiting, muttering, delirium, cold sweats, and peculiar smell, followed by death. In that form of gangrene known as dry gangrene, the appearance is somewhat different to that just described as characteristic of the disease, the skin being often pale and waxy-looking, or brown and shrivelled. Dry gangrene occurs frequently amongst old people, and hence receives the name of senile gangrene: it may be the sequence of an attack of gout. Dry gangrene may also result, as previously mentioned, from using diseased grain as food, and on this account has been called ergotism. The treatment of gangrene must be both constitutional and local. The constitutional treatment must consist in removing the cause if possible, in keeping up the strength, and allaying the nervous irritability. The last-named is best accomplished by repeated and full doses of opium. The local treatment consists in the application of carbolic acid and other anti-septic lotions; poultices of yeast, carrots, &c., when the slough is small; and, in the case of old people, keeping the part thickly wrapped up in cotton-wool. When the discharge is very offensive, charcoal poultices are useful. Amputation, or some other surgical operation, will frequently be necessary in these cases.

Gannet.—The *Sula Bassana* of naturalists, often called the Solan Goose, belongs to the natural family *Pelecanidæ*, and is a native of the islands and northerly shores of Scotland and Norway. On the distant isle of St. Kilda they are extremely numerous. In size the gannet is about equal to a common goose. The principal portions of the body are covered with an abundance of white feathers, but the crown of the head is buff, and the legs and toes black, with a green stripe in front. The neck is long, and the body somewhat flat; from the bill, which is about six inches in length, depends a pouch in the floor of the mouth, in which the bird can bring food to its young. The food of the gannet is fish, on which it pounces from a great height. It builds on the cliffs of the rocks, the female laying two or three large white eggs.

Gar. (*See next paragraph.*)

Gar-fish, or Gar.—The *Esox belone* of the naturalists belongs to the pike family, and is common enough on all our coasts. It is a long

fish, about two feet, with a tapering body of comparatively small circumference, a forked tail,



GAR-FISH.

and a long beak-like nose. In their habits garfish are gregarious, swimming near the surface, and being exceedingly agile and nimble. The bones are green, and the flesh firm, white, and of good flavour. They are sometimes called the "mackerel guide" and the "sea-pike."

Garden Cress. (*See* CRESS, LAND.)

Garden Engine and Syringe.—The garden engine resembles, on a small and modified scale, the engine employed for extinguishing fires. The water is either supplied by buckets or by the action of a suction-pump, and is expelled in a continuous stream through



GARDEN ENGINE.

a spreader by a forcing-pump, readily worked by one or two handles. The garden syringe is merely a pipe furnished with a piston, by drawing in which water is sucked in, and by thrusting which forward the water is forced out in a stream, which can be directed wherever it is required.

Garden Seats and Tables.—With the aid of a stout sharp hand-saw, "set" wide for rough work, a hammer and mallet, with a couple of strong chisels, one smaller than the other, and gimlets and brad-awls, the amateur gardener may readily enough construct the rustic wooden furniture which has so picturesque an effect under the shade of foliage in the garden's quiet nooks and shady corners. The smaller branches of trees varying in sizes and colours in their barks, split longitudinally, are used, in pieces of different lengths, for the covering of rudely-constructed seats or tables.

Garden Walks.—The construction of the garden walks is a matter of no slight importance, affecting, as it does, both comfort and health in those who find delight in their gardens. They may be formed either of gravel or asphalt. Gravel is sometimes objected to, on the ground that it needs continual care, frequent turning or re-covering, does not keep down worms, and permits the growth of weeds. Where it is used, a good binding gravel should be selected, and the walks should once a year be broken up with a pickaxe, raked, and carefully rolled, to prevent the growth of grass and weeds. The best time for doing this is about the middle of May. The gravel should be laid close in a line with the edges of the lawn or borderings of the flower-beds. Garden walks are sometimes made with concrete. In this case the walk, being levelled, is covered to the thickness of three or four inches of broken stones, over which is laid a mixture of Portland cement one part, coarse sand two parts, and fine gravel mixed with water, upon which, before it is thoroughly set, a coat of Portland cement mixed with an equal quantity of fine sand is laid, to the thickness of about half an inch. A gravel path should rest upon a good foundation, some fifteen or more inches deep, of broken bricks, crockery, stones, clinkers, or similar hard refuse, rammed down into a solid hard mass with coarse stony gravel, rolled flat and smooth. The path should be rounded in the middle, that the surface rain-water may be thrown from the centre to its sides, and so drain away. (*See* DRAINAGE OF GARDEN WALKS, &c.)

Gardener.—The duties of the gardener vary with every month of the year. He should have a proper knowledge of these, and know the different classes of plants, trees, shrubs, and flowers, the newest kinds, and their sources of improvement; understand the nature of vegetable growth, influence of temperature upon it, together with the respective growth, uses, and cultural order of each different species in the classes of plants connected with domestic economy. The gardener should also record the particular crops of every bed year by year, as well as the dates of manuring, digging, trenching, sowing, &c., as such records cannot fail to be extremely serviceable in many ways. Gardeners are of different kinds: some undertake the care of small gardens at a stated sum per year, paid by the owner of each; others are called jobbing-gardeners, being paid by the job or the day; and others take their place amongst the ordinary domestics of a gentleman's house, receiving wages varying with their importance and the rank they take in their calling.

Gardens, Flower.—In these days of suburban residences there are few houses which have not gardens of one kind or another attached to them. In most of these, however, the space is too limited for anything beyond a few pretty flower-beds. The ground belonging

to a newly-built house is sometimes filled in with the rubbish which has accumulated during the building of it—a material in which there is little chance of inducing flowers to grow. In this case the first want is a little earth, which may usually be purchased in town at about five or six shillings the load, room for which should be made when the beds are planned out, by clearing away the refuse brick and rubble, some of which should, however, be allowed to remain, to serve as a subsoil, raise the beds, and assist in the drainage. In planning a small garden there is not much choice of design, there being little room for anything more ambitious in this way than narrow side-beds, with a circular, oval, or differently-shaped one in the centre. As a wall usually shuts out air and light from the side-beds, it is best where these exist either to devote but little space to the side-beds, by making them only sufficiently wide to enable creepers to be trained on the walls, or to do away with them altogether, by having the pathways close to the walls. The beds, when well raised, receive a larger proportion of sun and air in small wall-enclosed gardens. With regard to planting flowers our hints must of necessity be brief. Towards the end of February or the beginning of March the more choice and delicate annuals may be sown, and if you wish them to blow early the assistance of a hot-bed will be required. (*See* HOT-BED.) The seed should be sown on the surface, and lightly covered with earth to the height of about an inch, or in shallow drills made with a piece of stick or the finger. When the plants are above the surface, admit air to them whenever the weather is mild, but carefully guard them from frost. Stocks and mignonette may be sown to bloom early; and if the end of the month is mild and dry, many of the hardy annuals may be sown, such as larkspur, convolvulus, scarlet, sweet-scented, and other peas, &c. The larger seed should be covered with earth at least an inch in depth, and the smaller seed at about half that depth. Perennial and biennial flower-seeds of most kinds may be sown towards the middle and the end of March, in beds of light earth warmly situated. In this month perennial plants may also be transplanted, and evergreens, ornamental flowering shrubs, and trees planted about four or five feet apart, to avoid overcrowding. In preparing for planting, each hole should be dug about the depth of the spade, and in width about two or three feet. Any parts of the roots which chance to be bruised or broken should be removed, and the plant being held upright in its hole, the earth, well broken, should be filled in. By shaking the plant gently while this work is in progress you cause the earth to settle more closely about the fibres and roots. Tread the earth lightly down about the stem when the hole is filled, and make a little hollow about it and pour water into it, to bring the earth into closer contact with the roots. If the plants require supports they may be tied to stakes driven into the earth beside them. Box-edging may be planted in March, and spring dressing applied by digging, hoeing, and raking. In this month lawns may be made or repaired. The gravel walks should be broken up or turned in March or April; and in the latter month it is usual to give careful attention to budding trees, guarding from attacks by insects, &c. In May, tender plants in flower must be guarded from too strong sunlight, too heavy rain, frosty nights, and inclement weather generally; tulips and other bulbous roots which have ceased flowering may be taken up in dry weather, dried in the shade on a piece of matting, and afterwards put away in bags. They will be stronger in the following year if this be done than they otherwise would. Plants in pots may in this month, if not of the more sensitive and delicate kind, be put into the open ground; in May the seeds of hardy annuals may be sown, and perennial fibrous-rooted plants propagated by cuttings. Tuberous roots may at this time be planted, to blow in the coming autumn. June is usually the proper time for cutting box-edgings. It should be done when the air is moist, and soon after rain. Most of the common border bulbs may be planted towards the end of October. In the open settled weather of November most sorts of hardy flowering shrubs, such as roses, honeysuckles, lilacs, &c., may be planted. Care should be exercised in so placing them that their different heights and modes of growth do not beget a confused and ineffective result, by tall plants concealing short ones, and so on. Hardy annuals are best sown in the open border. Half-hardy annuals, or half-hardy perennials, are sown in a gentle hot-bed, or in a close frame, without bottom heat. Tender annuals may be sown in a close frame also, but they require more warmth. Hardy perennials may be sown in the open borders, although there is more certainty secured by raising them in a closed frame. Biennials may be sown in the open ground not later than June or July, and may be transplanted in the autumn when it is intended that they shall bloom in the following season. All seeds in frames or pots may be shaded from sunlight, as the spring advances, with thin calico. Very small seeds — mimulus, calceolaria, and such-like—should be thinly sown on soil recently watered, and not covered with earth. Flowers require great care to keep the soil in a fit condition for their growth, as well as the aid of good manure. It is particularly desirable that the soil of your flower-beds should year after year be broken and turned up, to make the most of those benefits it derives from exposure to light, frost, and air; for this reason a good gardener will annually change the contents of his flower-beds, using one kind one year and another the following year in each. Different plants flourish best in different soils, some needing richness, others a poor soil; some a dry sandy soil, others a damp, adhesive, moisture-retaining soil, and so on. In like manner some flowers do best in shady positions, although most require plenty of sunlight.

Gardens, Kitchen.—The year's work in the kitchen garden should commence with the year by preparations for the production of the vegetables for domestic use, by cultivating, the soil and preparing the hot-beds, getting in supplies of the hot manure, rich earth, and other requisites. Good horse-stable manure and moist

stable litter should be prepared by rejecting the very dry, strawy, and exhausted parts. (*See* HOT-BED.) For earthing the beds a supply of rich, light earth, in a properly dry condition, will be wanted. This, if too wet, will prove detrimental to the growth of young seeds and plants, and, moreover, be apt to cake and burn at the bottom through the strong heat. Care must be taken with garden-mats, &c., to escape the effects of frost, but at the same time excessive heat must be avoided in the hot-beds. In the middle of January, if the weather is open, lettuces may be sown in beds sloping to the south. The seeds should be sown moderately thick, and raked lightly and evenly into the ground. In this month, hot-beds for forcing asparagus may be made; radishes, peas, and beans sown; and, if the weather is sufficiently dry and open, carrots, spinach, small salading (mustard and cress, rape, lettuce, radish, &c.), mint, parsley, tansy, &c. Cabbage plants, if the weather is open, may be planted out with rotten dung dug well into the trenches, and cabbages, &c., transplanted for seed. On a dry day, if the frost has not set in, earth up celery. Mushroom beds require special attention in January, to preserve them from heavy rains or frosts. In February, cauliflower, cucumber, and melon seed may be sown, and the young melon and cucumber plants will be fit for ridging out into larger hot-beds. Hot-beds may be prepared for kidney beans; cabbages, if tolerably strong, may be transplanted; cabbages may be sown, the spinach plants thinned out, ground prepared for carrots and parsnips—these roots grow largest in light ground. About the middle or end of February, onions and leeks may be sown in mellow ground, on a dry subsoil. Beans and peas which are up should have earth drawn to their stems on the first dry mild day, to strengthen and guard them from frost. Thyme, marjoram, savory, hyssop, and others may be sown about the latter end of February; potatoes planted for an early crop, horse-radish propagated by cuttings, early turnip seed sown, &c. In March the work of sowing, transplanting, and preparing beds still continues. Broccoli may be sown for early crops; sea-colewort, if required, may also be sown in a light, loose, well-dug soil. The asparagus beds and artichokes will require their spring dressing, and if the weather is mild new plantations of them may be made; turnips and tomatoes may be sown. In April the kitchen-garden work still runs in the same direction. The young celery plants sown in February or March may be pricked out, and others sown. In this month the weeds become troublesome and demand attention. The seeds of gourds and pumpkins may be sown in a hot-bed, to ripen early in the autumn. In May, care is still given to the hot-beds, &c., cucumbers may be sown for pickling, and the business of sowing continues. Early lettuces will require tying up, carrots and parsnips may be thinned out, weeding carefully pursued, cauliflowers transplanted and sown for the Michaelmas crop, beans in blossom topped, peas sticked, celery pricked out and planted, and, if the weather is dry, due care must be given to the proper watering of the plants. In June the care exercised against frost must be diverted to protecting from the sun those plants which are apt to shrink and flag under its heat, that the young fresh juices may not be scorched or dried up. Celery may now be translated into trenches, and remain to blanch, for which purpose choose a piece of rich ground in an open situation. The sowing processes continue; cauliflowers may be pricked out towards the end of the month, and some of the best of the early plants—those having the closest, largest, and whitest heads—should be selected to run to seed. Turnips for the autumn may be sown; particular care given to the destruction of weeds; water in dry weather. In July, ground which has become vacant must be re-prepared; seed sowing and transplanting continue for winter crops; celery is transplanted and earthed up; insects must be sharply watched; the effects of excessive rain, if necessary, combated; seeds be gathered as they ripen; herbs gathered for drying, &c.; and ground cleared from the stalks and leaves of plants which have ceased bearing. In August the work of preparing, sowing, gathering, weeding, destroying insects, earthing up, and transplanting is still in vigorous progress. In September, mushroom-growing receives special attention, and the work is much the same as that of the previous month. In October, early beans for May or June may be planted, peas sown for an early crop, vacant beds dug up and trenched. In November, early beans and peas may be planted, radishes sown, winter dressings given, carrots and parsnips and other kitchen roots taken up to be preserved for the winter, potatoes dug up, manuring and trenching done. In December, frost is to be specially guarded against, ground got ready, celery, &c., earthed up when the weather is dry and mild; manuring, trenching, and digging continue.

Gardens, Window.—In the houses of the wealthy the windows are adorned with a constant succession of plants from the green-house by the gardener; but in an ordinary way it is the housekeeper who adorns her window-sills with flower-pots or ornamental boxes. The pots, if not new, should be cleaned, and have a little broken earthenware, with some moss or straw above it, placed at the bottom of each before they are filled with mould, which should be of a quality suited to the particular plants which are to grow therein. The seed should be sown according to the directions given in the article on FLOWER GARDENS, the pots placed where they are not in a draught, but have plenty of light and air. The boxes, whether of wood or zinc, should have their bottoms perforated, and raised upon feet. For raising seedlings the most favourable conditions are warmth, air, not too strong a light, and sufficient moisture. Plants reared in pots require exceptional care. In a window with a south or a south-west aspect many greenhouse plants may be grown, and a succession of flowers preserved throughout the entire year, starting with crocuses and hyacinths, replacing these with cineraria, to be succeeded by pelargonium, calceolaria, and fuchsias, and for the winter months the Chinese primrose.

Gargles. — These are certain medicinal agents employed as local applications in affections of the throat, as tonsillitis, ulcer, diphtheria, scarlatina, &c. Gargling is simply allowing the fluid, whatever it may be, to fall back into the throat, and keeping it from passing on by breathing forcibly against it. Children should be taught with water, which, if swallowed, does no harm. The best gargles are those into the composition of which either tannin, alum, chlorinate of soda, carbolic acid, chlorate of potash, or borax enters. A few examples may be given. 1. *Tannin gargle.* Take of tannin one drachm, tincture of capsicum half a drachm, spirits of wine or brandy two tea-spoonfuls, syrup four tea-spoonfuls; shake well together, and add cold water to half a pint. This is a useful gargle for relaxed throat; a little alum may be added if desired. 2. *Alum and myrrh gargle.* This consists of alum one drachm, dilute sulphuric acid half a drachm, tincture of myrrh two drachms, and water to half a pint. This gargle is also used for relaxed throat. 3. *Chlorinate of soda gargle.* This usually contains about half an ounce of solution of chlorate or chlorinate of soda in a pint of water; a little honey or syrup may be added. It is a most useful gargle for foul ulcers of the throat with offensive discharge, its efficacy depending upon the chlorine which it contains. 4. *Carbolic acid gargle.* This is used for the same purpose as the preceding. The strength varies, but as a rule twenty drops of the acid to a pint of water will be strong enough. 5. *Chlorate of potash gargle.* This is an excellent gargle for inflammation or ulceration of the throat, and is composed of—chlorate of potash one drachm, dilute hydrochloric acid half a drachm, syrup half an ounce, and water to half a pint. 6. *Borax and honey gargle.* This consists of borax one drachm, honey one ounce, water to half a pint. It is a useful throat and mouth wash, and is very popular in a less liquid form as an application to the mouths of infants suffering from thrush, &c. Gargles are not so much in request as formerly, their use being somewhat superseded by the spray. (*See* SPRAY.)



GARLIC.

Garlic. — Garlic (*Allium sativum*) is an Eastern plant which has been cultivated from an early period. It is used principally as a condiment, and possesses in an intensified form the properties of the common onion. In cookery, garlic is not used in Britain nearly so much as in other countries. In Spain it enters into the composition of almost every dish. Garlic is very wholesome, and acts not only as a flavourer, but as a slight stimulant and tonic, and greatly assists digestion. Medicinally, this plant is of great value. In cases of deafness, a few drops of garlic juice dropped into the ear have proved beneficial. A liniment also is made of the juice for chest complaints.

Garnets.—These are of various kinds, and are extensively used in jewellery. They occur in many colours—black, brown, green, red, white, and yellow, and may have a white streak. All are brilliant when cut and polished, but they vary much in transparency. The more important varieties are the almandine, cinnamon-stone or essonite, and the red garnets commonly so called, and styled pyrope, Bohemian, and Syrian or Oriental. Carbuncles are garnets of a red colour, and owe their name to their colour, though it is only used of such as are cut with a rounded top and a flat or hollow base. Garnets are found in all quarters of the globe, and because they are plentiful are cheap, though really ornamental. Of the inferior varieties of garnet the following deserve to be named: the grossularite, greenish or black; the succinite, yellow; the colophonite, brown; the melanite, black; the leucite, white; the spessartine, brown; the uwarowite, with a bright green shade. Some of these are much softer than the better-kinds, and not so beautiful.

Garnish.—The art of garnishing dishes is the art of ornamenting them, and making them *look* elegant, and thus satisfying the eye as well as the palate. Various materials are used for this purpose. Among the most popular are—cocks' combs, plovers' and hens' eggs boiled hard, prawns and small crayfish, button mushrooms glazed, stamped pieces of vegetables, such as carrot, turnip, parsnip, beetroot, and truffle; stoned olives, gherkins, fried croûtons of bread, aspic jelly, horse-radish, cut lemon, and parsley. In this department everything, of course, depends upon the artistic arrangement of the ornamentation, and this is determined by the taste of the garnisher. Where the taste has been cultivated, or where there is a natural faculty for decoration, the task of garnishing dishes effectively is an easy one. Where culture and natural taste are absent, all that can be done is to observe and imitate the ways of others. A great deal depends upon the pleasing contrast of colours, and it is this that makes beetroot, chili, truffle, and similar materials so valuable for garnishing purposes. It will be readily acknowledged that it is much easier to produce a good effect with cold dishes than with hot ones.

Garter King-at-Arms. — The fourth officer of the Most Noble Order of the Garter. In the Garter King-at-Arms two distinct offices are united—those of garter or herald to the Order of the Garter, and principal king-at-arms, the highest officer of the Heralds' College under the Earl Marshal. Amongst other duties the garter carries the rod and sceptre at the Feast of St. George, whenever the Sovereign is present; notifies the election of new knights, and attends at their installation; carries the garter to foreign princes and potentates, &c.

Garter, Order of the. — The most ancient of all the lay orders of chivalry, and accounted the most illustrious order of knight-

hood in the world. the origin of the order has been variously stated, but this much is certain that it was either founded or restored by Edward III. in 1344 or 1350. The Sovereign is its head, and the number of knights was originally limited to twenty-six. To this number, indeed, the knights are still limited, with the exception that princes of the blood royal and foreign potentates and princes may be made additional members of the order. The habit and ensigns of the order are—the garter of dark-blue velvet edged with gold, and bearing the motto *Honi soit qui mal y pense*, worn below the left knee; the mantle of blue and the surcoat of crimson velvet, both lined with taffeta, and bearing on the left side an eight-pointed star embroidered in silver; the hood of crimson velvet; the hat of black velvet with an aigrette of black heron's feathers; the collar of gold, made of twenty-six pieces, each representing a garter; the George—the badge of the order—a figure of St. George, suspended from the collar by a dark-blue riband; the lesser George, a smaller badge, attached to a broad blue riband passing from the left shoulder to the right hip. The officers of the order are—the prelate (the Bishop of Winchester for the time being); the chancellor (the Bishop of Oxford); the registrar (the Dean of Windsor); garter king-at-arms (*which see*); and the usher of the black rod. A Knight of the Garter takes the initials K.G. after his title.



THE LESSER GEORGE OF THE GARTER.

Garters.—These are of various kinds, and owing to the prevailing use of stockings for children also, garters are universally required by old and young people. Strips knitted with soft cotton or fine wool are the warmest and softest; bands of elastic are liable to give too much pressure; straps of leather, fastened by a buckle, are considered better for the purpose. Perhaps the most pliable, comfortable, and least injurious of the various kinds are those made of fine silver wire, arranged so that they easily expand and contract.

Gas. (*See* GAS-LIGHT.)

Gas-burners.—The size and kind of burners used for gas vary with the amount of light required, the dimensions of the pipes, and the supply of gas provided to order by the gas company. The burners commonly in use are the following:—1. The *fish-tail burner*, so called from the shape of the flame which issues from it, consists of a hollow cylinder fitting the nozzle of the pipe and screwed on to it, with two small holes diagonally pointing one across the other, so that the two jets of gas meet. 2. The *bat's-wing burner*, which is dome-topped, and has a thin slit instead of holes for the exit of the gas. It gives more light and consumes more gas than the former burner does. 3. The *cock's-spur burner*, having a dome-shaped top, with holes taking the form of the slit. 4. The *Argand burner* (*which see*).

Gas Fittings.—These consist, first, of the metal tubing by which the gas is conveyed from the company's pipes to the various apartments, &c., usually by being inserted between the floors and ceilings; and, in the next place, of the ornamental metal brackets, chandeliers, pillar-stands, and burners with which these pipes are connected. It is important that the joints of all such fittings should be close and tight. They are designed in a large variety of patterns and enriched in different ways to produce a striking and brilliant effect, erring usually on the side of over-elaboration and showiness rather than on that of artistic beauty, delicacy, or neatness. Bracket fittings are usually fixed to the wall by the aid of wooden plugs, driven in to afford secure holding for the screws. Pillar burners or stands are usually connected with the chandelier or bracket with piping of india-rubber, which may be attached or detached at will, and which is sufficiently long to allow the gas-burner to be moved in any required direction from one part of a desk or table to another. Chandeliers made on the telescopic principle, for the burners to be raised or lowered at will, are provided with a water chamber, to prevent an escape of gas where the tubes run together, and pulleys, with weights, to keep the burners in their required position. As the water evaporates, the chamber intended for it must be re-filled; but a little oil floating on the top of the water will prevent its evaporation.

Gas, Laws relating to.—The manufacture and supply of gas are regulated by a variety of legislative enactments. As to the metropolis, the Act 23 & 24 Vict. c. 125, "for better regulating the supply of gas to the metropolis," prescribes the several districts of the companies, and enacts that if at any time complaints as to the quantity or quality of the gas supplied by any company be made to the Secretary of State, by memorial from the Metropolitan Board of Works, or any vestry or district board of works, or not less than twenty inhabitant householders paying rates for and supplied with gas by such company, a competent person as inspector shall be appointed within one month after receipt of the complaint, to inquire into and concerning the grounds of such complaint, and to report to the Secretary of State thereon. Such inspector is to give notice of his appointment in writing to the company, and at any time after twenty-four hours thereafter he shall have power to inspect and examine the gas-works of the company, and to inquire into and concerning the grounds of such complaint; and the company and its officers shall afford all reasonable facilities for such inspection, examination, and inquiry. Any person obstructing such inspector incurs a penalty of £10. If the complaint be well founded, the company is required, on notice being given them within a reasonable time, to remove the grounds of complaint, under a penalty not exceeding £50 for each offence. Numerous other useful provisions are contained in the

above-quoted Act, which was amended by 24 & 25 Vict. c. 79, by which the powers conferred on justices of the peace by the former Act were transferred to the Metropolitan Board of Works. Respecting the measures to be used in the sale of gas, the legal standard or unit of measure is the cubic foot, containing 62·321 lbs. avoirdupois weight of distilled or rain-water, weighed in air, at the temperature of 62° of Fahrenheit's thermometer, the barometer being at 30 inches. (See the Act for Regulating Measures used in Sales of Gas, the 22 & 23 Vict. c. 66.) The principal Statutes regulating the manufacture and supply of gas in other parts of England than the metropolis are the Gas Works Clauses Act, 1847, the Gas and Water Works Facilities Act, 1870, and the Gas Works Clauses Act, 1871. The Public Health Act, 1875 (38 & 39 Vict. c. 55, s. 161), enacts that any urban authority may contract with any person for the supply of gas or other means of lighting their district, and provide lamps and other materials for such lighting; or, where there is not any company or person authorised by Parliament to supply gas, may themselves undertake to supply gas to their district, or such part of it as is not within the limits of supply of any such company or person; and where an urban authority may under that Act undertake such supply, they may obtain a provisional order under the Gas and Water Works Facilities Act, 1870, and any Act amending the same, substituting in the latter Act the Local Government Board for the Board of Trade. Provision is, by section 162 of the same Act, made for the transfer by any urban authority of their undertaking to supply gas to their district to a duly authorised gas company.

Gas-light.—The gas-light is an invention of the present century. It was first used in Birmingham in 1802, but it was not till ten years after that some of the London streets were first illuminated by this means. Coal-gas consists of a mixture of the carbides of hydrogen, the relative proportions of carbon and hydrogen varying to some extent according to the character of the coal from which it is made. The illuminating power of the gas also varies with their relative proportions; the more carbon present, the better is the light. Small quantities of other elements, such as sulphur and nitrogen, are always present in the gas; but these are impurities which ought to be got rid of as thoroughly as possible. Cannel coal is the description which contains the most carbide of hydrogen, and the best qualities of it are very free from sulphur, so that these yield the best gas; but they fetch a high price in consequence, and inferior gas coals are often used as a substitute. The coal is distilled in red-hot iron retorts, producing various compounds of carbon and hydrogen, some solid, some liquid, and some gaseous. The last alone are used for this purpose. The gas, however, as it comes off, is full of impurities, a portion of which, principally tar and ammonia, is dissolved out as it passes through the water in the hydraulic main; thence the gas passes into the refrigerating pipes, and as it cools down it deposits more of the tar; and this and the remaining ammonia are still further reduced as the gas passes through the scrubbers, while the carbonic acid and sulphide of hydrogen are subsequently extracted as it is conducted through the dry lime purifier on its way to the gasometer or gasholder. These great storehouses are familiar objects, their huge bulk always attracting attention. From thence the gas passes into the mains, and thence into smaller pipes until it reaches the burners. Gas being always paid for by the quantity consumed, it is necessary that every customer should have a meter (*see next paragraph*), by which the quantity passing into the premises shall be registered. In this country, where coal is cheap, gas is a much more economical light than that of oil or tallow candles. (*See* EXPLOSIONS.)

Gas-meters.—These are of two kinds, dry and wet, the former being preferable, as in the winter it has no water to be affected with frost; the latter kind is, however, most generally used. Every wet meter should be filled with water up to a certain level, because if filled to a higher one than the supply pipe no gas would pass through at all, and if too low the gas would pass through without necessarily turning the apparatus round. In the first case the establishment would be left in darkness, and in the latter the index of the meter would show too small a consumption of gas, and the gas company would suffer. But if the water stands at a level somewhat higher than the proper one, and yet not sufficiently high to stop the supply, the consumer will be charged with more than he ought to pay for, because in that case the revolutions of the apparatus will be unduly accelerated. Hence much of the public dissatisfaction that is often experienced, this last case not being so easily checked. The proper place at which gas should be regulated is at the meter, as attempts to regulate it at the burner merely so increase the pressure of the gas that much of it passes unconsumed through the flame, to contaminate the air of the apartment.

Gas-tar. (*See* COAL-TAR.)

Gaseliers are merely gas-burning chandeliers, the term being used to distinguish such chandeliers from the branched candlesticks, also known as chandeliers, in which candles only are burnt. The term is sometimes applied to branched candlesticks in which the gas is burnt by passing it through imitation wax candles.

Gases are elastic fluids, differing from liquids in that the particles repel each other, so that, if not shut in completely in a closed vessel, they will be dissipated in all directions by the mutual repulsion of their particles. If two gases are brought into communication with each other, they will gradually mix together, although one may be of greater specific gravity than the other. It is in consequence of this that our atmosphere, consisting of nitrogen and oxygen, is uniform in its composition, although oxygen is nearly one-seventh as heavy again as nitrogen. Most gases, by the combined action of great cold and pressure,

can be reduced to the liquid state, and some even to that of a solid. Many gases are compound bodies; among the most important of these are marsh gas and olefiant gas, cyanogen, sulphuretted hydrogen, nitric and nitrous oxides, carbonic oxide and acid, sulphurous acid, &c. Carbonic and sulphurous acid gases can be solidified.

Gastralgia, or Gastrodynia.—This is the term used to signify pain in the region of the stomach. It is usually a symptom of flatulence and indigestion (*which see*).

Gastric Fever.—This is another name for typhoid fever (*which see*).

Gastric Juice.—This is the fluid which is secreted by the glands of the stomach for the purposes of digestion. It is clear and transparent, without smell, and contains lactic and hydrochloric acids, as well as an important and very active principle called pepsine. It is to the latter constituent that gastric juice mainly owes its digestive power. This can be easily demonstrated by placing food in a condition similar to what it would be after mastication in a solution of gastric juice and dilute acetic hydrochloric acid, and allowing it to remain there for three or four hours, the temperature being raised to 100°. At the expiration of that period the food will be found digested into much the same condition as chyme when leaving the stomach. The gastric juice dissolves most of the important principles of the food, with the exception of the fatty matters, and it is very much assisted in this by a copious secretion of water, which is being continually poured forth from the stomach at the same time. This water seems, during digestion, to keep up a continuous ebb and flow throughout the whole of the alimentary canal, each receding wave carrying back with it a store of nourishment for the body by again mixing with the blood. It should be remembered that the gastric juice acts much more quickly upon soft pulpy food which has been thoroughly masticated, than upon hard, hastily-swallowed matter; also that if too much fluid be taken with food, or if the latter be taken to excess, digestion is very much delayed.

Gastric Ulcer.—Ulcer of the stomach in its worst form is happily not a common disease. We say in its worst form, because in such a case the symptoms are striking and conclusive; whereas in a mild form ulcer may exist for some time, and heal spontaneously, without any certainty as to its presence, though it may be suspected. The symptoms of gastric ulcer are, in the first instance, those of ordinary indigestion; these are followed by acute pain after food over the stomach just below the breast-bone, with frequently a similar pain in the corresponding part of the back; there are nausea and vomiting of the food taken, the pain generally, but not always, subsiding when the stomach is empty. The bowels are generally constipated (differing in this respect from ulcer of the bowels, when there is always diarrhœa); the sufferer looks anxious and weary, and sometimes cachectic. There are three special dangers which may at any time arise during an attack of gastric ulcer, any one of which may prove fatal. These are (1) hæmorrhage, (2) perforation, and (3) exhaustion from starvation. 1. *Hæmorrhage* is caused by the ulcer eating into some large blood-vessel before it has had time to become plugged, thus allowing the blood to escape in such quantities into the stomach as to cause death; more frequently, however, the bleeding is not so severe, the vessel not being large, and the ulcerative process less rapid, thus permitting of the gradual plugging of the vessel. Hæmorrhage generally occurs after a full meal, when the stomach is distended. 2. *Perforation.* This may take place very suddenly, the coats of the stomach, thinned by ulceration, yielding under distension by gas or otherwise, and allowing the contents to pass freely into the cavity of the abdomen. The symptoms of this having occurred are a very marked aggravation of the usual pain, which, however, is not now confined to one or two spots only, but is felt over the whole of the abdomen; the pulse fails, there are all the appearances of collapse, and in a few hours death ensues. 3. *Exhaustion* is the third danger which often marks the course of this formidable disease. This arises from the food being continually rejected as soon as it passes into the stomach, and as a matter of course the body receives no nourishment, the sufferer simply starving. In simple ulcer of the stomach the treatment must have for its chief object the healing of the ulcer. To effect this the diet must be strictly regulated, and chiefly of a farinaceous kind. Milk, arrowroot, beef tea, mutton and veal broth, &c., at short intervals, should be given, but all solid food must be avoided. Tea cannot be borne, neither can beer, and indeed all spirits and malt liquors must be forbidden. With regard to medicine, opium and bismuth seem to be the most serviceable. The former is best given, if the stomach will retain it, in the form of extract (half a grain for an adult), in a very small pill twice a day. If the stomach rejects this, morphia should be injected subcutaneously. Bismuth may be given, in the form of Schacht's solution, in doses of from one to two tea-spoonfuls twice a day. Under medical advice two or three drops of dilute hydrocyanic acid (prussic), in a wine-glassful of soda-water, may be given occasionally to relieve the sickness. Ice is also a most valuable remedy in this disease; it may be taken frequently and without stint, and if hæmorrhage comes on it should be applied externally as well to the pit of the stomach. Absolute rest is very essential, and subsequently, as progress towards recovery is made, it will be found that the preparations of iron, especially the ammonio-citrate, will do good. When perforation has taken place, the case is hopeless, unless, as sometimes happens, adhesions have been formed with one or other of the adjacent organs, as the liver, pancreas, spleen, &c. Exhaustion from starvation is best combated by injections of beef tea, milk, &c., to which a little brandy may be added; and these should be given from the very outset in all cases where the sickness is constant and occurs immediately after a meal. The importance of allaying the sickness will

be evident when it is remembered that every effort to vomit, by straining the stomach, predisposes to the danger of hæmorrhage and perforation.

Gastritis. — This is, properly speaking, inflammation of the stomach. The disease, however, is not always confined to that organ, but frequently extends into the bowels as well. It may be either acute or chronic. Acute gastritis occurs very seldom as a specific disease; it more frequently results from taking some irritant poison. The symptoms are severe pain at the pit of the stomach, increased by pressure or movement of any kind, and even by ordinary respiration; the stomach does not retain food; and there is also vomiting of mucus streaked with blood, great anxiety, thirst, and restlessness. The treatment of acute gastritis consists in the application of leeches, followed by ice, to the pit of the stomach; ice should also be taken internally, whilst three or four drops of dilute hydrocyanic acid in a wine-glassful of soda-water, to which a few drops of laudanum or solution of morphia may be added, will be found beneficial. Chronic gastritis is generally the result of excessive tippling, though it may be a consequence of gout or some other disease. It may also be produced by too frequent use of strong purgative medicines, as well as by indigestible food. (*See* INDIGESTION.)

Gastrodynia. (*See* GASTRALGIA.)

Gastronomy.—The art or science of good eating; the word, therefore, describes the rules or principles laid down in the interests of the epicure. According to Brillat-Savarin and his school, gastronomy includes the whole philosophy of food, and asks what, when, and why we should eat, as well as seeks to tempt the appetite, to increase the pleasure of eating, to promote digestion, to preserve health, &c.

Gathers.—Regularity, order, and neatness are essentials in this department of what is termed "plain sewing." Measurements should first be made of the quantity of material which must be gathered, the half and quarters should be marked, and the same subdivisions marked on the band to which the gathers are to be affixed. The size of the gathers must be according to the thickness of the material; the thread requires to be strong, and the needle to be taken in and out in regular order and distance. When the whole or half is gathered, the thread is pulled tight and wound round a pin inserted for the purpose. With another pin the worker strokes all the gathers, arranging them closely side by side in perfect order, this stroking process being commenced at the left-hand side. When the whole is completed, the thread is loosened to the required length, and each gather is then sewed to the band very neatly and regularly. This portion of the work requires practice and some skill.

Gauffering.—This style of arranging frills has superseded that of crimping; it is done by means of irons or by a machine. Most laundresses possess themselves of the latter, as being the most expeditious. Gauffering irons are somewhat like large scissors, with thick round blades; the machines are small, and resemble those for crimping. The effect which both produce is that of puffs, not so large as those made by the old-fashioned Italian irons, nor so flat and minute as that of the crimping machine. Frills intended for gauffering should not be made full when sewed on. Before being gauffered they should be starched and almost dry; when done in this state the undulations will keep in position for a considerable time. Some persons iron the frill previously; when this is done the material often looks smoother, but the impression made by the irons is not so lasting.

Gauging.—Practical gauging is the art of finding how much is or could be contained in any cask or other vessel; and as these are of various forms, various methods of computation have to be resorted to. It is known how many cubic inches are contained in a gallon, for example; and when it is ascertained how many inches there are in any cask or part of a cask, it is easy to calculate the quantity. All sorts of measures for ale, wine, corn, &c., can be tested by the rules for this art, whatever their size or their form; and, of course, measures or vessels partly full can be gauged with a view to find out what they contain. To facilitate operations various graduated tables and other appliances are used by officers of excise and others to whom time is an object, and who require calculations made ready to hand. The measurement of timber and other solid bodies is based on very similar principles.

Gauntlet.—A glove with a top which covers the wrist. In ancient times it was composed of thick leather, and chain armour or plates of steel placed on the back of the hand and fingers, and so divided as to allow of the bending of the joints. In the Middle Ages one knight challenged another by throwing it down on the ground, and the challenge was accepted by the picking of it up. Gauntlet gloves of washleather are worn by our cavalry soldiers, as also by ladies on horseback; they are also used by the latter of doeskin, for gardening or travelling.

Gauzes.—Exceedingly delicate and transparent fabrics, supposed to have been first made at Gaza, in Palestine, the threads of which are separated one from another. They are made of silk. The common sorts are plain, striped, or figured; in the best the figure is composed of silk; and another description, with flowers in gold, is imported from China and India. There is an inferior kind, in which the design is composed of maquesia, attached to the gauze with gum. Another sort is designated "crape lisse gauze," which is craped or crimped; and there is also a very rich gauze called gossamer, which is employed for veils, nearly as open in its texture as ordinary gauze, but four times as thick and strong. Indian net is a strong variety, made of silk and worsted in various colours, and used for ladies' dresses. Mousseline de soie crape and China crape are varieties of the same material. Gauze is chiefly made at Paisley, but the best comes from France.

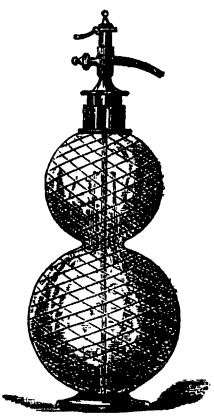
Gavelkind.—A tenure or custom belonging to lands in the county of Kent and a few

other places. The distinguishing properties of this tenure are various. The principal are these:—1. The tenant is of age sufficient to alienate his estate by feoffment when fifteen years old. 2. The estate formerly did not escheat in case of an attainder and execution for felony, the maxim being "the father to the bough, the son to the plough." (*See* ATTAINT, ATTAINDER; ESCHEAT.) 3. In most places the tenant had a power of devising lands by will before the Statute for that purpose was made. 4. The lands descend, not to the eldest, youngest, or any one son only, but to all the sons together, which was indeed anciently the most usual course of descent all over England, though in particular places particular customs prevailed. 5. A wife's dowry is one-half instead of one-third of the land. 6. A husband is tenant by the curtesy, whether there be issue born or not, but only of one-half so long as he remains unmarried. Gavelkind, before the year 1066, was the general custom of the realm; the feudal law of primogeniture superseded it. It was retained in Kent because, according to historical legend, the Kentish men surrounded William the Conqueror with a moving wood of boughs just after the slaughter at Hastings, and for that service obtained a confirmation of their ancient rights. By 34 & 35 Hen. VIII. c. 26, gavelkind lands in Wales were made descendible to the heir according to the common law, from which it would seem that the custom of gavelkind formerly prevailed there. And in Kent many lands have been deprived of this particular custom (*i.e.*, disgavelled) by several Statutes (which should always be referred to in transactions relating to property in Kent). *Primâ facie*, all land in Kent is gavelkind, and it is not necessary to plead the custom. It is presumed as the common law of that county, and the Courts are bound to take judicial notice of it.

Gavot, or Gavotte.—This dance was in great favour in the last century, but has ceased for the last sixty years to be included in the ball-room programmes. It was always danced by a gentleman and lady, who before they began the measure repeatedly performed many bows and curtseys to each other. The movements were a modified imitation of a minuet, sometimes quick, sometimes slow, but always graceful. The music was of a lively character, and consisted of an air *à deux temps*, comprising two repetitions, each containing eight bars. Although the dance has ceased to be performed, the particular style of music is still composed, and sometimes introduced into sonatas. The dance took its name from the Gavots, inhabitants of Gap, a town in the south-east of France.

Gazette.—A periodical newspaper, containing accounts of transactions and events of general interest. The word is derived from the Italian *gazetta*, a Venetian coin, said to have been the price of the first gazette published. The first gazette in this country was printed at Oxford in 1665, under the title of the *Oxford Gazette*, but was soon transferred to London, as the *London Gazette*, which is still in existence. In its original form this gazette contained items of home and foreign intelligence, orders in council, lists of sheriffs, circuits of judges, &c.; and its contents at the present day are of somewhat the same nature. It is the recognised organ by means of which all State intelligence, orders in council, proclamations, addresses to the Crown, &c., are promulgated by the Government; in it also all appointments in the army, navy, and militia are announced, or, as it is usually termed, "gazetted." Many notices connected with trade, commerce, &c., are also by special enactment required to be inserted in the *Gazette*. Of this nature are notices of dissolution of partnership; meetings of creditors; declarations of insolvency, &c., inserted under the bankruptcy and insolvency laws; legal notices and decrees of the law courts, &c. The *Gazette* is under the control of an officer appointed by Government. All receipts from sales and advertisements are paid into the Exchequer, and all disbursements are provided for by an annual Parliamentary grant. A gazette on similar principles is also published in Edinburgh and Dublin. A police gazette is, too, issued bi-weekly in London, under the authority of Government.

Gazogene.—An apparatus for aërating liquids. Many forms have been given to the instrument, but in all the principle is the same. Powders for generating carbonic acid gas are placed in one compartment, and the liquid to be acted on in another. A tube connects the two compartments, and a second tube, with a spring tap, affords an exit to the aërated liquid. By this agency water, wine, ale, &c., may in a few minutes be saturated with the gas, and rendered brisk and piquant. By using fruit syrups delicious aërated summer drinks may be made. In its common form the gazogene is not very expensive, and may be readily turned to account in many ways.



GAZOGENE.

Geese.—The goose, called by naturalists *Anser*, belongs to the family *Anatidæ*. The beak is as long as the head, in shape conical, with an elevated base. The legs are placed in the centre of the body, and not so far astern as in the duck. The *Anser nivens*, or snow goose of North America, is looked upon as the type of the goose class. The wild goose, or grey-lag (the *Anser ferus*), is undoubtedly the origin of our domestic bird—if, indeed, the two are not quite identical. This well-known bird is not only common in our own country, but is found plentifully in marshy places all over Europe. It is also found in abundance in the more northern regions of Africa, and in Asia Minor, and especially in Persia. The Bean goose (*Anser segetum*) is smaller than the common goose, but is like it in colour and general appearance. It is found

wild in the lake districts of Sutherlandshire, Scotland. It likewise visits England in winter, not leaving until April or May. In the fur countries of North America is the *Anser Canadensis*, a grey goose, somewhat like the swan in general shape. These are killed in great numbers after their arrival, and packed in ice to form food for the winter months. The Canada geese are likewise easily domesticated, and interbreed with common geese. There is a goose common to the banks of the Nile, also found in many other parts of Africa. It is called the Egyptian goose (*Anser Ægypticus*), but sometimes visits European shores. Another goose that visits us here in winter is the Brent goose. Geese are not only valuable as a food supply, but for their feathers and quills.

Geese as Food. — The flesh of birds ranks in importance next to that of mammals. It differs from the latter in being of a leaner nature; no fat is mixed with the fibres, as it is in beef and mutton, consequently poultry and game are not so well adapted as are these for ordinary food. Birds are, however, nourishing, and form in alternation a pleasant variety. The flesh of geese is strong in taste, rich, rather hard, and not very digestible. It is only suitable for the strong and hardy, and should be avoided by any who suffer from weakness of the stomach. Geese until they are four months old are spoken of as green geese. They are generally cooked like fowls, and stuffing is rarely used for them.

Gelatine is that part of meat which, when dissolved and extracted by boiling in water, forms a jelly when cold. It is found in greater or less degree in the flesh of all animals, in the form of membranes surrounding the fibres of the muscles, and in the bones, horns, hoofs, and tusks—the true skin, or cutis, being almost entirely composed of it, the scarf-skin consisting of albumen. Fine glue is an example of gelatine, procured by dissolving skins by boiling. It is colourless when pure, and easily soluble in hot water. When dry, gelatine undergoes no change; but if exposed to the air before drying it soon becomes mouldy, and then putrescent. It will not combine with oils, but causes the latter to mix with water, and so forms a sort of emulsion. Young animals contain the most gelatine; in the old it is replaced with albumen.

Gems.—Gems are precious stones which for their great beauty are cut and polished, and employed especially for mounting ornamental jewellery. The first and most valuable class includes diamonds, rubies, sapphires, emeralds, and a few others; while the topaz, amethyst, garnet, &c., are less esteemed and not so costly. Malachite, lapis lazuli, agate, cornelian, &c., can scarcely be called gems, though much used for ornament. Nearly all are described under their proper names in the course of this work; it is therefore not needful to go into detail here. Every gem is imitated with much skill, and in some cases with almost perfect accuracy; but forgeries can be generally detected by their deficiency in respect of hardness and weight, as they are for the most part nothing but glass, or paste, as it is called. (*See* Artificial Gems.)

General Quarter Sessions. (*See* County Sessions.)

General Servant.—A general servant, or maid of all work, is engaged to do the household work in general, without devoting herself to one department only, as is customary where two or more servants are kept. A general servant is not unfrequently regarded with pity and commiseration as one upon whom too much labour is imposed, and whose remuneration is not equal to the service given in return. Though in some instances this state of things may exist, such treatment, it is to be hoped, forms the exception rather than the rule. The routine of a general servant's duties depends upon the kind of situation she occupies; she must have a partial if not a thorough knowledge of all housework, so that she may either perform the work alone or assist others in doing it. It is very necessary, too, that she should arrange the work that falls to her share systematically, in order that the duties of one day may not be more onerous than those of another. The work of each day, too, should never, if possible, be delayed until the following day: if this be done confusion and annoyance are sure to result. The duties of a maid of all work are so numerous, that unless she be quick, active, and orderly, she will neither give satisfaction to her mistress nor secure any leisure for herself.

Genet.—The animal from which this fur is obtained is of the polecat species; it inhabits Asia, Africa, and Southern Europe. The fur is grey, with spots of black or brown, and the tail, which is very long, is ringed with black and white. The fur of cats is often substituted for that of genet. In Holland, cats are kept specially for the sake of their fur.

Geneva, or Hollands.—Hollands is an alcoholic drink distilled from grain, generally malt or unmalted barley. After its distillation it is flavoured with juniper-berries, the French for which is *genièvre;* hence the word geneva, which has been abbreviated into gin. In addition to alcohol, Hollands contains a small proportion of oil of potato, which is developed during fermentation. This spirit has a strong taste and a disagreeable odour, both of which must be destroyed as much as possible. It is now principally imported to England from Holland where it is manufactured to a very large extent, chiefly at Schiedam. In this town alone there are nearly two hundred distilleries. The Dutch are not, however, intemperate people, as might reasonably be inferred from the fact that their manufacture of alcohol is so extensive. Most of the spirit made in Holland is exported to other countries, especially to North America and Northern Europe.

Genre.—In painting, a term used to denote a varied class of pictures, which cannot be classified as belonging to any of the higher or special branches of the art. The word is an abbreviation of the French *du genre bas*, meaning "of a low kind," and as the full phrase implies,

refers to paintings which depict low life. The Dutch are known as among the best *genre* painters.

Gentian.—Common gentian—the *Gentiana lutea* of botanists—belongs to the great natural order of *Monopetalous exogens*, the *Gentianaceæ*. It is found growing in mountainous meadows in Central and in Southern Europe, on a simple erect stem from two to three feet high. The flowers are in whorls, and of a bright yellow colour. The peasants of the Tyrol, Switzerland, and other places collect and dry the roots. They are then sent to Havre or Marseilles, whence they find their way to our markets. Gentian-root forms one of the best and simplest of our vegetable tonics. It is less bitter than quassia, and is more inclined to relax the bowels than other simple bitters. It is used in cases of dyspepsia as a tonic, where there is debility without any inflammatory or irritative tendency. Sixty grains of gentian-root sliced, the same quantity of bitter orange-peel, and a quarter of an ounce of fresh-cut lemon-peel are infused for an hour in half a pint of water to form an infusion. The dose is about one ounce.



COMMON GENTIAN.

Gentleman.—As a special distinction the designation of *gentleman* has long been obsolete. In its widest sense, at the present day, it comprehends all whose condition is above that of a yeoman. A more limited sense of the word includes those only as gentlemen who, being without a title, bear coat-armour, or whose ancestors have been freemen. Another definition would number as gentlemen all who, being above tradesmen in the social scale, possess a certain amount of refinement and intelligence. But perhaps that definition would now be held to be best and most satisfactory which would include as gentlemen those, and those only, whose lives are governed by true principles of right and wrong, and whose conduct is marked by gentleness, honour, and probity.

Gentlemen-at-Arms.—A corps of forty gentlemen instituted by Henry VIII. in 1509 as a special guard for the royal person, and whose duty it now is to attend the Sovereign on all State occasions. They were at one time called "The Band of Gentlemen-Pensioners," but in 1834 resumed, by royal command, what is said to have been their first title, "The Honourable Corps of Gentlemen-at-Arms." Appointments to the corps are made by the Sovereign, from a special list of retired officers of the army and marines kept by the commander-in-chief. The corps consists of a captain, lieutenant, standard-bearer, clerk of the cheque, and forty gentlemen.

Gentlewoman.—In its most extended sense this designation includes all women above the labouring classes who are not engaged in trade or any menial occupation. Formerly it denoted a lady of good birth and breeding, but without a title. In a special sense those who attend on ladies of the royal family, and who possibly may themselves possess a title, are denominated *gentlewomen*.

Geological Specimens, To Arrange.—For a domestic collection very large specimens are undesirable, as they require large glass cases and special arrangement, besides occupying much space. Small specimens can be shown in shallow cases with glass tops, or they can be located in cabinets constructed with shallow drawers. These drawers should be lined at the bottom with cotton-wool, upon which the various items should be placed, properly classified and separately labelled. The classification may be variously effected, either according to the geological formation, or the class of fossils and minerals represented. Thus granites and other stones may go together as stones, mineral and metallic ores and oxides as such, shells as shells, bones and vegetable organisms being also kept separate; or all that belongs to any one formation may come together, irrespective of the forms it assumes. For some purposes the last is the best method; but perhaps the most attractive way is to separate shells, bones, vegetables, crystals, metals, &c., which are very effective in distinct groups.

Geometrical Patterns.—Designs constructed according to geometrical laws, and which can be executed by means of the ruler and compasses—that is, by right lines and circles.

Geranium.—This, from its power of blooming and brilliancy of colour, is one of the most useful and ornamental of all the flowers



GERANIUM.

of the garden. There are many varieties of the geranium, all of which are easily grown, and when once planted require but little care, except in removing the dead clusters of bloom and withered leaves. About the middle of August is the time for propagating by cuttings, directions for which have been given under the

heading of CUTTINGS FROM PLANTS. The cuttings, when rooted, should be protected from frost, and light mould is requisite for them.

German Paste.—This is the name given to a handy paste made for feeding birds, such as larks, canaries, nightingales—or, in fact, any kind of cage-bird. It may be made thus:—Take a pound of rape-seed, which bruise in a mortar, blowing away the husks; then mix this with bread not too new, and well powdered; and keep the compound in, say, a pickle bottle from which the air is carefully excluded. A little of this is used along with a portion of hard-boiled egg, but it ought to be made fresh every ten or twelve days. Another German paste is made with pea-meal one pound, blanched sweet almonds half a pound, fresh butter two ounces, moist sugar two ounces, hay saffron fifteen grains. Mix and beat well with a little water, pass through a cullender, then expose to the air till dry. It may be used with eggs like the other.

German Sausages.—The Germans as a nation seem to be thoroughly acquainted with the art of making good sausages. With them almost every district has its own favourite flavour of spice or herb, and the varieties are innumerable, each kind having a distinct name. The German sausages sold in England have been subjected to a smoking and drying process, in order to make them keep well. When good they are very pleasant and wholesome. The poisoning cases that occurred a few years ago from the consumption of sausage that had been kept until it was unfit for use proved that great care should be exercised in the selection of these preparations.

German Silver.—An alloy somewhat resembling silver in appearance, and much used in the manufacture of cheap jewellery—brooches, earrings, pencil-cases, &c. It is composed of copper, nickel, and zinc, in various proportions, among which are the following: copper 16 parts, nickel 16 parts, zinc 7 parts; and copper 2 parts, nickel and zinc each 1 part.

German Tinder. (*See* AMADOU.)

German Wines.—The character of wine is greatly influenced by the temperature at which fermentation takes place, and the difference that exists between the wine of one country and that of another may be accounted for by this fact. In hot countries the process of fermentation is very quickly accomplished; the saccharine matter disappears before the real flavour of the wine has been developed, and this causes it to be thin and poor. To prevent this spirit is frequently added when fermentation has reached a certain point, and this checks its further progress, and prevents the destruction of the full-bodied and fruity taste of the wine. In the cooler countries, however, such as Germany and Hungary, fermentation takes place much more slowly. The wine is drier, less fruity, and lighter in its nature, than the full-bodied wines, and the amount of alcohol exists in a much smaller degree. German wines belong to the latter variety; they are partially acidulous, and are specially adapted for the commencement of dinner. Most of them are white, and are characterised by a peculiarly delicate aroma, caused either by the slow fermentation or by the extreme acid quality of the grape. In making these wines it is, however, difficult to render them perfectly clear and bright. The custom of appropriating coloured glasses to their use owes its origin to this fact. Hock is a German wine, produced on the banks of the Rhine; and very excellent sparkling wines are made both in the districts of the Rhine and the Moselle. The best known and most esteemed German wines are Johannisberg, Steinberg, Marcobrunn, Rüdesheim, Hockeim, Rauenthal, and Nierstein. Assmannshäuser is a red variety of hock.

German Wool.—This wool differs from that known as fleecy in that it is smoother and more evenly twisted. It is very soft, and receives the brilliant dyes better than other kinds of wool; for these reasons it is the best kind for canvas work. (*See* BERLIN WOOL.)

Gherkins.—Gherkins are young cucumbers gathered before they have arrived at maturity. They are used for no other purpose than pickling, and in this form are general favourites. Though gathered young, they should not be too young, or the requisite flavour will not be sufficiently developed.

Giblets.—The giblets of a duck or goose consist of the head, neck, feet, liver, gizzard, and pinions, that are sold with the bird after it has been plucked and trussed for cooking. Giblets mixed with beef steak are often made into pies, or they are sometimes used for making stews and soups.

Giddiness, or Vertigo, may be defined to be a feeling of lightness in the head, in which objects appear to swim round, accompanied by a tendency to fall to the ground. Giddiness is experienced by many persons in looking down from a great height, and is a marked symptom of many disorders and diseases. In its most ordinary form it usually indicates flatulence and indigestion; but it also occurs in weak and aged persons. Giddiness may result from too much blood, as in plethora; or from too little, as in fainting; or from something circulating in that fluid, as alcohol. The importance of giddiness as a symptom of disease, and its treatment, will of course depend upon the condition from which it arises. If the condition is plethoric, purgatives and abstinence are indicated, and even bleeding may be necessary. If, on the other hand, there is weakness, the very opposite treatment must be adopted—tonics, wine, and a liberal diet being essential. If giddiness arise from indigestion, the remedies suitable for that affection must be taken. (*See* INDIGESTION.)

Gig.—This is a light open vehicle or chaise with one pair of wheels, and drawn by one horse. The term is also applied to a light boat intended for use in conveying the captain or a few passengers rapidly to shore, or from one ship to another.

Gilding.—There are numerous processes employed in gilding, but the better known are two—the one by amalgamation, for gilding metals, commonly termed water-gilding; and

the other for gilding wood, &c., by the application of "gold leaf," which may be called dry-gilding. In water-gilding, the gold leaves are put in quicksilver which is heated nearly to the boiling point, and this forms the amalgam. The metallic article to be gilded is first made thoroughly clean, and after being coated with the amalgam is subjected to the heat of a charcoal fire, by which the evaporation of the mercury is secured, and the gold is deposited upon the metal in a thin film, which is afterwards burnished. Gilding on wood is performed by first coating or priming the surface with boiled linseed oil and white-lead, and then applying gold size, upon which, when it is in the "lackey" condition, gold leaf is laid and readily adheres. For illuminating and similar purposes, a process of gilding with gold in a state of powder is used. To prepare this powder, leaf gold may be ground up with a little honey; when ground, thrown into water containing a little alcohol, and allowed to settle; the deposited powder being separated from the liquid by decanting, and washed repeatedly as before, until a brilliant gold powder of remarkable fineness is the result, which, mixed with a little common or table salt and powdered cream of tartar, and stirred up in water, serves for gilding. There are two methods of gilding wood—viz., oil gilding and burnished gilding. For oil gilding, after the preliminary priming, which fills up the pores of the wood, oil-gold size is spread thinly over it, and the remainder of the process is conducted as above. But this method does not admit of burnishing. For this, on the surface to be gilt, after it has been prepared by repeated coatings of size and whiting, rendered smooth with water and pumice-stone, a moderately thick coating of size and yellow ochre is spread, and before it is quite dry the gold leaf is laid on in the usual way, and the parts intended to be burnished, or rendered brighter than other parts, are rubbed or burnished with an agate burnisher. Burnished gilding is only used for in-door work, as it will not withstand the action of rain or damp atmosphere. Steel and iron are gilt by being immersed in a mixture of nitro-muriate of gold with sulphuric ether. The edges of books are gilt with gold leaf, after being prepared for its reception with a composition of four parts of Armenian bole and one of sugar-candy. The edges are afterwards burnished. Porcelain is gilt by the application of gold leaf before the glazing process is performed. It also is afterwards burnished.

Gilead, Balm of. (*See* BALM OF GILEAD.)

Gilet (from the French, meaning under-waistcoat) is a style of making a bodice, occasionally called a "waistcoat," or "coat-bodice." The waistcoat may be of a different shade or contrasting colour to the rest of the dress, and sometimes is of a different material, such as velvet, satin, or plush. The style and cut of the gilet vary with the epoch or reign during which it was in fashion, such as "Louis XII.," "Louis XIV.," the "Directory," or the "Restoration," &c.

Gill.—A measure of capacity containing the fourth part of a pint, or the thirty-second part of a gallon. (*See* WEIGHTS AND MEASURES.)

Gills.—The organs of respiration in fishes are called gills; technically, *branchiæ*. They occur at the neck, and consist of bony or gristly arches fringed with red threads; the extremities are jointed, and the gills when not in use are in most cases covered by a sort of horny sheath. In practice they serve the purpose of lungs, by absorbing the oxygen contained in the atmospheric air with which the water that passes over them is charged. The air so absorbed becomes mixed with the blood which circulates through the fibrils or threads. Young frogs and newts have external gills, which are subsequently absorbed and disappear.

Gillyflower.—This is another name for the common stocks of our gardens, called by botanists the genus *Mathiola*, belonging to the natural family *Brassicaceæ*. There are a large number of species belonging to this genus. The hoary-leaved stocks come chiefly from the *Mathiola incana*, such as the ten-week stocks, the queen's, &c.; while from *Mathiola glabrata* we have the different kinds of smooth-leaved or wallflower-leaved stocks.

Gilt Articles, To Clean.—To clean gilt picture-frames, mix thoroughly by frequent shaking a very little soft soap—about as much as will rest on a shilling—with half a pint of rain-water which has previously been boiled, and then add and shake well up a wine-glassful of spirits of hartshorn. Apply this to the gilding carefully with a soft camel-hair brush, and after it has remained there a minute or two carefully wash it away with perfectly clean water, freely used. Dry in a draught or in the sunshine. To clean gilt metal, first cleanse it from dust thoroughly, then wash carefully with a strong sud of the finest white soap and lukewarm rain-water, using for the crevices and smaller hollows a tooth-brush. To clean the japanned gilt cornices, a little warm milk and the after-application of a soft wash-leather will suffice.

Gimlets, or Gimblets.—Gimlets are of two kinds, plain and twisted, and vary in size and thickness. The latter are the better kind, as with these there is less labour in boring, and the strain on the barrel is not so great, in consequence of the groove being twisted round the latter. The imperfection of the gimlet as a tool is its tendency to split the wood into which it is forced, and the necessity for its frequent withdrawal when twisted screw-fashion, because its grooves are not large enough to permit the removal of the displaced wood without its frequent withdrawal and cleansing. They are used in the place of brad-awls for boring in hard woods—a purpose for which brad-awls are neither intended nor suited. The finer kinds of gimlets are those used in fret-cutting and wood-carving. (*See* AUGER.)

Gimmal or Gimmel Rings.—An old form of wedding-ring, consisting of two or more rings ingeniously connected, and made to open and shut. The term is, however, only applicable to rings which divide, and when

divided "play" into each other. Some of them have the *fede*, or two open hands, which clasp one another when the rings are closed. There are several varieties of them, and they are often identified with what are called "puzzle rings." Though usually of gold, examples in silver are occasionally to be met with.

Gimps.—A kind of silk, woollen, or cotton twist, often made with a metallic wire, at other times with a coarse thread, running through it. These strands are twisted or plaited together so as to form an open-work pattern, varying in width according to the material or the purpose for which the decoration is intended. It is used both for ladies' dresses and for furniture.

Gin.—Gin is a spirit distilled from malt, after which it is flavoured and rectified according to the rectifier's own particular recipe. The liquor known by this name in England is very different to that imported from Holland, the flavouring of the former consisting principally of oil of turpentine and certain aromatics, while that of the latter is juniper-berries. The flavour of gin manufactured by different distillers varies very much, no two gins being precisely the same. These varieties depend on the use of more or less flavouring matter, or on the spirit being more or less free from taint, and sometimes on the addition of some peculiar aromatic. In many distilleries the same flavour has been obtained for so long, that it would be unwise or commercially impossible to alter it. Great care is required to avoid an excess of flavouring. The best samples are those that consist of very pure spirit slightly flavoured. In the composition of the common gin, sold to so large an extent in London and other towns, many injurious articles are employed, such as roach alum, salt of tartar, oil of juniper, and, worse than all, creasote, which is highly injurious.

Ginger.—The tuber, or rhizoma, of *Zingiber officinale*, the root or underground stem of



COMMON GINGER.

a plant deriving its name from the mountain Gingi, Hindostan, of which it is a native. Thence it was transported to Cayenne and the West Indies, where it is chiefly grown for use in Europe. The finest kind is brought from Jamaica. It is one of the most valuable as well as agreeable of the spices, and is an aromatic stimulant and stomachic. The rhizome contains an acid resin, volatile oil, starch, and gum. There are two kinds of ginger—the white and the black; the superiority of the white is said by some to consist chiefly in the preparation, but two sorts are cultivated in Jamaica. It is used medicinally. The average yield of ginger is from 1,500 lbs. to 2,000 lbs. per acre in plants. It is taken from the ground by means of a hoe, the small knobs being broken off for future planting.

Ginger, Adulterations of. (*See* ADULTERATIONS OF FOOD, &c.)

Ginger-beer.—Ginger-beer is a cool, refreshing, effervescing drink, made by fermenting ginger, cream of tartar, lemons, sugar, and water together, and bottling it when fermentation is partially completed. When well managed, and the best ingredients are used, the result is very good. The common ginger-beer is generally made of moist sugar and flavoured with coarse ginger.

Ginger-brandy.—Ginger-brandy is a warm stimulant, generally used medicinally. It is made by mixing ginger and sugar with brandy, and then bottling the preparation for use. The juices of fruit, such as currants or cherries, may be added, if desired, to impart more flavour to the liquor.

Ginger-bread.—The preparation bearing this name is a favourite well-known article of food, and has been known in England since the time of Henry IV. In France it was made before that period. It is composed of treacle, flour, sugar, and butter. Sometimes honey is substituted for the treacle. At country fairs ginger-bread has long been seen at the booths glittering with gilt paper, which is stuck on for ornament, and to hide the colour of the substance. Hence the proverbial expression "to take the gilt off the ginger-bread."

Ginger-candy. — Ginger-candy is a sweetmeat composed of ginger, sugar, and acid, boiled until stiff. It is both stomachic and carminative.

Ginger, Green.—Green ginger is the root of the ginger-tree in its fresh green state, before it is dried and prepared for sale. As the fresh root is much stronger than the dried, the best preserved ginger is made from it when it can be procured.

Ginger, To Preserve.—Preserved ginger forms a delicious wholesome article of food. It consists of young ginger-roots preserved in sugar, and is imported in great quantities from the East and West Indies and from China. It is used chiefly as a dessert dish, though it is also valuable as a medicine.

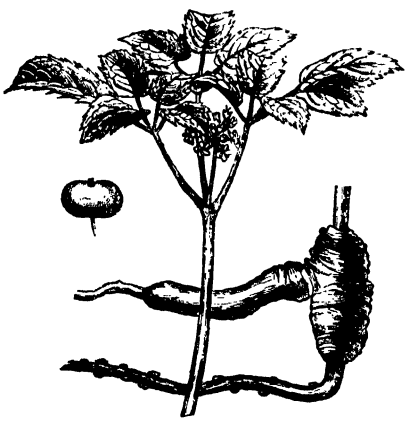
Ginger Wine.—The best time for making ginger wine is either in March or September. It is made by boiling together water, sugar, lemons, and bruised ginger, to which, not un-

frequently, chopped raisins are added. It is fermented with yeast, and before being bottled, brandy or some other spirit is added. When successfully made it is a very warm, wholesome drink.

Gingerette. — The liquid bearing this name is used as a syrup or liqueur, which, when mixed with hot water, makes a very pleasant drink. When administered in cases of exhaustion, gingerette is very reviving, as it is slightly spirituous in its nature. It is made by mixing bruised ginger with sugar, acid, and either gin or whisky.

Gingham. — A thin, chequered cotton textile, the yarn of which is dyed before it is woven. It was first introduced from India. The chief kinds known in this country are those with plain common light grounds, plain common dark ones, power-loom seersuckers and checks (imitations of Indian patterns), Earlston ginghams, with muslin ground (stripes and checks), coloured diapers, crossover stripes, derries, jean stripes, Hungarians, and umbrella ginghams.

Ginseng.—The ginseng, or *Panax quinquefolium* of the botanist, belongs to the genus *Panax* and the natural family *Araliaceæ*. The plant is a native of North America, as well as of China. The word ginseng is probably a corruption of the words *tchin shin*, or "life for ever." However, the roots of this plant are supposed by the Chinese to possess the proper-



GINSENG.

ties of healing all diseases by their stimulant and restorative nature. It is very much valued in the Celestial Empire, therefore, and enters into the composition of all the medicines made. But the Americans, on the other hand, look upon it as all but useless, or, at least, as possessing only succulent qualities, like common liquorice. There is some reason to believe, however, that the ginseng of the Chinese is not, after all, the five-leaved *panax* of the Americans.

Gipsy-ring.—A finger-ring comprising a plain gold hoop with precious stones set in it, and so sunk as to be firmly fixed.

Gipsy Table. — A fancy drawing-room table having three turned legs which cross each other at their centre. The top may be octagonal or circular, bordered with a fringe, and covered with Utrecht velvet or other materials.

Girandoles.—A girandole is a candlestick with branches to hold two or more candles; a species of chandelier on a stand, which is usually of a more or less highly ornamental character.

Girasole. (*See* ARTICHOKE, JERUSALEM.)

Girdle.—The usual meaning attached to this word is that of a cord, plain or twisted, which is tied round the waist to confine loosely-fitting garments. It was much worn by the nations of the East, and also by the Greeks and Romans, by whom it was used as a military ornament, presented as a reward for bravery. In this country girdles are worn by persons of both sexes belonging to religious communities who adopt a distinctive dress, and often a significance is attached to the colour of the girdles worn by the different orders.

Girdle (for Cooking).—This is a broad shallow pan used for baking cakes over the fire. It is more used in America than England; indeed, across the Atlantic griddle cakes are quite an institution. The girdle needs to be made hot, and greased with suet or pork fat, before the batter is spread over it, and when the cake is browned on one side it is turned over to the other.

Gizzard. — The gizzard is the muscular stomach of the fowl, and forms part of the giblets of a duck or goose. When cooked it is usually cut into small pieces. It is very strong and leathery in its nature, and requires to be cooked longer than the other giblets. It becomes tender more easily when it has been cut into small pieces before being cooked.

Glaire.—The white of egg beaten up with an equal amount of water, sugar-candy being added. It is used as a glaze for pastry and a polish for leather, such as book-covers and kid gloves and shoes. It is a perfectly transparent substance, dries quickly, and is neither sticky nor influenced by the weather. Any viscous, transparent substance resembling the white of an egg is called glaire. A kind of halberd is also designated by this name.

Glands.—These are bodies, varying very much in size and structure, which play an important part in the function of life. Lymphatic glands are found in the neck, armpit, and groin; and these from various causes are very liable to inflame and suppurate. We see this, for example, when the finger or hand has been wounded by some agent which has poisoned it as well, or when an open cut or sore has been brought into contact with some irritant matter; in either case the lymphatic vessel nearest the wound will at once become inflamed and hard like whip-cord, and as a red streak can usually be traced from the wound up to the corresponding gland, which will also soon be found tender and swollen. Some glands, as the spleen and placenta, appear to act only as blood reservoirs; others, as the liver,

pancreas, and kidneys, secrete important fluids, and are provided with ducts for the purpose of conveying these to their destination. Lastly, there are the glands of the intestines, which take up the digested food and convey it into the circulation.

Glass. (*See* MIRRORS.)

Glass.—Of these the differences lie in the ingredients used, and also in the processes of manufacture. Flint, sea-sand, and alkali are the principal components, the latter varying in quality. *Flint-glass*, also known as crystal, is the kind brought into most general use. Articles made of this are cut or moulded into form: the former method produces the most satisfactory effect; the latter has been introduced because its quick production considerably lessens the expense of the articles. The tools of the workmen who cut glass are very simple and of ancient form; the beauty of the work depends mostly upon the skill and judgment of the workman. English glass-cutters are famed for the manner in which they make smooth the edges, the chief secret of which is that the bevelling is done while the glass is hot. This kind of glass is further beautified by engraved patterns. A glass of this description, which has been made unbreakable, and is known as toughened, has been introduced, and is used for many articles—for tumblers and decanters, &c. This glass is never quite so bright and clear as the ordinary glass. Saucepans of this glass are used on the American stoves heated by petroleum. *Crown-glass* is used for window-panes, for spectacles, and other optical purposes. *Broad-glass* is a cheaper kind for window-panes. *Bottle-glass* is an inferior sort, used for common purposes; and *dairy-glass* is yet more inferior, being of a very coarse and rough description. *Plate-glass* is held in high repute, owing to its great clearness, its strength, thickness, and the size of the sheets. It is expensive, because the process of its manufacture is expensive, this glass requiring to be subjected to full heat for forty hours. This glass is silvered for mirrors—an art which arose in France during the seventeenth century. Plate-glass is made chiefly at St. Helens, in Lancashire. There is also another sort of glass which is used to represent precious stones, such as pearls, turquoises, &c.; this is made in Venice and Paris. Bohemia, Bavaria, Bordeaux, St. Helens, and Newcastle are famed for the productions brought forth from their glass-works, more especially the first-named, which has been long celebrated for the delicacy and beautiful colouring of its glass.

Glass, Care of.—This requires to be kept apart from china or crockery of any kind. It is soon injured, and therefore a cupboard or shelf should be reserved for its sole use. It should never be immersed in boiling water, for treatment of this kind will cause cracks. The appearance of glass should always be clear, bright, and sparkling; it should never look blue and dull. Cut-glass always looks better than moulded glass; but if proper attention is given, both the one and the other will glitter, though in different degrees. Glass must be washed in a clean bowl with clean cold or tepid water, and wiped with a clean, smooth, dry cloth; an extra polish with a wash-leather will add still more glitter and brightness.

Glass Cements.—One of the chief difficulties is to obtain a cement which is colourless as well as strong, for glass, when joined, should look as if merely injured by a crack across it. Canada balsam has the recommendation of being an invisible cement; another, which is considered useful, is made of white of egg and quicklime. The latter is finely powdered, and mixed with the former until a proper consistency is obtained. Soluble glass can be used for ornamental articles. The most satisfactory is that known by the name of the Derby cement; its adhesive properties are remarkable, for it is almost impossible to pull asunder pieces which have been joined by it. Glass should be heated before applying cement; patience and steadiness of hand should be possessed by the mender, for the pieces should be placed very exactly together, and held firmly in position until the cement has set.

Glass, Iridescent.—This new kind has made its appearance within the last few years, and is used for articles of the dinner-table, and also for vases and other ornaments. The prismatic colours, the appearance of which is the peculiarity of the glass, show to advantage in gas-light, and the varied hues are very attractive. Every article for which glass is used is made of this special kind; but although beautiful, iridescent glass seems more suitable for vases and bowls, and such-like, than for drinking vessels. Its cost is greater than the ordinary glass.

Glass, Painting on.—This is effected by means of vitrifiable colours, which may be classed as enamels. With colours of this description the designs are painted on plates of translucid glass, which may be colourless or tinted, according to fancy. The enamel remains on the surface, and thus prevents transparency in that part which it covers. This art was practised in the tenth century, the most perfect productions, as to richness of colour and beauty of forms, being executed by artists who lived in the fifteenth and sixteenth centuries, specimens of which are to be seen at Munich and in other foreign towns.

Glass Paper and Cloth is made by covering paper or thin cloth with glue, and then scattering glass powder more or less fine over it. It is made at Birmingham, and sold in sheets, often under the name of sand-paper. It is extensively used to polish fine wood and metals which require a superior polish.

Glass-pox. (*See* CHICKEN-POX.)

Glass, Soluble.—This is a particular composition of glass, which becomes entirely soluble in boiling water, and hardens instantaneously when brought into contact with the air. It is a useful cement for glass and china ornaments which are not likely to be immersed in hot water. It was discovered in the beginning of this century.

Glass, Stained.—The process of staining glass differs from that of painting glass-

although commonly supposed to be the same. The colouring is mixed with the glass while in a state of fusion, and thus the whole is of one colour, and yet continues to be transparent. At St. Helens, in Lancashire, and at Newcastle, glass of this description is made; it is extensively used for window-panes in public buildings, in passages and halls of houses, to soften the light, as a screen from observation, and to avoid the necessity of blinds.

Glass Stoppers, To Loosen.—The best method is to apply salad oil to the mouth of the decanter by means of a feather; the bottle should then be placed about half a yard from the fire; when warm, the stopper should be gently struck on all sides, and attempts should be made with the hand to move it. If it is still fast, more oil should be used, and the same means again employed. Sometimes heat alone, either of the hand, fire, or warm water, will prove effectual.

Glass, To Cut.—This can be done by a very simple method. Make a notch with a file at the edge of the glass, and then trace the line of direction with a thin iron rod previously made red-hot: a crack will invariably follow the line drawn. In order to ensure correctness and regularity, it is well to trace the desired line first with coloured varnish, as a guide when cutting the glass.

Glasses.—The shape and form of these are continually varying with the fashion, but there is always a distinction between those used for different kinds of wine. As a rule, glasses used for port wine have low broad cups, those for sherry rather high and narrow. For clarets the two peculiarities are combined in breadth and height; for this and other light wines, diminutive tumblers of white or coloured glass are also used. Glasses for champagne and sparkling wines are similar to those of port, enlarged in size; sometimes the small tumblers are used for this class of wine also. For liqueurs the glasses are very small in size. Tumblers are of two forms—the ordinary one, which is straight, and the goblet, which is a large cup on a stand. Finger-bowls are now small and shallow; dessert plates and dishes are sometimes made of glass. Carafes for water, jugs for claret, decanters for wine, basins for sugar, salt-cellars, castors, &c., may be added to the list of the many articles of glass required for the modern dinner-table.

Glasses, Musical.—These are similar in shape and made on much the same plan as the dulcimer, glass being used in the former instead of metal, as in the latter. The differences in sound, and a regular scale of notes, are produced by graduated sizes of pieces of glass; these pieces are arranged in a wooden case, in such a manner that they touch neither the wood nor each other; they are laid flat and side by side, and supported in this position by two narrow bands of tape or ribbon, to which they are fastened. Two small hammers, made of wood covered with leather, are provided, which require to be used dexterously and with rapidity by the player. The sounds which can be produced on glass are peculiarly sweet and melodious

Glauber's Salts.—Sulphate of soda, popularly known as Glauber's salts, was first discovered by an eminent German chemist named Glauber, who flourished in the seventeenth century. It enters largely into the composition of the Cheltenham, Carlsbad, and other mineral waters; it also occurs largely in sea-water. The present mode of preparing the salt consists in treating the residue which remains from the manufacture of hydrochloric acid with carbonate of soda, and then crystallising from solution in water. It appears as transparent oblique prisms, and is of a bitter saline taste. As an aperient medicine it has not been in so much request of late years, Epsom salts having to a great extent taken its place. It is, nevertheless, a very valuable drug, though of a somewhat disagreeable taste. A combination of the Epsom and Glauber salts, in the proportion (for an adult) of two tea-spoonfuls of each dissolved in an ounce of peppermint or cinnamon water, and taken in the morning before breakfast, generally proves a very efficient aperient.

Glaze.—This preparation is used in cookery to cover various meats for the purpose of improving their appearance. It is very effective, and so easily managed, that it is astonishing it is not more generally used. It is usually made of clear stock boiled till it is like liquid glue. When made in this way it needs to be carefully prepared, as it soon burns. An easier way of making it is to mix a little dissolved gelatine with the gravy from roast meat, and to boil the mixture till it is like thick cream. When glaze cannot easily be made at home, it may be bought ready made of the grocer or Italian warehouseman. It is sold in skins, and if put into a dry cool place will keep for a long time. When wanted for use, the glaze should be melted like glue is—that is, it should be put into a jar with a few drops of water, and placed in a saucepan of boiling water, and the water should be kept boiling round it till it is dissolved. The meat should then be painted with it, by means of a paste brush, evenly and lightly, and if it is to be served cold, two or even three coats of glaze may be laid on it until it has the appearance of a piece of polished mahogany. Care should be taken to let one coat get dry before another is put on. Pastry is usually glazed with white of egg.

Glazed Calico.—A thin quality of calico, of a loose texture, having a high glaze on one side only. It is made of every colour, to suit the materials for which it has to serve as a lining, for which alone it is made. The glazing is distinctively known as "calendering," to effect which the fabric has to pass through a damping, and afterwards a calendering machine, and subjected to extreme pressure.

Glazing.—This term is more commonly employed to indicate the fixing of panes of glass into the wooden frames of windows. The glass is cut to the required size with a glazier's diamond, and fastened with putty, which is a mixture of whiting and linseed oil.

Glazing (in Oil Painting).—This term is used in oil painting to indicate a process of modifying colours, or giving them greater rich-

ness and depth, by putting a thin layer of one transparent colour over another. It is accepted as a rule that the glazing colour should always be darker than that which is beneath it.

Glazing (on Earthenware). — This name is applied to a transparent vitrified varnish, composed chiefly of lead and silex, which gives ceramic ware its smooth, shining, hard, and brilliant surface.

Gleaning.—The act of gathering what has been dropped or left by those who have reaped a crop of corn; also any similar process in regard to other crops, as fruit, vegetables, peas, beans, &c. The practice is very ancient, and is recognised by the law of Moses; it is not, however, legalised among us, and though a common privilege of much value to the poor, cannot be demanded by them as a right. In some counties gleaning is known by the name of "leasing."

Globes, Celestial and Terrestrial.—Artificial spheres of metal, plaster, paper, or other material revolving on an axis, and on the convex surfaces of which are drawn representations of the earth and its principal circles, &c., or of the celestial bodies. Those representing the earth are called terrestrial, those showing the constellations celestial globes. Artificial globes are of great service in teaching geography and elementary astronomy, since by their help children are enabled more readily to understand the shape and motions of the earth, the nature of the degrees of latitude and longitude, the relative situations of countries, places, and constellations, the causes of eclipses, night and day, the varying seasons, &c.

Globes, Glass.—Hollow globes of glass are used for many purposes, as for gold-fish, aquaria, and fern cases; also for gas and other lamp shades, the latter being frequently more or less ornamented. Lined internally with gold, silver, and colours, they are used for decorations, though, considering their cheapness, not so extensively as they might be. Very small glass globes are made in immense quantities for the manufacture of artificial pearls and other beads.

Globules.—The word globule means a little globe, and is variously applied. Blood globules are the separate particles of the blood which assume a rounded form. The minute pills administered in homœopathic practice are also called globules. Air passing in small particles through any liquid takes the form and name of globules. It is a curious fact that globules are found in many animal, vegetable, and mineral substances, and often so minute that the microscope alone reveals them.

Glove-powder is made by carefully drying Castile soap, and pounding it in a mortar; or else of pipe-clay, coloured with yellow ochre or Irish slate; it may also be composed of a mixture of pipe-clay and powdered soap.

Gloves are articles of dress worn upon the hands, and are of very ancient date. According to Xenophon, they were then worn by the Persians; and to Varro, they were of long standing among the Romans. In the early ages of Christianity they were introduced as a part of monastic costume, and they still form an item in episcopal vestments. Modern gloves are made of various kinds of leather, of silk, linear thread, wool, cotton-thread, fur, and worsted. The leather are of kid, beaver, tan-leather, buck, doe, sheep, and dog skin. Some have long tops, varying in extent from the wrist to the elbow, and fastened with buttons, from one to eight in number; or short gauntlets, stiffened, and spreading outwards from the wrist. The wash-leather gloves of the Horse-guards are of this shape on a large scale, and are cleaned—being all worn in uniform—with pipe-clay. The chief English manufactories are in London, Worcester, Dundee, Limerick, Woodstock, and Jersey. Gloves are either stitched, oversewn, or woven, knit, and netted. Some are embroidered on the backs in the same colour or a contrast, but otherwise all have a sowing of three parallel lines, about two inches long, from the knuckles towards the wrist. The silk used in this embroidery is of a peculiar kind. Some gloves have no fingers, and only half a thumb; these are chiefly for in-door wear, and are distinguished from fingered gloves by the name "mittens," some of which extend towards or reach the elbow. French kid gloves are generally considered the best, and Berlin and Italian gloves are more or less esteemed. Thick white cotton gloves are worn by menservants in waiting at table or driving.

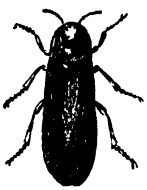
Gloves, To Clean.—Damp and put them on a glove-stretcher; sponge with recently rectified oil of camphor or turpentine; when dry, hang them in a draught for a few days. Doe and buck skin and wash-leather clean with a mixture of fuller's earth and alum; brush this off, and sprinkle with dry bran and whiting. If much soiled, wash in lukewarm water, curd soap, and ox-gall; stretch, and rub with pipe-clay and yellow ochre, made into paste with beer; dry gradually, rub when half dry, put into shape, cover with paper, and iron them. For washing gloves, a strong lather should be made of curd soap and milk; put on the glove and apply the lather with a shaving brush, stroking from the wrist to the finger-tops. When clean, remove the soap with a soft cloth, blow into the fingers to open them, and hang, well opened throughout, to dry. The simplest method of all is to put on the (kid) gloves, and so wash them in a basin of spirits of turpentine till clean. This is a French plan. Benzole, or benzine, obtained by the careful rectification of coal-naphtha, is much to be recommended for the same purpose.

Gloves, To Dye.—To dye white gloves purple, wet them all over with a brush dipped in a decoction of log-wood four ounces, rock alum two ounces, soft water three pints, boiled till half wasted, strained, and left till cold. When the gloves are dry, repeat the wetting, the gloves being drawn over a stretcher. When dry, rub with a coarse cloth, and then rub over with the white of an egg beaten up. To dye them York-tan, brown, or Limerick, wet them with saffron and water, which, having been boiled, has been left to infuse through the previous night. The tops should be sewn

up, to prevent the colour from running inside, if not put on a stretcher. If the gloves should be quite yellow, take yellow ochre; if quite white, pipe-clay; or if between the two, mix a little of each; but if dark, take rotten-stone and fuller's earth. Any shade may thus be produced. Mix the colour with beer or vinegar, and apply it; dry gradually, not in the sun or by a fire; then rub, and pull out before quite dry. This wash will restore the original colour rather than give a new dye. Spanish brown and black earth will give a good dark colour. White gloves may receive a pretty shade by dipping them, when on the stretchers, into strong coffee.

Gloves, To Perfume.—1. Rub the gloves with a mixture of ambergris one drachm, of civet the same, and common flour half an ounce. 2. Mix of powdered rose-leaves half an ounce, essence of cloves and mace of each one drachm, of frankincense a quarter of an ounce, and lay the compound in a drawer with the gloves.

Glow-worm.—The *Lampyris noctiluca* of naturalists belongs to the natural family *Lampyridæ*. The glow-worm is an insect about three-quarters of an inch in length, of a black colour, having the edges of the segments of its body margined with red, and the legs of the same colour. Its soft elongated body is composed in all of ten segments. The males alone have wings, and they emit but a feeble light; and it is supposed that as the females move about but lazily in the grass, and cannot fly, the



MALE GLOW-WORM.



FEMALE GLOW-WORM.

bright green phosphorescent light emitted by the lower part of her abdomen serves as a beacon to attract attention from the males. It would appear, from the researches of Latreille, that the glow-worm possesses the power of moderating or increasing the intensity of the light at her will, that if placed in warm water it will glow more brilliantly, and that cold water extinguishes it. He further tells us that the larvæ live on snails, attacking and killing even the largest.

Glue.—To prepare ordinary glue for use, it should first be broken into small pieces with a hammer, covered with cold water, and allowed to remain in soak for at least twelve hours before it is transferred, with sufficient water, to the melting or glue-pot, the outer vessel of which must be filled with water to prevent the possibility of the glue burning. If glue of greater strength is required, the substitution of beer for water will increase its adhesive power, which may again be increased to a greater extent by allowing the water to evaporate from the glue, and then rendering it once more liquid by the addition of linseed oil. As the glue boils, a scum will arise upon it, and this it is best to remove if the joints are required to be particularly neat and close. A wire stretched across the glue-pot is useful for removing superfluous glue from the brush without waste. Glue loses value when it is not kept clean. The glue should be used hot, as the hotter it is the more complete is its adhesion; and in applying it, use a sponge to remove that which is squeezed out as the surfaces you wish to join are brought together. Glue frequently melted loses its strength. Keeping glue in a damp place will also lessen its adhesive property. Glue is made from the hoofs of horses, oxen, &c., and parings and cuttings of hides and skins, boiled to the consistence of jelly, cooled in flat moulds, and cut into squares for sale. When good it is nearly transparent, without smell, and tasteless, free from spots and cloudiness, and of a deep brown colour.

Glue, Jewellers'.—This is used for cementing precious stones in articles of jewellery, &c., and is made of gum mastic, dissolved in spirits of wine, added to isinglass, softened previously in water, and dissolved in brandy or rum, with the addition of a little gum ammoniacum dissolved by brisk rubbing on ground glass, the whole being mixed by heat, and preserved in a carefully and well-stoppered bottle.

Glue, Liquid.—This glue is prepared by dissolving one pound of glue in a pint of water, by placing it in hot water in a covered vessel, and adding to it, when cold, between three and four ounces of commercial nitric acid. If one part of sugar is dissolved in three parts of water, and digested with one-fourth part of calcium hydrate, the resulting liquid added to glue, warm, will make it retain its fluidity when cold without the loss of its adhesive property.

Glue, Marine.—This glue is made with india-rubber, cut into small pieces with a wet knife, added to coal-tar naphtha, in the proportions of one ounce of the former to twelve of the latter, to which, after digestion in a close vessel, with frequent shakings, is added twenty ounces of good shellac. When mixed, by the aid of heat and frequent stirring, it is when perfectly liquid poured hot on a stone slab or metal plate. It is used immediately after melting while perfectly hot, applied quickly and thinly with a brush.

Glue, Portable.—This is glue prepared in cakes, which can be used by merely moistening its edges. It is best to buy it ready for use.

Glue-pot.—This consists of one pot fitting into another and a larger one, the first for the glue, the second for water to prevent the possibility of burning instead of melting. (*See* GLUE.)

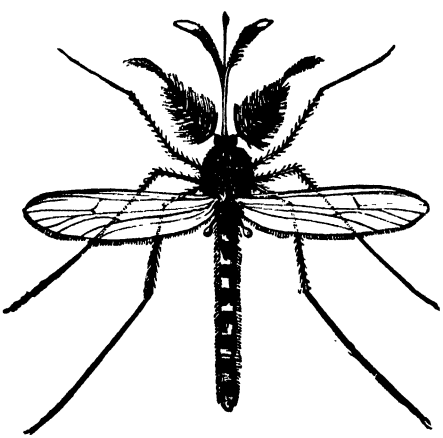
Glue, Rice.—Mix thoroughly rice-flour with cold water, and allow it to simmer gently over a fire. This is an admirable cement for joining paper, card, &c.

Glue Varnish is largely used for fireworks, &c. It is merely common glue mixed with red-lead.

Gluten. — After wheat-flour has been wrapped in a linen cloth, and deprived by washing of its starch and soluble matters, a viscid or sticky and elastic substance called gluton remains. It is this which gives to flour its toughness and tenacity, and fits it for the manufacture of bread and pastes. Rye contains it. When fresh it is grey and elastic; it is supposed to be nutritious; and guaiacum turns it blue. Gluten bread is made of flour deprived of about two-thirds of the starch; gluten chocolate is made from the same flour mixed with cocoa; gluten flour may be made from the waste gluten of starch-works, dried, washed, ground, and in some cases mixed with wheat-flour to the extent of one-half.

Glycerine.—This is a peculiar sweet substance obtained when fats and oils are treated with an alkali, or metallic oxide and water, or with water only, at a high temperature. It was discovered about a hundred years ago by Schule in the preparation of lead plaster. Glycerine is now much used as an external application in chaps, rough skin, chafing, &c. Combined with carbolic, tannic, or gallic acid, it is an exceedingly efficacious gargle or lotion in all cases where these preparations are indicated. Glycerine has been given internally as a substitute for cod-liver oil, and also in cases of diabetes to take the place of sugar, but with doubtful effect. It is frequently prescribed, however, in combination with iron, which it renders more soluble, and thus enables it to be absorbed more readily by the stomach. Glycerine appears to bear the same relation to fats and oils that alcohol does to compound ether.

Gnats.—The common gnat (*Culex pipiens*) is well known in England, and is also abundant in Lapland, Iceland, and many other countries. It is a genus of dipterous insects, the wings being laid flat on the back when at rest. In the



MAGNIFIED MALE GNAT.

male the antenna is thread-like, feathery, and jointed; in the female it is hairy. The long projecting proboscis with which the mouth is furnished is well adapted for piercing the skin of animals and sucking their blood. The females are the more powerful blood-suckers, and they have the stronger proboscis. The mosquito, known in some parts of the world as a source of very great annoyance, is of the same species. Gnats fly very swiftly, and the sharp buzzing sound heard from a swarm of these insects when floating in the air is caused by the rapid vibration of their wings. In some of the fenny parts of England gnats abound to such an extent that beds are surrounded with gauze curtains to keep them away. This practice is also customary in India on account of mosquitoes.

Goat's Flesh.—This is a wholesome and nutritious food, though seldom seen in England. The flesh of the kid is very tender and delicate, but if too young it lacks flavour, and is regarded by some as soft and tasteless. The grown animal, when not old and if in good condition, supplies excellent meat. The Welsh, who salt and dry the haunches and use them instead of bacon, call them "hung venison." The meat is strongly recommended for soup. In some countries the domestic goat is still important as an article of food. Dr. Edward Smith says: "In its general character it resembles mutton, but is harder and tougher, and has a stronger flavour, so that it is not preferred to it. It is, however, much more nutritious than mutton, so far as nitrogenous elements are concerned, but is inferior in carbonaceous, for the animal does not fatten to so great a degree as the sheep. It must be regarded as a stronger food than mutton."

Goat's Hair.—Goat's hair is valuable as a material for certain textile fabrics. The most important varieties in this respect are —(1) the Angora goat, from whose hair the finest camlets are made; (2) the Cashmere goat, which supplies the hair for the famous and highly-valued Cashmere shawls; (3) the Rocky Mountain goat, the fleece of which is almost equal in worth to that of the Cashmere goat.

Goat's-skin.—In some countries the skin of a goat is made into water-bottles. A more general use for it is in the manufacture of rugs or mats, for which purpose it is tanned with the hair on. It makes a soft and suitable leather for shoes, &c., for which it is found more tenacious and durable than that of sheep, and not so rigid as that of the ox and buffalo. As leather it is dressed with the hair side or grain outwards. Real kid is the product of the young animal, and the great demand for it in the glove and shoe trades leads to numerous clever imitations.

Go-bang.—A game of Japanese origin imported into this country in the year 1873. Two varieties of the game are commonly played—the original Japanese and the English game. For the Japanese game a board is required somewhat resembling an ordinary draught-board, but the squares are of a much smaller size, and they are more numerous. The usual number of these squares is 324, but boards vary very much on this point. In the place of draughtsmen thin counters of bone or ivory are used, rather smaller in size than the squares on which they are to stand. Each player uses counters of a distinct colour. The game may

be played by two, three, or four players, the first number being most conducive to scientific play. The game is played as follows:—The first player puts one of his counters on any square; the second player in his turn places a counter on any square except that already occupied; the third and fourth players (if more than two are playing) then follow, and so on, until one of them succeeds in what is the whole object of the game, *i.e.*, getting five counters of a colour in a row, either straight or diagonal, when the game is won by the player so doing. Each player, in addition to attempting to place five of his counters in a row, must at the same time endeavour to frustrate his opponents' designs in a similar direction; it may therefore happen that the whole board may be covered with counters before any player can get five of his pieces in a row. In such a case the game is drawn. There is plenty of scope for scientific play in this game, especially when there are only two players; but it is impossible to discuss even a few of the almost innumerable combinations—easy and difficult—that may be productive of successful results.

The English game differs from the Japanese in that it is played with a limited number of men (usually either eight or fifteen for each player), and by two players only. It may therefore well be played with an ordinary draughtboard and men. The object of the game is the same as in the Japanese, but if a successful result be not attained before or when all the pieces are placed, each player alternately moves one of his pieces one square in any direction on the board; he cannot, however, move to a square already occupied. Play thus continues until one of the players succeeds in placing five of his pieces in a row.

Gobelins Stitch.—This is also known by the name of tapestry-stitch; it has received the former name owing to its being the stitch in which the celebrated Gobelin tapestry was worked. The stitch crosses one thread in the width and two threads in the length of the canvas; it is only suitable for fine, close canvas such as that which was used for tapestry. It is now often introduced into the crewel work which is so much in vogue at the present time.

Gobelins Tapestry.—In the seventeenth century this particular kind of woven tapestry became celebrated. Two brothers named Gobelin, who lived at Gentilly, in France, were famed for their skill in dyeing brilliant colours. Their premises were bought by order of Louis XIV., and a royal tapestry manufactory was established, which bore the name of Gobelin. Wool only was used in its execution, as it was found that that material received and retained brightness of hues better than others. The tapestry there made was at that period exclusively made for royal use. The designs were very elaborate, and generally depicted historical scenes; often one piece would occupy the fabricators for several years, as it was made the required size, and not in small portions joined together, as was former tapestry. The manufacture of this tapestry declined in the succeeding century, but specimens are still to be seen in some of the French palaces.

Godfather. (*See* Sponsors.)

Godfrey's Cordial.—This is a preparation the active ingredient of which is opium or laudanum. It varies very much in strength, and has from this cause, as well as from its improper use, been productive of many serious accidents to children. The employment of any preparation that contains opium is very much to be deprecated, except when the exact strength is known, and the case is a suitable one for its exhibition.

Godmother. (*See* Sponsors.)

Goitre.—This is an enlargement of the thyroid gland, a small body situated in the prominent part of the front of the throat. It frequently in this country receives the name of Derbyshire neck, owing to its prevalence in that county. The disease is caused by drinking water containing the salts of lime and magnesia in excess, and therefore wherever magnesian limestone enters largely into the geological formation of any country or district, and the inhabitants drink freely of the water which has poured through this, there goitre is found endemic. Hence we find it in certain valleys in Switzerland, in France, and Germany; also in India and America; and in our own country in Derbyshire, Yorkshire, Hampshire, and Sussex. In Switzerland, goitre and the condition of idiocy known as cretinism appear to have a common origin; and it has been asserted that when two generations of persons have suffered from goitre, the third will be cretins. The goitre tumour frequently attains a large size, hanging as a most unsightly object upon the front of the chest. Women and children appear to suffer from the affection more than men, and this is doubtless due to the fact that the latter, in many cases, are absent from home at certain times, and are therefore not always using the water which contains the exciting cause. The treatment of this disease must be, of course, chiefly preventive. No water should be drunk which contains lime or magnesia in excess. Rain or surface water, if no better can be procured, is preferable. The best medicine appears to be a combination of iodine and iodide of potassium, called Lugol solution, a drachm of which should be taken three times a day to begin with, the dose being gradually increased. The tumour may be painted with iodine or rubbed with iodine ointment night and morning. The biniodille of mercury ointment has been largely used in India, and apparently with very great success.

Gold.—This metal has been known and valued from the very earliest ages. It is found in its native state often alloyed with silver or copper; it usually occurs as *granules* or sand in the beds of rivers and in alluvial deposits, but is also sometimes found in *nuggets* weighing from a fraction of an ounce up to several pounds. The largest supplies of this precious metal are derived from California and Australia; it is, however, also found in South America, Africa, in the Ural Mountains, and to a small extent in some European countries, including our own.

The *standard* gold of this country is an alloy containing eleven parts of pure gold to one of copper. If, therefore, an ounce of standard gold be divided into twenty-four parts, twenty-two of these are gold and two copper; this is called (in addition to standard gold) twenty-two carat gold. The term "*standard* gold" arises from the fact that this is the alloy used for the gold coinage of this country. One troy pound of this alloy is coined into $46\frac{2}{40}$ sovereigns; and since the gold coinage of this country is conducted at the Mint free of any charge, the value of a troy pound of standard gold is £46 14s. 6d., or £3 17s. 10½d. an ounce. Pure gold is worth rather over four guineas an ounce. Articles of jewellery in gold are made of every degree of fineness up to eighteen carat, or eighteen parts in twenty-four, which is usually the highest standard; this is known as eighteen carat fine. Alloys containing fifteen, fourteen, thirteen, twelve, and nine parts of gold in twenty-four are very commonly used. All plate sold as gold should have undergone the assay of the Goldsmiths' Company, and be stamped with what is termed the *hall-mark*, showing the fineness of the gold. (*See* Assay of Plate; Hall-marks.) Gold may be readily tested by the application of a few drops of aquafortis. If the fluid remain on the metal undiscoloured, the metal is pure; should, however, the aquafortis change colour and become green, a certain proof is afforded that the metal is spurious.

Gold Beads.—These are a very effective adornment, either when put amongst glass beads or when introduced into wool-work. They are somewhat expensive, owing to their gilding, and they are rather heavy; for this reason many should not be used when the piece of work is required to hang or stand, for bannerette screens, cozies, &c. Gold beads set in patterns on black velvet make very handsome ornamental bands for the throat and wrists.

Gold-beater's Skin.—This skin is prepared from the outer membrane of the great gut of oxen. It is soaked in water for two or three days, when the membranes can be detached from each other by tearing apart. The skin then resembles pack-thread, and is soaked in a solution of pearl-ash, and spread out on a frame, when another membrane is applied to the other, so that the two surfaces which adhered to the muscular membrane may unite together. The skins are then glued by their edges on a hollow frame, washed with alum-water, dried, and re-washed with a solution of isinglass and white wine, spiced with cloves, nutmegs, ginger, or camphor, and then varnished with white of egg. This substance is called gold-beater's skin, because it is chiefly used by them to separate leaves of gold when beaten. It has this remarkable property, that although beaten for months together, it neither extends in dimension nor thins, but is discarded at last on account of its thickening. It is employed as a plaster for slight wounds and abrasions.

Gold Braids.—To produce gold thread for spinning into braid and other fabrics, a small cylindrical rod of silver is gilt, and formed into wire by drawing it successively through a great number of holes in a steel plate, graduated in size, till it reach the smallest, which is no thicker than a hair. It is then flattened by steel rollers. Six feet of this gold thread weigh only one grain, and a single grain of gold is extended to 345 feet. The flattened thread is wrapped over one of yellow silk, the convolutions of gold touching each other respectively, so as to hide the silk. (*See* Gold Lace.)

Gold Chains, &c., To Clean.—When gold chains are simply dirty they can be readily cleaned with warm water and soap, applied with a shaving-brush or a soft tooth-brush. The soap must be carefully and thoroughly rinsed off in clean water, after which the chain may be partly dried with a Turkish towel; it is then to be put among dry boxwood sawdust, which will absorb the remaining moisture, and if well shaken will polish the article. Holding the chain near the fire afterwards will do good, as the particles of sawdust are more easily shaken out when this is done. Ammonia, sal volatile, or spirits of wine may also be used for cleaning gold chains, applied with a sponge, and rubbed dry with soft flannel. Rouge is extensively employed by jewellers, who apply it with a brush, and polish off in the same way. Of course, what will clean gold chains will clean other gold ornaments; but where the work is delicate or combined with precious stones, &c., it is best to place it in the hands of a working jeweller, who will do it well and properly.

Gold Detergent.—This is prepared in different ways, and is chiefly applied to gilding, though not exclusively so. One simple recipe is to dissolve a little cream of tartar in brandy or spirits of wine; this is to be applied gently to the article, and wiped dry directly afterwards. Another plan is to dilute liquor of potass with about five times its volume of water; apply with a sponge, and clean off at once with pure water. A third is to gradually stir in a pint of hot water to an ounce of quicklime in one vessel, to dissolve two ounces of pearl-ash in a quart of hot water in another vessel; mix the two solutions, shake, filter, and bottle the clear liquor. Use as above.

Gold, Dutch.—An alloy of copper and zinc, or of copper, zinc, and tin, resembling gold in appearance, and known by a variety of names, such as mosaic gold, ormolu, similor, prince's metal, pinchbeck, &c. The proportions in which the component metals are used are not uniform: in one case there are seventeen parts of copper and three of zinc; in another fifteen of copper and five of zinc; or sixteen of copper and four of zinc, and so on. When tin is used it is in small quantities, and with a reduction in the amount of zinc. It may be used in the manufacture of imitation gold ornaments and other small wares. The so-called pinchbeck watch-cases, which once were common, were made of it. Under the name of Dutch gold, or Dutch leaf gold, it is used for cheap gilding. Cooley says its malleability is so great that it may be beaten into leaves not exceeding $\frac{1}{282000}$ part of an inch in thickness. It is much cheaper than real gold leaf, and when good looks well for a time, but its beauty

is soon impaired unless it is well protected by lacquer or varnish, as it always should be if intended to last.

Gold Embroidery is first referred to in Exodus xxxix. 3, and again in Psalm xlv. 13. Pliny attributes the interweaving of gold into garments to King Attalus, the garments so embroidered being called "Phrygioniæ," and vests "Attalicæ." The Babylonians also made gold embroidery. In the present day ecclesiastical embroidery in gold has attained a high degree of excellence at the Convent of East Grinstead. The different kinds of gold materials employed in needlework are severally called bullion, pearl-purl, twist, passing, tambour, beads, and spangles. Bullion is divided into the rough, smooth, and checked. Pearl-purl is used for edging bullion embroidery; it resembles a string of beads. Twist is less costly than pearl-purl, and is generally used for outlining. Passing and tambour are similar, the latter being the finest quality of gold thread. They are the chief materials used in embroidering. Spangles are of two kinds, the flat and concave, and are of various sizes. Damp, gas, and any mephitic vapour will tarnish, if not destroy, gold embroidery.

Gold-fish. (*See* Fish, Gold and Silver.)

Gold Fringes.—Gold fringe is manufactured by a process of weaving, twisting, and braiding—flattened gold wire being rolled round silk threads of the same colour. Gold fringes are much employed in Court dresses, uniforms, church and house decoration, and also as an appendage to state-coach lace. (*See* Fringes; Gold Lace.)

Gold Lace is formed by covering yellow silk thread with flattened gold (or silver-gilt) wire, which is afterwards woven into lace, the thin gold leaf having been burnished on to the silver, when the best microscope will not show the smallest break. The twisting of the gold wire round the silk is effected by means of a curious and complex machine, having a wheel and iron bobbins, which causes several strands to pass round the silk simultaneously. The lace manufactured of this gold thread varies in width, and is formed like a silk braid. It is used for the decoration of uniforms, ecclesiastical and Court dresses, liveries, articles of furniture, and church and house decoration. (*See* Gold Braids.)

Gold Leaf.—Gold hammered out or beaten after it has been rolled as thin as paper, by being laid between the leaves of a book of parchment or gold-beaters' skin, the book being then laid upon a block of marble and beaten with a heavy hammer. When the gold leaves are spread out to the full size of the book, they are divided, and each sheet is placed between the leaves of another book, and hammered as before, until the necessary thinness be attained. It has been calculated that the thickness of gold leaf does not exceed the $\frac{1}{282532}$ part of an inch.

Gold, Matted.—Gold or gilding which is not burnished is said to be matted; but the term also applies to a process adopted by gilders in treating the deeper and more obscure parts of a piece of carved work where the gold cannot or is thought not necessary to be put, and its place is supplied by matting, which is colour as much like gold as possible. This sort of work can be done either before or after the gilding, the latter being preferable.

Gold, Mosaic. (*See* Gold, Dutch.)

Gold Passing.—This has been described as an exquisite material, formed of very finely-drawn silver-gilt wire, spun round a thread of yellow silk. "A silver rod is encased in gold leaf, and this compound cylinder is then drawn into round wire down to a certain size, which is afterwards flattened in a rolling-mill. This flattened wire is then wrapped or laid over a thread of yellow silk by twisting with a wheel and iron bobbins. By the aid of mechanism a number of threads may be thus twisted at once by one moving power." In appearance it is a smooth thread of a uniform size, and closely resembling a thin metallic wire. For the mode of using it, *see* Passing.

Gold, Plated.—Gold of an inferior quality may be made to look better than it is by either colouring it or gilding it. In the former case the effect is produced by means of an acid, which destroys the alloy near the surface, and leaves the superficial gold, which thus forms a new surface. In the latter case the so-called gold is coated with the genuine metal by the processes usually resorted to in gilding metals, the result being a deposit of pure gold upon every part of the article plated. These facts show the importance of securing a written guarantee of the quality of what is purchased as gold, especially as the plating may be made so heavy that an acid will not alone suffice to reveal the fraud.

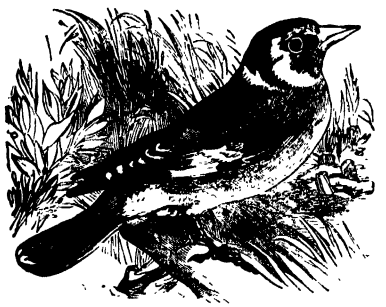
Gold-size.—Of this there are two kinds. For burnished or distemper gilding it is made of isinglass or parchment-size, incorporated with yellow ochre, finely ground; for oil gilding it is prepared of drying or boiled oil, mixed with calcined red ochre or yellow ochre, ground as fine as possible. It improves with age, and can be thinned with oil of turpentine. For its use, *see* Gilding.

Golden Ink.—This is made of gold very finely powdered, which is ground up with a little gum-water. Its brilliancy, which is considerable, may be increased by burnishing.

Golden Ointment. (*See* Ointment, Golden.)

Golden Water.—The same as Dantzic brandy, a liqueur or cordial prepared from rye spirit and flavoured. It contains minute particles of gold leaf, which have a pretty effect when the bottle is shaken. The so-called gold cordial is quite a different thing, and owes its name to the fact that formerly gold was introduced into it as in Dantzic brandy. It is an elaborate compound of spirit, water, and a number of aromatic and other flavouring ingredients, including angelica roots, raisins, coriander-seeds, caraway-seeds, cinnamon, cloves, figs, liquorice root, and sugar, and coloured with saffron. A simpler recipe is given, but as the process in any case is tedious and difficult, the details are unnecessary for family purposes.

Goldfinch.—The goldfinch (the *Carduelis elegans* of the naturalist, and belonging to the natural family *Fringillidæ*) is a native of our own country, and the most lovely in plumage of all our British birds. It is in length somewhat over five inches, the expansion of its wings from tip to tip being nine inches. It has a black head; a white bill, black-tipped; its forehead and throat are scarlet; its back



GOLDFINCH.

brown, though paler on the rump; the wings are black, and white edged, with a yellow stripe running across. If its body be pretty, its song is charmingly sweet. In the wild state it feeds principally on seeds, and makes itself a great favourite when tamed, by the adaptability it has for learning a number of funny little tricks. It has been known, too, to live to quite an old age, which is a great recommendation in a household pet of any kind. Its eggs, five in number, are white, ticked out with brown.

Golf.—The great national game of Scotland, now, however, also much played in England. The game does not appear to be of Scottish origin, but as to the real place of its birth there is much doubt. Some say that it was introduced into Scotland by the Scandinavians, who settled on the eastern coast in the early days of the present era; others assert that golf is the English "bandy-ball," and was brought over the Border by Scotsmen and modified by them; while others, again, trace the game to an old Roman pastime, played in the Campus Martius, with a curved club and a ball of leather stuffed with feathers. As at present known, golf is played over extensive courses of ground, or "links," as they are technically termed; the more varied the nature of the ground, the better for the game. The implements in use are clubs of peculiar construction, weighted heavily at the lower end, and gutta-percha balls. The clubs vary considerably in shape, and each player is usually provided with three or four; they may, however, be generally described as consisting of a straight handle of hickory, varying from three to four feet in length, to the lower end of which is spliced a curved head, faced with horn and weighted with lead; this latter is the striking part of the club, and is "leaded," in order to give additional impetus to the ball when struck. The game may be played by either two or four persons; in the latter case two of a side, as partners, separate clubs being used by each player, and a separate ball by each side. The main object of the players—whether as single opponents or two against two—is to see who can drive the ball into a series of holes made in the ground, and extending over the



GOLF.

whole course or "link," in the smallest number of strokes. The links are usually of considerable extent, sometimes exceeding three miles in length, and the holes should be at several hundred yards' distance from one another. It will be seen, therefore, that golf makes large demands upon the endurance of those playing it, and in addition to this, much practice is requisite before that skill is attained which is essential to a good player of the game.

Goloshes, or Galoshes.—The present form of golosh is that of a low overshoe made of vulcanised india-rubber, introduced into this country some twenty years ago from America. For a long time America supplied the demand, but latterly Edinburgh has entered into that branch of manufacture. These overshoes are very useful and convenient, as they keep the feet perfectly dry, and can be quickly slipped on and off; but it is not advisable for persons who suffer from cold feet to wear them, as they produce a chilling effect. On muddy roads they are somewhat dangerous; but for wet pavements and for snow they are well adapted. The word golosh comes from the Spanish *Galocha*, a clog or patten. The French first adopted the term for a kind of clog which was at one time in use in England; this was made of a wooden sole which had a joint across it at the bend of the foot, a leather toe and low sides, fastened by a strap across the ankle.

Gongs.—A kind of bell without a clapper, sounded by being struck on the outside. The forms are various, usually like a large, shallow, and flattish bowl, of a circular shape, and they are much used in the East. They are made of bronze, consisting of about four parts of copper and one of tin. Occasionally they are to be met with in large houses in this country; but the noise they make is loud and harsh in pro-

portion to their size, and they are more appropriate for an out-door alarm than an in-door summons. A small table-bell struck with a spring is sometimes called a gong, and may be made very musical in tone.

Good Friday.—The name commonly used in England to denote the anniversary of our Saviour's crucifixion—the Friday of Passion Week. The day is almost universally denominated Holy Friday on the Continent; the Germans, however, call it *Stille-freitag*, or *still, calm Friday*, and *Char-freitag*, the epithet *char* being derived from an obsolete word denoting "to suffer or atone."

Goods and Chattels.—This, in law, is the general term used for describing things personal as contradistinguished to things real, *i.e.*, lands, tenements, or hereditaments. (*See* CHATTELS.)

Goodwill.—A term commonly used in trade to denote the property that exists in an established business, in consequence of its connection or the patronage of regular customers. This goodwill may, in the first case, have been acquired either by a certain expenditure of money in advertising and energy in working up the business, or by a certain preliminary period of unprofitable trade, or by the gradual increase of the business over a long period of time. Thus goodwill may be either *local* or *personal*—depending on the place of business or on the name of the proprietor—or it may partake of the nature of both. Goodwill is of course a saleable property, and may in special cases be of high value.

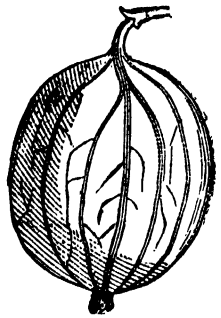
Goose. (*See* GEESE.)

Goose-down and Feathers.—These are white and grey; the former, which are obtained from the Emden goose, are considered to be the better kind, and as such realise the higher price. Large flocks of geese are kept in Lincolnshire, and their feathers and down are procured for the best beds and pillows. The feathers are cleansed from their natural oil by means of lime-water. The quill-feathers obtained from the wings of the goose are those which are manufactured into pens.

Goose-skin.—A peculiar condition of the skin, which becomes temporarily rough and, so to speak, pimpled, in consequence of cold, or in the shivering fits incident to intermittent fever. The same appearance is sometimes, but less correctly, called goose-flesh.

Goose, Wild. (*See* GEESE.)

Gooseberries.—The common gooseberry (*Ribes Grossularia*) belongs to the same order of plants as the red and black currant. It grows wild in mountainous districts and rocky situations in many parts of Europe and the north of Asia. It is comparatively neglected on the Continent, but is cultivated with great care in England, particularly in Lancashire, and the varieties which have been produced are very numerous. The fruits differ, however, more in size, flavour, and colour than in chemical composition. The gooseberry does not appear to have been known to the ancients, and was first cultivated about the middle of the eighteenth century. It will grow in any good garden soil, and though it suffers from too much shade, a little is good for it. It is a wholesome and useful fruit, particularly when cooked. Good preserve and jelly, and also vinegar and wine, are made from it. Effervescent gooseberry wine is indeed often sold as champagne. The unripe fruit is extensively used for making pies and tarts, and large quantities are bottled for winter use. It has been thought that the word gooseberry is a corruption of gorse-berry (rough berry), from the Saxon *gorst*, although some herbalists declare that it is thus named because it was used as sauce for goose. In many parts of England it is called the feaberry, because it is believed to be good for fever. It is also spoken of occasionally as the wineberry, because wine is made from it; and carberry, because the red varieties are best known. It should always be remembered that the skin of the gooseberry is very indigestible.



GOOSEBERRY.

Gooseberry Jam and Jelly are exceedingly wholesome and refreshing preparations, particularly suited for the use of children. Jam may be made both from red and white gooseberries. The small hairy gooseberries are generally considered the best for preserving. The large yellow and old-fashioned red gooseberries are best for dessert. Fruit which is to be preserved should be gathered in dry weather and when quite ripe, without being too soft. It needs to be thoroughly boiled, or it will not keep.

Gooseberry Wine.—Wine of very excellent quality is made from gooseberries, and is used extensively. Its manufacture depends upon the same principles as those employed in foreign wine. The berries must be gathered in dry weather and when they are mature, although if too ripe the wine will be deficient in flavour. All home-made wines, or those made from various fruits, contain a great amount of citric or malic acid, which dissolves in the liquor. Consequently it is necessary that sugar should be added to neutralise this acidity, and also some spirit, to prevent the fermentation which the sugar would cause.

Gores.—These are pieces which are inserted to give increased width to garments. Thus the bottom of a skirt requires to be wider than the top, and for this extra pieces in the form of gores are put in. These are straight on one side and slanting on the other. As a rule in skirts the sloping side is always joined to the straight side of the next breadth, while in under-garments, such as night-gowns, &c., the selvages are seamed together. When the work is done by hand, the sloping side is held next the sewer; when in a machine, the straight side

should be uppermost. Usually two gores are cut out of one breadth of material when it is plain and both sides are alike; exact measurements are made, and as much extra material is marked off from one end as is left at the other; it is then folded in a slanting direction, and cut evenly from one pin to the other. When short gores are required—simply to widen the material itself—they are cut to a point at one end, and the straight side of the gore is sewed to that of the breadth.

Gossamer.—A name given to any fine, flimsy, filmy substance, especially to those cobwebs that are seen floating along in the air when the weather is clear and calm. Also a name used by ladies for veils of particularly light material.

Goulard's Lotion.—This popular lotion is a diluted solution of the subacetate of lead of the Pharmacopœia in the proportion of about two drachms of the latter to a pint of water. It is a mild, sedative, and astringent application, useful in skin inflammation, ulcers, bruises, abrasions, conjunctivitis, &c., and is in great request.

Gourds.—Gourds are the large and nutritious fruit of the natural family *Cucurbitaceæ*. In many countries that have long, hot, dry summers, they are greatly esteemed as an article of diet, and sometimes they are exceedingly valuable, from the immense size and weight they attain. They are considered, too, very wholesome as a rule, although some among them are purgative in a high degree, as, for example, the colocynth gourd. The best among them belong to the genus *Cucurbita*, nearly all the species of which are destitute of bitterness, and consequently fit for human consumption. We may instance the *Cucurbita ovifera*, our own well-known vegetable marrow; the *Cucurbita maxima*, or Potiron, which attains an immense weight; and the *Cucurbita melopepo*, or Spanish gourd, which, when cooked young—as indeed they are all better done—is perhaps the nicest of any. There is also the *Cucurbita aurantia*, or orange gourd.

Gourmand.—An epicure, or one given to the delicacies and luxuries of the table. The term is one of reproach, and is limited in actual use to a man who eats and drinks the richest viands with avidity and to excess. It is distinguished from the word *gourmet*, which is rather complimentary, and denotes one who has a refined taste in such matters as wine and eatables of all sorts.

Gout.—This is a painful disease very common in this country. Though frequently induced by habits of excess in eating and drinking, it is also transmitted by hereditary descent, so that even those who live carefully and abstemiously may be its victims. Gout may attack any part of the body, including even the internal organs; but it chiefly affects the tendons, cartilages, and other structures of the joints, where the circulation is feeble, and where it is prone to deposit from the blood a certain concretion composed of urate of soda, which is the specific morbid material of the disease. The typical seat of gout is the great toe, and here the disease usually makes its appearance. The symptoms of an attack or fit of gout are as follows:—After a variable period of indigestion, characterised by mental depression, irritability of temper, discomfort after food, flatulence, acid eructations, and pain in the right side, the person is suddenly seized with a violent pain, usually in the great toe, heel, or ankle, the feeling being much as if the part had been struck with some heavy instrument. The part soon becomes inflamed and swollen, and the paroxysms of pain are most excruciating, and are aggravated by the slightest contact with the bed or other clothing. There is more or less feverishness as well, with scanty high-coloured urine, which deposits a thick pinkish sediment on cooling. After a time, usually about twenty-four hours from the commencement of the attack, the pain abates, and the sufferer, breaking into a profuse perspiration, falls asleep. There will now be an interval of relief, but towards evening another paroxysm of pain, though less violent, will in all probability recur; and it is the recurrence of these attacks again and again, but gradually abating, which makes up what is called a fit of the gout. As the disease departs, the toe or part affected becomes very itchy, and the skin usually peels off. Gout may of course attack not one part only, but several parts at the same time, and the disease is also prone to what is called metastasis—viz., flying about from one place to another. In this way the stomach, heart, or lungs may be affected, and serious consequences ensue. The latter condition is generally indicated by a sudden cessation of pain at the part previously affected, with a weak pulse, clammy perspiration, and symptoms of collapse. The treatment of gout consists, first of all, in the avoidance of such articles of food and drink as are calculated to develop the gouty tendency, and in the administration of such medicines as will favour the elimination of the poison from the system, and at the same time relieve the painful paroxysms. Gouty persons should take plenty of exercise, live very abstemiously both in the matter of eating and drinking; plain good food, as beef, mutton, poultry, white fish, &c., are recommended, but cheese, salads, stews, hashes, veal, pork, &c., should be avoided. Milk was formerly in high repute as a remedy for gout, and may be largely used with advantage. No alcoholic drink should be taken, except a little whisky, brandy, or gin, largely diluted with water or seltzer, with occasionally a glass or two of hock. Port and Burgundy wines are injurious, and champagne is also objectionable. During a fit of gout the patient must live on slops and light puddings. With regard to medicine, it may here be stated that outward applications are not of much use. The affected part should be wrapped in cotton-wool and covered with oil-silk, and not disturbed unless absolutely necessary. The bowels should be well relieved by three or four grains of calomel at bedtime, followed next morning by the following mixture: sulphate of magnesia two scruples, sulphate of soda two scruples, wine of colchicum ten drops, and peppermint

or cinnamon water one ounce; to be taken three times a day for two or three days. After this, scruple doses of bicarbonate of potash in an ounce of infusion of gentian, to which ten drops of colchicum can be added, may be taken three times a day for a few days. When the pain is exhausting the sufferer, some preparation of opium, as the extract (from half a grain to a grain), may be given at bedtime. The chalky concretions which, as previously mentioned, are very often deposited about the joints of gouty people must not be interfered with unnecessarily. If the skin ulcerates, the sore must be dressed with simple wet lint and oil-silk. Gout has been frequently said to be a disease of the rich; but every-day experience, especially in large cities, proves the fallacy of this saying. The poor or working man who drinks beer largely, or who inherits the gouty tendency, suffers equally with the rich man.

Governess.—The post of governess in any family is one of responsibility, and is sometimes a very difficult and trying one. Her relation to her employers, their children, and the ordinary servants is peculiar, and requires no little tact, and perhaps patient perseverance. For her position she should undergo a course of regular training, in order to know beforehand the whole round of her duties. She should have good temper, good manners, and a lady-like appearance, and the more elevated her principles the better. She should be qualified as a teacher to give instruction in the English language and composition, in French, and perhaps some other languages; in arithmetic, geography, and the elements of history and general literature and science; in music, drawing, and needlework. She should be able to select suitable books for reading, suitable pastimes and exercises, and appropriate occupations for leisure hours. She will be expected to train those under her charge in regard to morals and religion, good temper, and proper habits and behaviour. Bad dispositions and habits will have to be pointed out and corrected, and in general all is required which conduces to the development of mind and its furnishing, and to the comfort and well-being of her pupils, to whom she must be a second mother. Her place in the family will be regulated by circumstances, but she will not be required to sacrifice the lady-like character with which she is invested. As far as consistent with her sense of duty, she will fall in with the wishes of her pupils' parents, and will bear the petty evils to which she may sometimes be exposed with a quietness and self-control which will add to her dignity, her influence, and her happiness. Very much will depend on the conditions agreed to when an engagement is made, and prudence suggests that there should then be as complete an arrangement as possible. Without this, difficulties may arise as to what is or is not a part of the duty of the governess. Does her attendance on her pupils involve the necessity of repairing their dresses, for example? As a rule, we advise a carefully-prepared outline of daily and regular routine to start with, and a distinct understanding that the duties and authority it sets out shall be adhered to as a matter of course. Emergencies and exceptions will arise, and must be prepared for equally as a matter of course. With regard to a nursery governess, we need only say that she will have to do some things which are not expected from a governess in charge of older children, such as washing and dressing her pupils. Her work will be more varied and more simple, and her qualifications need not be so complete.

Government Appointments. (*See* Civil Service.)

Gowns.—The garment worn by women of all ranks and ages outside all their other clothing excepting the coverings for out-door wear. The name gown is now, however, out of date, dress or costume having superseded it.

Gowns, Academic and Official.—Long loose robes forming part of the orthodox academical costume, and also worn by professional men, lawyers, divines, &c. In the universities the gowns differ somewhat in shape and material according to the status of the wearer. Thus undergraduates, *i.e.*, those who have not yet passed to a degree, usually wear a short stuff gown; bachelors wear a stuff, and in some cases a silk gown of more pretension; while masters and doctors wear gowns of silk, and sometimes cloth. (*See* Arts Degrees; Degrees, Collegiate.) Barristers wear a stuff gown, but exchange it for one of silk should they be appointed Queen's Counsel.

Grace, Days of. (*See* Days of Grace.)

Graduates.—Members of a university who have taken a degree. (*See* Arts Degrees; Degrees, Collegiate; University.)

Grafting. — Grafting fruit-trees is an operation of great importance, and for private gardens it is perhaps more expeditious and less troublesome to purchase the trees ready for planting. Before any stock is grafted it ought to stand one summer in the place which it occupied at the time of the operation; but stocks must not stand two summers, or the roots will have become too large and long. The operation of grafting consists in removing a branch from one tree and inserting it on the stem of another, in such a way that the stock on which the cutting is placed sends up its sap into the cutting, and thus nourishes and preserves its growth, so that it may become a tree, occupying the place of the natural head of the stock removed to make way for the graft. A cutting thus applied in gardener's language is known as a *scion*. The time for grafting is usually between the beginning of February and the end of March; but this, of course, varies with the nature of the season and the fulness or bursting appearance of the buds on the stocks. Mild weather, with occasional showers, favours this operation. In grafting, the important principle is in bringing the under or inner bark of the scion in exact contact with the bark of the stock, so that the sap of the one may pass as readily into the other as if it were the branch which had been removed. The two modes of grafting most commonly in use are known as *tongue* grafting

and *cleft* grafting, the former being used for grafting on small-sized stocks or branches, and the latter on large. In tongue grafting, select a young stock three to four years old, cut at about three inches from the ground, and with a sharp, straight, and narrow-bladed knife, cut a thin strip of wood and bark upwards, from about two inches below the top of the shortened stock. Make this cut by one stroke of the knife, inserting the edge rather horizontally, and when it has cut through the bark and into the wood a little short of the middle, pull straight upwards; then, at less than half-way down this cut, and with the blade of the knife across the cut, the edge downward, cut a very thin tongue of not more than three-eighths of an inch long. Proceed in a nearly similar way with the scion. Cut out first a narrow strip of wood and bark without putting the knife in horizontally, as was done with the stock, making a shoulder or angle; make a sloping cut not quite so long as the cut in the stock, and then make a tongue to correspond with that in the stock, but cutting upwards instead of downwards. Place the scion in the stock, with the tongue of the one inserted in that of the other, and bring the edges of the bark neatly and closely together, so that you can perceive no ray of light between them. The two pieces are then bound closely together with matting or bass, a single piece being afterwards tied an inch or two below the graft and wound closely upwards to the top of the stock. A wall of well-beaten yellow or blue softened clay is pressed about the part grafted, extending an inch above and below, and over this is sprinkled the fine siftings of cinders, and a covering of coarse canvas is used to shield this from heavy rain. In about a month's time the scion will be dead or bursting into leaf. In the latter case remove the protection, and leave the stock to put forth fresh roots and recover. But if the scion has taken, as soon as the stock puts forth shoots, rub off all that proceed from it below the graft, and carefully support the tender plant with a stake and a piece of matting. Cleft grafting is adopted when the stock has become large, or when it is desired to graft a branch of a tree which has been headed down.

Grain.—1. The designation of the smallest weight we use. One ounce avoirdupois contains 437½ grains, and one ounce troy 480 grains. 2. One seed. 3. Corn in general, as barley, rye, and wheat. 4. The veins or fibres of wood. 5. That side of leather upon which the hair grew. The word has other senses; and in the plural, grains, signifies the refuse of malt after brewing, used for feeding pigs, cows, &c.

Graining. — In imitating the beautiful grain structurally characteristic of wood, a degree of artistic skill is brought into play greater than is required or than there is scope for in any other branch of what is called house-painting. In the ordinary process of graining the operator proceeds as follows:—In the first place the surface of the wood to be imitated is coated with the graining-colour with a brush. Then, with a piece of thick sole-leather or soft wood, he scrapes the colour off, leaving it only in the pores or grain. A machine covered with a smooth elastic surface being passed over this absorbs the colour from the grain, and by depositing it on the painted ground to be grained, the natural effect is reproduced. This process is largely used in America for the graining of painted furniture. Of late years, however, the foregoing process has been simplified by the introduction of graining-rollers, in place of the brushes made for graining. These rollers have surfaces of thick hide covering metal, with the grain or pattern on them in relief, and they are rolled, while damp, over a painted surface prepared with the graining-colour mixed with weak beer. As the roller passes along it removes the colour in parts, and in other parts leaves it in the form of the requisite graining. The rollers vary in size and in pattern, and a skilful workman can vary their effect at will. They are largely used in London.

Grains of Paradise, also called Guinea grains, and Guinea pepper, or Melaguetta pepper, are the seeds of one or two species of *Amomum*, a genus belonging to the ginger family. Grains of paradise are brought from Guinea. The seeds are small, and are produced in capsules divided into three cells; they have a somewhat hot and camphor-like taste, and are seldom used in this country except for the adulteration of ale, spirits, wine, and vinegar. Though possibly not very injurious, heavy penalties are inflicted on druggists who sell them to brewers, and on brewers who have them in their possession. They impart a fictitious strength to the drinks in which they are put.

Grammar Schools. — Endowed schools of very old foundation existing in almost all the chief towns in England. Most of these schools are open to both day-scholars and boarders, and the charge for education alone is usually very small. Many grammar schools are endowed under old bequests with special sums to pay for the board and education of a limited number of boys, who are said to be on the foundation, and are known as "foundationers." In this respect, as well as in the method of education, they much resemble the large public schools of this country, which are, indeed, high-class grammar schools. (*See* PUBLIC SCHOOLS.)

Grand Jury. (*See* JURY.)

Granite.—A crystalline rock consisting of three or more minerals, quartz, felspar, and mica, sometimes with the addition of hornblende. Most granites are unquestionably true igneous rocks, while others are more properly classed as metamorphic. It often forms the nucleus of mountain chains, and hence is commonly regarded as a rock of very high antiquity; but granites may be of all ages, and some are certainly of later date than the upper secondary rocks. It is a stone of considerable economic value. As a building stone it is valued both for its durability and ornamental character. The grey granite of Cornwall, Aberdeen, and other places is used for building; the finer qualities of this, as well as of the red granite, taking a high polish, and being used for flooring

slabs, gravestones, columns, and other ornamental work. The cutting and polishing of these are a very tedious process, but the great durability makes up for the expense. Close-grained and tough granites are used both for paving-stones and for making macadam. Some descriptions, on the contrary, are friable on exposure to the weather; and in Devonshire and Cornwall extensive beds of granite are so decomposed as to furnish a material of quite another character, viz., a white clay much valued in the porcelain manufacture.

Granulation.—This is the process by which nature effects the repair of a wound or ulcer. When the inflammatory or ulcerative process is checked, a layer of plastic lymph is thrown out which separates the wound from the unsound parts. This is soon supplied with blood-vessels, and the process of repair begins. Granulations are composed of cells, and in a healthy condition, in a clean wound or sore, are observed as little florid prominences bathed with pus. When large, pale, and flabby, they indicate debility, either of the constitution or of the part affected, and they shrink up and disappear altogether under any morbid influence, which may either directly or indirectly affect the part in which they are situated.

Grapes.—This fruit, so well known in the manufacture of foreign wine, belongs to the *Vitis vinifera*, or the common grape-vine. The name grape is derived from the French *grappe*, a bunch of grapes, from the same root as gripe or grab, to grasp. The grape is a highly valuable fruit, not only on account of its use in the manufacture of wine and spirits, but because of its importance as an article of food. In Syria and some other countries, fresh grapes are commonly eaten with bread by the inhabitants; and dried grapes, sold as raisins and currants, are a considerable article of commerce. It is doubtful of what country the grape is a native, nor is it known when it was introduced into Europe. It was first brought to England by the Romans. At the time of the Norman Conquest there seem to have been vineyards in the south of England. Since that time repeated attempts have been made in our country to establish the cultivation of the grape, some of which have been successful. The vine produces most fruit, however, in warm climates, for although a hardy plant, it requires for the ripening of the grape several months of continued summer heat. Success in its growth depends chiefly on free exposure to the sun, liberal manuring, and constant attention.

Grass, Brazilian.—Strips of the leaves of a palm-tree, the *Chamærops argentea*, which are imported into this country chiefly from Cuba. Brazilian grass is, therefore, an incorrect though popular name applied to the article employed in the manufacture of a very cheap description of hat, which is known as the "Brazilian grass hat," and also as the "chip" hat, since the so-called grass is a tree-leaf.

Grass, Canary. (*See* CANARY GRASS AND SEED.)

Grass Matting.—A species of fine mats made of Indian grass. Large quantities of matting are manufactured in Spain of the Esparto rush. Rattan table-mats of a superior kind are imported from China. A soft elastic kind, composed of a species of rush grown for the purpose, is made in Japan, and used for both carpets and beds. On the coast of Guinea and the western parts of Africa a species of fine mat, about a yard long, of a pretty and uniform texture, used to be passed as a kind of money, the value of commodities being estimated by them. These mats were called "makkutes." Great care was bestowed on their manufacture. The South Sea Islanders evince great skill in grass mat-making, the finest sort being of dyed grass or reed, and have a brilliant appearance. Grass mats are made in Portugal, Algeria, and elsewhere.

Grass-wrack.—This is a marine plant (*Zostera marina*) much resembling sea-weed, and growing at the bottom of the sea in ordinary depths.

Grasses, To Preserve and Dye.—The grass should be placed in a vase to dry, if designed for table or other decoration. If intended for a herbarium, they should be subjected to the same process as flowers. (*See* FLOWERS, TO DRY AND PRESERVE.) To give them the beautiful colours which they have latterly exhibited, the aniline dyes are employed. Directions for the employment of each bottle of the several dyes are usually sold with them.

Graters.—An instrument with a rough indented surface which is used to rub against a substance in order to wear away small particles is named a grater. The varieties most used in the kitchen are bread-graters and nutmeg-graters. These utensils are generally made of tin, and may be purchased at a trifling cost. A small nutmeg-grater is usually found inside a spice-box.

Grates. (*See* FIRE-GRATES.)

Grating.—An iron frame crossed by bars lying parallel to each other. Sometimes a grating is double, and resembles lattice-work. There are three principal uses for gratings: (1) for windows where special protection is demanded, as in a prison; (2) for gates, as at the entrance of a convent; (3) for drains and sewers. The common fire-grate owes its name to the grating at the bottom of the stove. The youngest reader will scarcely need to be told that gratings is the name of the particles removed by grating with a grater.

Gravel.—This is a painful and troublesome affection of the urinary organs characterised by certain crystalline deposits, the most common of which are—(1) the lithates of ammonia, soda, lime, and magnesia, or red and yellow gravel; (2) the triple phosphates of ammonia, lime, and magnesia, or white gravel; and (3) the oxalate of lime gravel. These three forms may, however, occur mixed up together, and when not passed off by the urine may, either separately or collectively, form a concretion in the kidneys or bladder, which receives the name of calculus, or stone. That form of calculus known as the

mulberry calculus is composed of the oxalate of lime only. The symptoms of an ordinary attack of gravel are pain in the back, extending to the groins and inside of the thighs; frequent desire to pass urine, which feels hot and uncomfortable, and deposits a copious sediment on cooling; there is more or less feverishness and restlessness, and a general feeling of being out of sorts. To relieve this condition, the warm bath should be at once put in requisition; copious bland fluids, as linseed tea, barley-water, &c., administered; and the bowels relieved by a blue pill and black draught. If the deposit is of a yellowish or reddish colour (lithates), and the patient in good health or plethoric, then the diet should be of the simplest kind, with vegetables, and careful avoidance of alcoholic drinks. Bicarbonate of potash, in half-drachm doses, in an ounce of water or some bitter infusion, should be given three times a day for two or three days. If, on the contrary, the deposit is white and the person weak, then ten drops of nitro-muriatic acid in an ounce of water three times a day will be necessary. The diet, in the latter case, must be generous, and a moderate allowance of alcohol may be taken for a time until the strength is restored. When a calculus has formed in the kidney or bladder, all the symptoms just described are very much aggravated, and blood will be often voided with the urine. If the calculus is still in the kidney, or trying to make its way along the ureter into the bladder, the pain is excruciating, increased by every movement, and is accompanied by rigor, or shivering; the urine may be suppressed by inflammation, or mechanically prevented from passing, and death may ensue from this cause if not relieved. In this condition the warm bath is indispensable, and large doses of opium (from thirty to forty drops of the sedative solution) must be given at the same time. If there is no nausea, this may be induced by small doses of antimony, and copious draughts of fluid should be taken —the object being to relax the parts, and float the calculus, if possible, down into the bladder. When this occurs the relief is instantaneous. But the calculus has still to pass through the urethra, and, if small, it effects this after more or less inconvenience. Sometimes, however, surgical interference is necessary. When too large to pass the urethra it is apt to become the nucleus of further concretion, and may afterwards have to be removed by the operations of lithotomy or lithotrity. (*See* BLADDER, COMPLAINTS OF.)

Gravel Walks. (*See* GARDEN WALKS.)

Graves. (*See* GREAVES.)

Gravestones.—These are monuments to the dead, and in churchyards are under legal control. They are erected by the authorisation of the rector, but if vested in the heirs of the deceased he has no right to remove or deface them in ordinary cases, nor have the churchwardens or even the bishop that right. The churchwardens can prosecute those who injure the stones. If a rector objects to any design or inscription, recourse can be had to the bishop and to the law. Gravestones, tombs, and other monuments in public and private cemeteries are under fewer restrictions.

Graveyards. (*See* CEMETERIES; CHURCHYARD.)

Gravitation is that law of attraction which governs all bodies in the universe, from the historical apple of Newton to the largest of the heavenly orbs. The power thus exerted by one body over another is in proportion to their respective masses; and the attraction of two equal masses for one another diminishes with their distance apart in inverse proportion to the square of the distance. It is the mutual action of gravitation and centrifugal force (*which see*) that governs the motions of the heavenly bodies, and keeps them in their proper orbits.

Gravity, Centre of. (*See* CENTRE OF GRAVITY.)

Gravity, Specific, is the weight of any body relatively to its bulk. It is generally most convenient to take distilled water at its maximum density as the unit, in which case gold will have a specific gravity of 19·36, mercury a specific gravity of 13·6, absolute alcohol a specific gravity of 0·79, and so on. These figures, therefore, represent whether and in what ratio these several substances are heavier or lighter than water bulk for bulk. It was by comparing the specific gravity of gold with that of silver (which is 10·47) that Archimedes tested the purity of the metal used in the crown of Hiero of Syracuse. The same principle can be applied to an infinity of useful purposes, down to the detection of water in liquids. Alcohol, being lighter than water (as seen above), will increase in specific gravity the more water is added to it. The simplest plans for ascertaining the specific gravity of any substance are as follows:—If it is a solid, not soluble in water, first weigh it suspended in the air instead of placing it in the pan of the balance, and then weigh it again while similarly suspended in water. The difference in weight will be the weight of the water it has displaced; and that being taken as the unit, the weight of the body in the air divided by that of the displaced water will give the specific gravity required. If the article should be a liquid, the easiest plan is to take a specific gravity flask (small bottles are made for the express purpose); weigh the flask when perfectly dry, then when filled with distilled water, and the difference between these two will be the weight of the water only; empty it and dry it perfectly, and then re-fill it with the liquid and weigh that: deduct, as before, the weight of the flask, and the residue divided by the weight of the water will give the specific gravity of the liquid. It is necessary, in the first case, that care be taken that no bubbles of air collect under the solid when immersed in the water; and in the second that the flask is filled absolutely full, or else up to a given mark. Hydrometers are used in many large establishments for testing the strength of liquors by their specific gravity; they are very convenient for the purpose, though not so exact in their results.

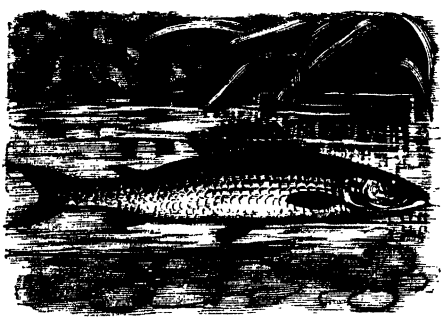
Gravy is really the juice of meat. It is obtained as the result of the process of cooking,

and is served with various dishes. In England the liquid that is served with roast meat under the name of gravy is, too frequently, nothing but a sham, and consists only of hot water flavoured and browned with burnt sugar; or, if it is good, an amount of gravy meat has been consumed which must have added considerably to the expense of the joint. With a little care and forethought, however, good gravy may always be at hand, even in a small family. The liquor in which meat, poultry, and rabbits have been boiled, and the bones and scraps of meat, may all be utilised for the purpose, and if this is flavoured with a slice of onion fried brown, a bacon bone, or a piece of scraped bacon rind, and some vegetables, a tasteful and agreeable gravy will be produced, which may, when convenient, be further enriched by the addition of a little of the jelly which has settled beneath the dripping of a joint previously roasted. Gravy which is served with poultry and game is generally thickened or made savoury to suit the dish it is to accompany, and then it is commonly spoken of as a sauce rather than as a gravy. In nothing are the skill and judgment of a good cook displayed so decidedly as in the choice, flavour, and suitability of her gravies and sauces.

Gravy Strainers.—These convenient little utensils are usually made of tin, and of various sizes. One of the most convenient is shaped like a jelly-bag, and perforated at the sides, although the more usual form is something like a basin, but flat at the bottom. Gravy strainers should be rinsed in hot water and dried after being used.

Gray. (*See* GREY.)

Grayling.—This is called by naturalists the *Thymallus vulgaris*, and belongs to the natural family *Salmonidæ*. It is a fresh-water fish, much resembling the trout in appearance as well as in its habits. It has a long and flattish body, seldom over eighteen inches in length, a small pointed head, flattened above. Its body



GRAYLING.

and sides are silvery-grey in colour, but enlivened with spots of a blue, green, golden, and black colour. It is exceedingly quick in its motions, and glides across one's vision very rapidly, hence it has been called the umber, or shadow. It has now been introduced, and is doing well, in a large number of our rivers. The grayling spawns about April, and is in season from September to February, which is the best time to angle for it. It will take either fly at the surface or the usual bait for dace at the bottom. It is to be found in water near to rapid currents, but in quieter pools than trout prefer.

Grease, Bear's.—The fat of the bear is popularly believed to possess in an eminent degree the virtue of promoting the growth of the hair. On this account large quantities of what is called bear's grease are sold by perfumers and hairdressers under the form of pomade. These preparations are pleasantly scented and slightly coloured, but as a rule they consist of nothing but hog's lard, veal fat, or beef marrow, mixed with almond oil or some other similar ingredient. As a proof that they could not possibly be entirely made of bear's grease, it may be stated that if all the bears at present procurable in Europe were killed and stripped of their fat, they would not supply the quantity of grease obtained, and would fall short of that which is consumed annually in Great Britain and exported to other countries.

Grease, To Remove.—Grease may be removed from all cotton, linen, and woollen materials by washing them in hot water and soap, which will effectually destroy all signs of grease. When washing is impracticable, the use of turpentine or benzine is very effectual in removing grease from leather, cloth, or any other substance. The greased part should be rubbed with a piece of clean flannel which has been dipped in the preparation. The rubbing process must, however, commence from the outer edge of the soiled spot, and be worked inwards: by this means the grease will be more quickly and more effectually removed than by rubbing outwards, as the latter plan greatly tends to disperse the grease over a larger surface instead of removing it. Silk may be cleansed from grease by means of heat. The silk must be laid upon some clean woollen material, over it must be placed a sheet of clean brown paper, and then a hot iron allowed to remain for a few seconds above the soiled part. The grease will immediately be visible on the paper. On removing the paper, the silk must be rubbed with a piece of cap-paper. From books and paper, grease may be removed by first gently warming the greased part, and then pressing upon it pieces of blotting-paper, one piece after another, until as much of the grease is absorbed as possible. When this is done, some oil of turpentine must be in readiness, nearly boiling hot; the greased paper must be again warmed, and the hot turpentine applied with a soft clean brush to both sides of the paper. This must be repeated until the grease has entirely disappeared. Lastly, the soiled place may be gently touched with a clean brush dipped in rectified spirits of wine, and this will in most cases leave the paper clean and not even discoloured. (*See also* STAINS, To REMOVE.)

"Great-Go" and "Little-Go."—The names commonly used at the Universities of Oxford and Cambridge to denote the first and third of the three examinations required for a degree. At Oxford these examinations consist of (1) *Responsions* before the Masters of

the schools (the "Little-Go"); (2) the *First Public Examination* before the Moderators (commonly known as "Moderations"); (3) the *Second Public Examination* before the Public Examiners (the "Great-Go"). At Cambridge the examinations to be passed are (1) the Previous Examination (the "Little-Go"); (2) the General Examination; (3) the Special Examination (the "Great-Go").

Great Seal.—The Great Seal of this realm is a large circular die, upon which are engraved the effigy of the reigning Sovereign and her style and titles. Impressions from it, taken in wax, are affixed to certain documents, which thereby receive all the authority of the Crown. The Lord Chancellor is usually Lord Keeper of the Great Seal, and receives his appointment by the Sovereign delivering it to him. On the death of the Sovereign, or when a change in his arms or title occurs, a new seal is made, and the old one publicly broken by the reigning Sovereign, who, however, merely taps it with a hammer, and that is all the breaking it gets, though it has lost its virtue. In certain cases the Great Seal is put in commission, and held by Commissioners during a vacancy in the Chancellorship. The Great Seal of the United Kingdom is valid for all Imperial purposes; but Scotland and Ireland both possess a Great Seal, which is employed for special purposes, and is not held by the Lord Chancellor.

Greaves, or Graves.—The dregs or membranous refuse which remains after tallow is melted down is made up into cakes, and used as a coarse food for dogs. It is known by the name of tallow greaves.

Grebe.—The grebe is called *Podiceps* by the naturalist, and belongs to the *Colymbidæ*. The species *Podiceps* is very numerous, and largely distributed over both the Old and the New Worlds. They are capital swimmers and nimble divers, feeding on fish, frogs, &c., and frequenting inland lakes for the most part and reedy marshes. The very shape of the bird—that of an elongated cone—fits him to live almost entirely in the water. Some of them are remarkable for the beauty and thickness of their plumage. Five different species are known to the British Islands—namely, the great tippet grebe, the red-necked grebe, the horned grebe, the cared grebe, and the common dabchick.

Greek Calendar.—The Greek Church and its branches reckon by what is called the Old Style, and hence their Christmas Day falls on our 6th January, and their New Year's Day on our January 13th. Their remaining months in like manner begin on what in each case is the 13th day of ours. Their movable festivals—Good Friday, Easter Day, Whitsuntide, &c.—correspond with our own. Their saints' days are partly the same as in the Roman and Reformed Calendars, but have many peculiarities. (*See* CALENDAR.)

Greek Fire.—A combustible compound, the exact constituents of which are now unknown, and used by the Greeks of the Byzantine Empire in their wars with the Saracens. Naphtha, probably, entered largely into its composition, as it must have been liquid, and lighter than water.

Greek Lace. (*See* LACE.)

Greek Wines are less used in England at the present time than they deserve to be. Some centuries ago they were extensively appreciated in this country, and, under the names of Cyprus and Malmsey wine, were regarded as indispensable beverages at the social gatherings of the period. Afterwards they fell into comparative disuse, and it is only of late years that their merits have been acknowledged. The resources of Greece in the manufacture of wine are even yet by no means fully developed, although it is generally understood that not only the soil, but the climate, temperature, and elevation of the country, are particularly favourable to the growth of the vine. The Greek, like all other natural wines, possess a distinctive character, and can only be compared with ordinary wines in a very general way. They are good, sound, firm-bodied, and reasonable in price. When new they resemble, to a certain extent, the white and red wines of France; but they improve with age, and after a few years acquire qualities which render them not very inferior in flavour to many liqueurs. They are produced from grapes rich in saccharine matter, are perfectly fermented, and very strong. When used as dinner wines they are frequently diluted with one-third their quantity of water, and even then they are equal in strength to the ordinary Rhine wines. The new red wines, being slightly astringent, are better for being thus diluted; but the white wines are milder, and, being without acidity, may be enjoyed with or without dilution. Of the Greek wines, perhaps the ones which would be most generally approved are Thera, Patras, Kephisia, St. Elie, and Mont Hymet. An authority on this subject has said that of all wines none excel old bottled Thera in the delicacy, fulness, and lusciousness of its aroma and flavour, and it is worthy to be regarded as a perfect wine, and the representative of the nectar of ancient Greece. St. Elie develops an Amontillado character, whilst the Patras more nearly resembles Hock, and the Kephisia Chablis, but with a much greater fulness of body and flavour. Of the red wines, the Noussa, Patras, and Kephisia may be mentioned, all of which resemble the unfortified Rhone or Burgundy wines, and become less astringent when they have deposited a portion of their tartar and tannin by age. The white Kephisia is a very fine, full-bodied, dry dinner wine. The wines of Santorin, named from the island of that name, are excellent, and improve with age. The Lachrymæ Christi, a red wine, and Vinsanto, a white wine, are delicious wines for dessert.

Green, Emerald.—A light green pigment, an arsenite of copper, being a mixture of arseniate of potassa with sulphate of copper. It is also known as *Scheele's* green, and is largely used in painting and in the manufacture of artificial flowers.

Green Geese. (*See* GEESE AS FOOD.)

Green Pigments.—These are made by various proportions of blue and yellow, such as

Brunswick green, or of dried vegetable juices, as sap-green; otherwise they are the oxides or salts of different metals. The principal greens are as follows:—*Verdigris*, which is a carbonate of copper; *verditer*, an oxide of copper and caustic lime; *Berlin green*, a compound of verditur, chrome yellow, wet blue, and white-lead; *mineral green; bice*, a preparation of native green carbonate of copper; *chrome green*, from a solution, or extract of a shrub called *Rhamnus tinctorius*, unripe blackberries, or any plant yielding a green juice; *Scheele's green*, or *emerald green; Prussian green*, a composition similar to the blue pigment of that name; *terre verte*, a native earth, &c.

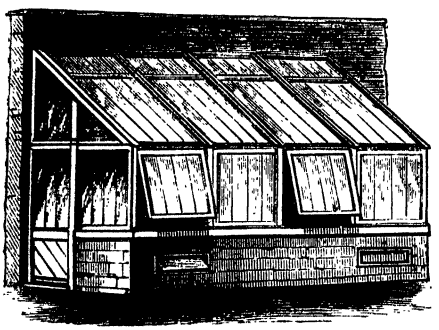
Green Sickness, or Chlorosis. (*See* Chlorosis.)

Green, To Dye.—Green being composed of blue and yellow, the fabric should first be dyed blue, and then yellow, after boiling in an alum mordant. To produce grass-green, sea-green, and pea-green, the proportions of the yellow and blue must be varied. When sulphate of indigo is used, all the ingredients are mixed together, and produce Saxon green. Olive may be obtained by blue, yellow, and madder.

Green Vegetables as Food.—These may be taken with advantage when the digestion is good. They pass quickly out of the stomach, and in the alimentary canal part with certain saline and organic matters which are useful to the system. The amount of nutrition in what are usually called green vegetables is not great, and is not calculated to promote physical strength. These must, therefore, be considered rather as necessary adjuncts to that mixed form of diet which is essential to a vigorous and healthy race of men. (*See* Food.)

Greengages. (*See* Plums.)

Greenhouse.—A glass house of light construction in which young and tender plants are sheltered from the weather and preserved during the winter. The greenhouse differs from both the forcing-house and the conservatory. The forcing-house requires much artificial heat, while the greenhouse is generally kept at a fairly low, although equal, temperature; the conservatory is constructed especially for the display of plants and flowers, while the greenhouse is intended rather for use than for ornament, and serves to protect and guard and bring to perfection plants and flowers, which may afterwards be removed to the conservatory or to the garden when the fitting season arrives. (*See* Conservatory.) Greenhouses are very useful for the preservation of geranium, calceolaria, verbena, and other cuttings during the winter; these cuttings should all be taken in the autumn, before there is any chance of frosty nights. A *potting-house* often forms an adjunct to the greenhouse



GREENHOUSE.

Gregorian Calendar. (*See* Calendar.)

Gregory's Powder.—This is a valuable and deservedly popular medicine, though it is somewhat bulky and disagreeable to take. It is composed of rhubarb two ounces, light magnesia six ounces, and ginger one ounce, and is, therefore, identical with the compound rhubarb powder of the Pharmacopœia. Gregory's powder is a useful remedy in the diarrhœa of children, where it first removes the irritant matter, and then acts as an astringent, the dose being from two to five grains twice a day. If given as an aperient, the dose should be from five to ten grains. In cases of dyspepsia, with debility, Gregory's powder is strongly recommended, but its proneness to produce constipation must not be forgotten, and must be counteracted by either combining a little grey powder with it, or occasionally taking a saline draught in the morning. The dose for an adult is from twenty to sixty grains.

Grenadine.—This material is similar to barège (*which see*); it is thin, and yet strong. When first introduced the fabric was entirely of wool, but now silk grenadines are made and much worn; those of silk are much more costly than those of wool. Grenadine is a very serviceable material, and is especially useful for summer mourning.

Gretna Green Marriages are so called from a place in Dumfriesshire where they were performed. Runaway couples who wished to evade the English marriage law used to resort thither, and declare themselves man and wife before witnesses, which the Scottish law allowed. The declaration was commonly made in the presence of a blacksmith, who presided over the formality, after which the parties could go back to England with impunity. By an Act passed in 19 & 20 Vict. (c. 96), these marriages were practically put an end to, by requiring that one of the parties must have resided in Scotland twenty-one days at least before marriage. This Act manifestly presents no effectual barrier from a legal point of view, but taken in connection with the Acts authorising civil marriages before a registrar in this country, it has answered its purpose. Cases are recorded in which Gretna Green marriages were resorted to merely from caprice, and not to effect a runaway match; but these weddings were always looked upon as discreditable.

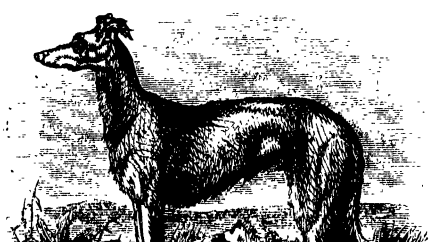
Grey Pigments.—These can scarcely be regarded as distinct colours, grey being only composed of a mixture of white and black, the shade of which is to be regulated by the preponderance of the one colour over the other.

The various shades of grey are distinguished by the several names of pearl-grey, iron-grey, slate-grey, mottle-grey, tawny-grey. (*See* GREY, TO DYE.)

Grey Powder.—This is the *Hydrargyrum-cum-Creta*, or mercury with chalk powder, of the Pharmacopœia. It is one of the most valuable medicines we possess, and is useful not only in all those cases where mercury is indicated, but may also be employed when other preparations of that medicine are inadmissible. Grey powder is prepared by rubbing together two ounces of chalk and one ounce of mercury until all the globules of the latter have disappeared; a light grey powder is the result. Grey powder, in doses of from one to three grains, is an excellent alterative and aperient medicine for children, either alone or combined with other drugs, as rhubarb, jalap, &c. It is also, in the case of adults, a valuable remedy in inflammation, disorders of the liver, skin disease, &c.

Grey, To Dye.—Grey is produced with the same materials as black, but the mordant and the bath are employed in a more diluted state. Sometimes a bath of archil or annatto is given to soften and beautify the colours. (*See* BLACK, TO DYE.)

Greyhound.—This is a very ancient breed of dog, and is supposed to be of Celtic origin, but Richardson gives the animal a Grecian pedigree, the *Canis Græcus*, or *Greius*, and hence the name. Greyhounds are now used in this country for coursing the hare, work for which, owing to his peculiar shape, his strength, and speed, he is exceedingly well fitted. The following are the recognised standard of points: head narrow and lean, but with sufficient muscle; the nose straight, not Roman; the nasal



GREYHOUND.

sinuses but little developed; eyes full and bright and spirited; ears elegant, small, and semi-erect; chest capacious, *deep*, but not wide; shoulders deep, and placed obliquely; fore-legs straight and with good muscle, and the fore-arm long and strong; foot compact and well knit together; ribs well arched; hocks and knees placed low; coat generally fine, and ought to be as flossy as satin; colour a matter of taste, though blacks and black-and-whites have produced the largest number of winners.

Griddle. (*See* GIRDLE.)

Gridirons are used for broiling purposes, and are made in all sizes and of various shapes. Round or circular gridirons are adapted to close stoves. Some gridirons have fluted bars lined with enamel, and the gravy which flows from the meat runs into these bars, and from thence into a receptacle prepared for it in the middle of the handle. In this way much of the fat and gravy that would otherwise go into the fire is preserved. Gridirons thus constructed are named gutter gridirons. The part on which the meat rests is made to turn round, so that there is no necessity to move the meat frequently. Ordinary gridirons are made with plain round parallel bars. Gridirons should be cleaned perfectly each time they are used; those with round bars should be washed carefully, then rubbed with scouring-paper. In the gutter gridirons, each gutter should be scraped separately until it is thoroughly clean. A separate gridiron should be kept exclusively for broiling fish. Before fish is grilled, the gridiron should be well rubbed with a piece of mutton fat.

Griffith's Mixture.—This very popular medicine is the compound mixture of iron of the Pharmacopœia. It is prepared from myrrh, carbonate of potash, rose-water, sulphate of iron, spirit of nutmeg, and sugar. Griffith's mixture is one of the best preparations of iron we possess, lying lightly on the stomach, and producing no subsequent constipation. In doses of from one to two ounces (for an adult), three times a day, it may be given in all cases of debility where there is a deficiency of red blood. It is especially recommended, and has deservedly enjoyed a great reputation, in cases of chlorosis, when the uterine function is inactive, and there is general debility as well. It should be remarked that the iron in Griffith's mixture is in the form of green oxide, and that the mixture has, therefore, a green colour. After a time, however, if it is kept, the green oxide becomes converted into a red oxide, the mixture turning red. In this state, though by no means injurious, it is not considered so serviceable as when in the state of green oxide.

Grig.—The broad-nosed eel in some parts of the country is known by the name of grig. (*See* EELS.)

Grills and Grilling. (*See* BROILING.)

Grilse.—Grilse, or gilse, is the name given to young salmon after they have returned from their first visit to the sea, and before they have spawned.

Griping.—This is a painful sensation in the stomach or bowels, due to irritant matter passing through these organs, or it may arise from indigestion with flatulence. It is also present in poisoning by lead (lead-colic). (*See* BOWEL COMPLAINTS.)

Griskin.—The griskin is the spine or backbone of the hog. The joint of pork called the griskin is rather hard, and requires a little more

cooking than the other joints. It is usually roasted, although it is occasionally broiled.

Grist. — Properly, corn which has been ground; but popularly, corn intended for grinding at the mill. Hence grist-corn is such corn or grain as is suitable for grinding.

Gristle, or Cartilage. (*See* CARTILAGE.)

Grits. (*See next paragraph.*)

Groats, or Grits, consist of common oats made quite free from the husk. The process to which the oats are submitted in order to free them from their exterior integuments also cuts them into three or four pieces. Oats which have been crushed or broken into still smaller pieces are called Embden groats. Groats are chiefly used for making gruel, and as a thickening for broths and soups.

Grocer's Itch.—This is a form of eczema. (*See* ECZEMA.)

Grogram.—This is an old-fashioned material which was much in use at one period; it is a strong fabric made of silk and worsted, its texture being somewhat loose and its surface rough.

Groin.—This may be described to be that part of the body where the abdomen ends and the thigh begins. Anatomically it is the inguinal region. It is here that rupture of the bowel frequently takes place, necessitating the wearing of a proper truss, the pad of which should fit well into the groin. The lymphatic glands in this locality also are prone to enlarge, and sometimes inflame and suppurate, from sympathy with distant or adjacent parts, constituting the condition known as bubo (*which see*).

Grooms.—The duties of a groom vary with the character of the establishment to which he is attached. Generally speaking, his business is the feeding and dressing of the horses, though he may have to assist at other work, or be assisted in this. He may be groom and coachman, or he may do the work of a valet or of a footman. It has been said with truth that grooming or dressing a horse cannot be learned by oral instruction, but must be acquired by practice and observation of skilled persons. The same remark applies to the proper feeding and general care of horses. Both these branches of the duties of a groom involve so many details, that to give the rules and reasons for them would demand an amount of space inconsistent with the character of this work. A groom who is sober and industrious, and who is intelligent and faithful in performing his duties, is a valuable servant, and as such receives high wages, two suits of livery and two stable dresses every year, and other favours. But he must thoroughly understand horses, and take a kindly interest in them, or he is dear at any price. (*See* HORSES.)

Gros de Naples.—A French name for a silk fabric similar to lutestring, but not so stout, and much used for ladies' dresses. It is made both plain and figured, and is produced both in France and in this country.

Gross.—A term used in commerce denoting twelve dozen.

Grossularite. (*See* GARNETS.)

Grotto Work.—Grotto work for the garden may be composed of almost every kind of materials which are susceptible of picturesque arrangement in combination with mosses, ferns, and other suitable plants. Refuse glass and shells, cinders, flints, and other stones, clinkers, &c., bound together with a coarse cement, are commonly used.

Ground-nut.—This is called by botanists the *Arachis hypogæa*, and belongs to the natural family *Leguminosæ*. It is a longish, pale-yellow pod, very wrinkled, and generally contracted in the centre. It contains two or even three seeds, from the size of a large pea to that of a bean. These seeds or kernels are sweet to the taste, and in many parts of tropical America and Africa, as well as in Asia, they form a very valuable article of food. They also contain a large proportion of oil, and to a European are somewhat indigestible. The most curious thing about the mode of its growth is that the pod, instead of hanging from the stems like other pods, and ripening in the sun and air, buries itself in the earth, and comes to maturity there.

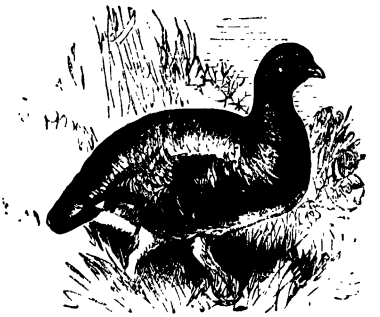
Ground Rent.—An owner of land which is suitable for the erection of buildings usually grants leases to builders and others at a small rent for a long term, generally ninety-nine years, the lessees covenanting to erect buildings of a certain description within a specified time. The rent thus reserved is known as the ground rent. The original lessees usually sub-let the houses so built to occupants, who pay a sufficiently improved rent to remunerate the lessees for their outlay, and give them a profit on sale or otherwise. The ground landlord may distrain for his rent under the Statute 4 Geo. II. c. 28, so that the occupying tenant may possibly have to pay not only his own improved rent, but also the ground rent. (*See* LEASES.)

Grounding Canvas. (*See* CANVAS GROUNDING.)

Groundsel.—The commonest of all our garden weeds. It is known all over the world wherever man exists and tills the ground. It is called by botanists *Senecio vulgaris*, and belongs to the natural order *Compositæ*. It appears a useless weed, but really forms food for many of the smaller songsters of our groves. The young buds and the seeds or fruit are also given to our cage-birds, such as canaries, goldfinches, linnets, &c. It has likewise been used in medicine. Many species of groundsel are cultivated as flowers.

Grouse.—This well-known species of bird, which affords so much pleasure to the sportsman and forms such excellent food, belongs to the natural family *Tetraonidæ*. Our common grouse live principally on the ground, preferring heathy hills, and exist upon seeds, berries, buds, &c. There are many varieties of the grouse; the *Tetrao tetrix* is, however, the largest known in these islands. It is usually called the black-cock (*which see*). The *Lagopus vulgaris* is the ptarmigan. The *Lagopus Scoticus*, or common or red grouse, is that which we find so many of

in the London markets for some months after the 12th of August. Dry warm days are best for enjoying grouse shooting, and the morning



COMMON OR RED GROUSE.

and evening the best time of the day. A good pointer or setter is also a most necessary companion.

Growing Pains.—These so-called pains are in all probability only the result of undue muscular exertion in a growing person. It is unreasonable to suppose that Nature, who conducts all her operations silently and painlessly, should in the matter of growth depart from her fixed rule; still, there may be some very exceptonial cases where even the process of growing may be attended with discomfort and even pain.

Gruels.—Gruel is usually made by boiling oatmeal or groats with water to the consistency of a thick liquid. In its composition other ingredients are occasionally substituted for oatmeal, such as arrowroot, sago, &c., but groats are generally preferred to any other. The great amount of nourishment that is contained in oatmeal renders it specially suited to make a warm soothing drink for invalids, and for this purpose gruel is most frequently required. It may be flavoured variously to suit the palate, and milk or butter is often added to enrich it. The thickness must depend upon choice.

Gruyère Cheese. (*See* CHEESE.)

Guaiacum.—This is a large evergreen tree, from thirty to forty feet high, growing in the West Indies, and imported into this country in logs and billets, which are extensively used in making skittle-balls, rulers, &c. It is commonly called *Lignum vitæ*, and belongs to the natural order *Zygophyllaceæ*. The resin is used medicinally, and is obtained in four different ways—viz., by natural exudation, by incision, by heat, and by boiling. Guaiacum occurs in tears and masses, the latter being of considerable size, and generally in a more or less impure state. The resin is of a brownish colour, and is almost without taste, but produces a burning sensation in the throat. The preparations of guaiacum are the mixture and the ammoniated tincture; the dose of the former being from half an ounce to two ounces, of the latter from half a drachm to a drachm. Guaiacum has been largely used, and sometimes with marked success, in the treatment of chronic rheumatism, especially that form of it which is characterised by coldness of the surface and debility. It has also been recommended in skin diseases, especially those of a syphillitic origin. It is not considered advisable to administer guaiacum



GUAIACUM.

to persons of a plethoric or inflammatory habit of body, or to those who have a tendency to hæmorrhage. The wood is used in the preparation of compound decoction of sarsaparilla; and the resin enters into the composition of Plummer's pill.

Guarana.—This is better known as Brazilian cocoa. The seeds are roasted and powdered, and then made into a stiff paste with water. An infusion of this is drunk in South America just as we drink tea or coffee in this country. Guarana belongs to the natural order *Sapindaceæ*, and contains 5 per cent. of caffeine, to which it owes its medicinal value. In doses of from twenty to thirty grains of the powder or extract, it is said to be a useful remedy in sick headache. It has also been used in diarrhœa and dysentery, but its efficacy is doubtful.

Guarantee, as a term in law, denotes a promise or undertaking by one person to be responsible for the payment of debts or the performance of duties by another. By the Statute of Frauds, no one is held liable for the default of another, unless the guarantee can be proved by a writing in express terms, or sufficient memoranda signed properly. A letter of recommendation is a guarantee only if it refers to some particular transaction, and contains an assurance that it is a safe one.

Guardian.—A guardian is one appointed, by the wisdom and policy of the law, to take care of a person and his affairs who, by reason of his imbecility and want of understanding, is incapable of acting for his own interest; and it seems, by our law, that his office originally was to instruct the ward in the arts of war, as well as those of husbandry and tillage, so that when he came of age he might be the better able to perform those services to his lord whereby he held his own land. There are several kinds of guardians—as guardian by nature, guardian by testament, guardian by statute, guardian by custom, guardian *ad litem*, and guardian by appointment of the Lord Chancellor

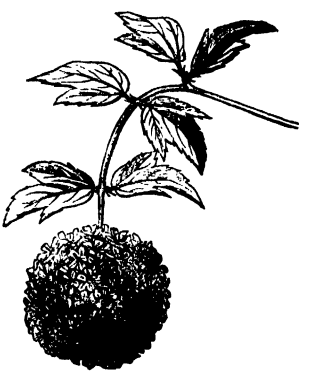
Guardian by nature is the father or mother; and, by the common law, every father has a right of guardianship of the body of his son and heir until he attain to the age of twenty-one years. The father may disappoint the mother and other ancestors of the guardianship by nature by appointing a testamentary guardian, under the Statute 12 Car. II. c. 24. A guardian *ad litem* is one appointed by the Court in which an infant is suing—every Court having power to protect in such way the infant's interest in the proceedings instituted. A guardian is appointed by the Lord Chancellor to protect the interests of an infant ward who has no guardian already appointed. The guardian so appointed is usually of the same religion as the infant's parents, solvent, and of a moral, capable, and humane character, resident in England. The preference is generally given to the father, who is *primâ facie* and naturally entitled to the custody of his children (even as against their mother), if seven years old. Next to the father's right is that of the testamentary or statute guardian, whose authority is hardly to be distinguished from the father's, deriving his title from the parent by the Act above quoted. The wardship of infants, and the care of infants' estates, are continued to the Chancery Division of the High Court of Justice by the Judicature Acts. Since the establishment of the Court of Probate, guardianship by appointment of the Ecclesiastical Court is necessarily extinct.

Guardians of the Poor.—By the Statute 22 Geo. III. c. 83 (Gilbert's Act), parishes were authorised, with the consent of two-thirds in number and value of the owners and occupiers, and with the approbation of two justices of the peace, to appoint guardians to act in lieu of overseers in all matters relating to the relief and management of the poor. As to their appointment under the Poor Law Amendment Act, see 4 & 5 Wm. IV. c. 76; see also the various Amendment Acts which have been subsequently passed.

Guava.—This is the fruit of some trees or shrubs belonging to the natural order *Myrtaceæ*, which grow within the tropics, in America, Africa, and India. It is a peculiarly agreeable and wholesome fruit, its taste being when quite ripe not unlike that of strawberries and cream. The fruit is eaten raw, but is also made into jams and jellies.

Gudgeons are small fish from six to eight inches long, very common and numerous in many of our English rivers, such as the Thames, the Mersey, the Avon, &c. They afford very good sport to the angler, from the greediness with which they will take the bait—gentles or earth-worms, cut up—when other fish are more shy; and they supply a very nicely-flavoured food, which is best eaten fried. They swim in shoals, and spawn in the month of May. The gudgeon is called by naturalists the *Gobio fluviatilis*, and belongs to the natural family *Cyprinidæ*.

Guelder Rose, also called the Gelder Rose and Snowball, and by botanists the *Viburnum opulus*, belongs to the natural family *Caprifoliaceæ*. It is a glabrous plant, common all over Europe, but especially so in Britain. It has broad serrated veiny leaves, and the flowers are



GUELDER ROSE.

white and are arranged in cymes or balls, whence its name snowball. It bears elliptical-shaped berries of a bright-red colour, bitter and nauseous.

Guests, Reception of, &c. (*See* COMPANY; VISITORS.)

Guild. — An association, fraternity, or company founded for some common purpose, and generally for the furtherance of trade and commerce. The word *guild* is of Anglo-Saxon origin (*gildan*, to pay; probably because of the payments made by members of the guild on admission to its rights and privileges); and the early Anglo-Saxon guilds seem to have been social and religious as well as commercial associations. In the later days of the Roman Empire there seem to have existed associations of traders and handicraftsmen, united together for mutual assistance, and for the assertion of mutual rights. The various trades, as they increased in importance through the Middle Ages, became to a certain extent monopolies, and in most large boroughs in this country each trade, or in some cases the combined trades, had their guild, of which all persons wishing to trade in that borough were required to be members. From this custom it came to pass, in process of time, that freedom of the borough, at one time dependent on inhabitancy alone, became closely associated with membership of the guild. In London, indeed, to so great an extent did the various trading companies monopolise the municipal government, that admission into one of these guilds or livery companies became an absolute requisite to any one before he could take any part in municipal matters. To the present time, all the principal City officers—common-councilmen, sheriffs, and aldermen—are elected by the livery-men exclusively; and until the passing of the Reform Bill of 1832, members of Parliament for the City were also elected exclusively by these members of the City guilds.

Guinea-fowls. — The guinea-fowl, or pintado, or *Numida meleagris* of naturalists, belonging to the natural family *Phasianidæ*, has

been so well domesticated in this country that it hardly needs description. Guinea-fowls are natives of Africa, where they live on berries, worms, beetles, slugs, &c. In some parts of the world, such as Jamaica, they have become wild again after domestication, and are shot as our own pheasants are. Even with us they are somewhat wild and flighty in their nature, and have notions of their own as to where they will lay or sit. They are very ornamental, however, but owing to their careless habits their eggs are usually placed under a common bantam hen to be hatched. Guinea-fowls are considered very delicate eating, and their eggs are preferred to those of the turkey. Although wild in their ways, these birds pay to keep, as they are very prolific in eggs. There is also the *Numida crestata*, or crested pintado, likewise a native of Africa, a very pretty and ornamental bird, and of smaller size than the other.

Guinea Grains, or Guinea Pepper. (*See* GRAINS OF PARADISE)

Guinea-pig. (*See* CAVY.)

Guipure d'Art.—A kind of ornamental work popular with ladies, who execute in it doilys, anti-macassars, and squares, for various purposes. It consists of a foundation, which is netted in the usual manner and decorated with devices or patterns, which are wrought upon it in various stitches, and with embroidery, silk, &c. Venetian guipure has as a foundation what is called *toile cirée*, upon which the patterns are worked by hand. The word guipure was formerly used for lace made in silk or thread upon vellum.

Guitar.—A musical instrument of the *Cithara* family, which is distinguished by the neck and fret-board over which the strings—sometimes of catgut, sometimes of wire—are placed. The guitar is the last important descendant of the ancient lute (*which see*), and of the still older *nefer* of the Egyptians and Hebrews. The strings of the guitar are plucked with the fingers, and the compass of the instrument is almost co-extensive with that of the violoncello. In our own country the guitar is occasionally used as an accompaniment for the voice, but it has grown out of fashion of late years. In Italy and Spain and the rest of Southern Europe, however, it is still a popular instrument.

Gullet.—The gullet, or œsophagus, is that portion of the digestive apparatus which extends from the pharynx, or back part of the throat, to the stomach. It is about nine inches in length, and, with the exception of two or three slight curvatures, is almost vertical in its course. The gullet may be the seat of malignant disease or stricture, the latter frequently resulting from cicatrisation after some injury, as from having swallowed a corrosive poison. The symptoms of stricture are—painful efforts to swallow, regurgitation of the food, and consequent emaciation from starvation. This condition may perhaps be alleviated by dilatation with a proper instrument, and nourishment may be continually given in the form of injections by the bowels. The gullet does not assist in the digestive process; it simply propels the food into the stomach by certain muscular contractions.

Gum.—A general term applied to several products, differing materially from one another in character and properties, but all alike exudations from trees and plants. Gum is particularly distinguished by its solubility in water, and insolubility in ether, alcohol, and fixed or volatile oils; when dissolved in water it forms a transparent mucilage, useful for a variety of purposes. The purest and the most common form of gum is *gum-arabic*, the produce of two leguminous trees growing principally in Northern Africa and some parts of Asia—the *Acacia vera* and the *Acacia Arabica*. This gum is imported chiefly from Barbary and Morocco. In addition to its use as mucilage, gum-arabic is used as a medicinal agent, being valuable as a demulcent in cases of colds, and other affections. For use as mucilage and for domestic purposes this gum may be prepared by solution in hot water. Among other kinds of gum are the following:—*Barbary gum*, a dark-coloured variety of gum-arabic, the produce of *Acacia gummifera*, growing on the Barbary coast—this is much used in the manufacture of lozenges, &c.; *gum-senegal*, used by calico-printers, produced by the *Acacia Senegalensis; gum-tragacanth*, from the *Astragalus tragacantha*, a shrub growing in Syria and the Levant; *cherry gum*, from *Prunus avicum*, or black cherry-tree of this country, and the plum, peach, and apricot-trees; *gum-elastic, caoutchouc*, or india-rubber (*which see*); the *Siphonia elastica*, which when dry becomes very tough and elastic; and *gum-juniper*, a gum-resin, occurring in the form of whitish tears, obtained from the *Juniperus communis*.

Gum-boil. (*See* GUMS, AILMENTS OF.)

Gum Dragon. (*See* DRAGON'S BLOOD.)

Gum-paste.—Used for the manufacture of comfits. To make it, soak one ounce of gum-tragacanth in half a pint of water, stir frequently during twenty-four hours; squeeze through a coarse cloth by twisting; add four ounces of treble-refined sugar, and work all in a mortar till quite white. Then place in a glazed earthen pan, a wet cloth over it; work and knead some finely-sifted sugar into the paste till it is soft without stickiness, and then work in the aromatic materials.

Gumption.—A nostrum which is much in request by painters in search of the "lost medium" of the old masters, to which their unapproachable excellence is ascribed. Linseed, poppy, or nut oil, and gum mastic compose this medium; the oil should have been rendered of a drying character, by soaking in it the acetate of lead, in the proportion of one ounce to the pint of oil. After being poured off clear, it is then mixed with strong mastic varnish. It dries quickly and is easily worked, and can be diluted with spirits of turpentine.

Gums, Ailments of.—Of these the most common are (1) gum-boil, (2) ulcers, (3) sponginess and swelling, (4) epulis. 1. *Gum-boil.* This is really a small deep-seated abscess,

which usually has its origin in a decayed tooth, and gives intense pain as it makes its way to the surface. The best treatment, if seen early enough, is to apply a leech by means of a proper glass to the painful part, clear out the bowels, and in this way the inflammation may be checked at the outset. If this does not succeed, then gargling with hot water, and the use of the lancet as soon as matter has formed, will be advisable. 2. *Ulcers.* These are very common about the gums and tongue. The best application is the nitrate of silver (caustic) or the sulphate of copper (blue stone). The mouth must, at the same time, be frequently washed out with weak alum and myrrh water, or a little glycerine of tannic acid dissolved in water. 3. *Sponginess and swelling.* These frequently occur with old people, and will be relieved by the washes just mentioned; they sometimes, however, are the result of mercury (*see* SALIVATION); and a somewhat similar condition, accompanied with occasional bleeding, is a marked feature in scurvy. 4. *Epulis.* This is an unsightly tumour of the gums. (*See* EPULIS.) It may be remarked, under this head, that in chronic poisoning by lead a blue line is usually observed in the margin of the gum where it joins the teeth.

Gun. (*See* GUNS.)

Gun, Air. (*See* AIR-GUN.)

Gun-cotton.—An important explosive agent invented in the year 1846. It was speedily taken up by the Austrian Government, and has since been adopted by the British for many purposes. It is prepared by steeping cotton-wool in a mixture of sulphuric and nitric acids, containing three parts of the former to one of the latter, for about forty-eight hours, and then washing it very thoroughly in water until all acidity is removed. The fibre and appearance of the cotton are unchanged, but its weight will have increased by about 75 per cent., and it then has the chemical constitution of xyloidine, or tri-nitro-cellulose. The cotton-wool is made up into loose strands before conversion, as it is then in a convenient form both for storage and for use. It explodes at a low temperature—about 277° Fahr.—and leaves no residue. It possesses a great advantage over gunpowder, in that it is not injured by wet; indeed, it may be kept in water until wanted for use. Its behaviour as an explosive varies with the manner in which it is applied. It is most efficacious for blasting purposes, as its violence is greatly intensified by confinement, being in such cases about three times as effective as gunpowder, weight for weight. Though inflammable when wet, it can be detonated when in that state by a charge of fulminate of mercury enclosed in a small quantity of dry gun-cotton; and it is thus available for blowing up stockades and other obstructions in rivers, sunken wrecks, and the like, without necessitating any precaution to keep the great bulk of the explosive dry.

Gun-metal.—The metal thus named is an alloy of copper and tin, the proportion of the latter being about 10 per cent. Lead was formerly used in gun-metal to facilitate the casting, until it was found that guns made of it when used continually for any length of time actually melted.

Gunny.—A coarse sacking made of the fibres of the *Corchorus*, whence jute is procured. The fabrication of gunny cloth is one of the chief employments of the lower class of natives in Bengal, Madras, and Bombay. Its strength, and the low price at which it can be obtained, cause it to be in very great and universal demand in all countries. America, China, Australia, and Europe make use of the material for the purpose of sending their products—rice, cotton, spices, &c., being packed in gunny.

Gunpowder was first used for war purposes in Europe in the early part of the fourteenth century, but the date of its invention is unknown. Roger Bacon, writing in the previous century, describes it in a way that shows the art of its manufacture to have been in great measure perfected; and there is strong evidence for concluding that it had been used in India and China long before his time. It is a mixture of saltpetre, sulphur, and charcoal, which explodes when raised to a certain temperature. (*See* EXPLOSIONS.) The proportions of the three ingredients vary somewhat according to the use for which the powder is intended. A good mixture for blasting powder consists of 65 per cent. of saltpetre to 20 of sulphur and 15 of charcoal; for artillery, 75, 10, and 15 per cent. respectively; and for sporting powder, 78, 10, and 12 per cent. Good powder will be perfectly uniform in character; light specks or glittering points indicate incomplete mixture. The grains should be sufficiently hard not to be easily crushed between the fingers, and should not soil them. Gunpowder should burn rapidly, leaving only a very slight residue. If inflamed upon white paper, it should blacken it but slightly, and should on no account set fire to it. A fine grain powder will burn much more rapidly than powder of a larger grain. Gunpowder always absorbs more or less moisture, and hence it should never be kept in a damp place, especially the fine-grained, as that absorbs moisture more rapidly than the coarser, and gunpowder is rendered useless by wet. The amount of residue left after firing varies according to the purity of the ingredients, the proportions employed, and the nature of the wood from which the charcoal used has been made. Its gradual accumulation in the gun is a source of much inconvenience, rendering the barrel foul, and limiting the number of rounds that can be fired in succession without cleaning it out.

Provisions as to the making, keeping, sale, and carriage of gunpowder are contained in the Statute 38 Vict. c. 17. As to the exportation of gunpowder, see also 16 & 17 Vict. c. 107, s. 150.

Gunpowder Tea. (*See* TEA.)

Guns.—In no branch of industry are greater mechanical skill and ingenuity exercised than in the making of guns, each of which is produced by a series of independent manufac-

tures. Gun-barrels are of two kinds—plain and twisted. The latter are the more costly and effective, the stock or woodwork of either being generally of walnut-wood. The guns chiefly in use are the old muzzle-loading guns, the breech-loading guns, and needle guns (also a breech-loader). The larger kind of guns are called cannon, carronades, howitzers, &c. In addition to guns for military uses, we have fowling-pieces, pistols, revolvers, air-guns, &c.

Guns, Licences for Using.—A duty of 10s. for every gun licence is imposed by the Statute 33 & 34 Vict. c. 57. The licence is dated on the day when granted, and expires on the 31st of March in every year. The penalty for using or carrying a gun without such licence is £10, subject to some exceptions.

Gunter's Chain. (*See* LAND MEASURES.)

Gurnard. (*See next paragraph.*)

Gurnet, or Gurnard.—This salt-water fish is so called from a peculiar sound it emits when taken. It is called by the naturalist *Trigla*, and belongs to the natural family *Loricati*. It is very common around our coasts, there being three species at least—the grey gurnet, the red gurnet, and the saphirine gurnet, so named from their colours. Gurnets are of different sizes, but may easily be known from their peculiar head, which is angular and covered with a plate of mail. Some have such long strong pectoral fins that they can easily jump out of the water. They are favourite fish for the table.

Gussets.—These are pieces of material inserted to enlarge and give additional width to different portions of garments requiring this, and are also inserted to prevent undue strain on vents and apertures. Thus gussets are put in sleeves of shirts to widen the arm-holes, and smaller ones are placed near the wristband to protect the seam from being torn. Gussets should be square in size and made the straight way of the material, and, if possible, one side should be selvage, as this will lessen the number of fells. One side of the gusset having been seamed to the sleeve, the next side, not the opposite one, should be sewed to the opposite side of the sleeve. Thus the gusset when placed is pointed where joined to the sleeve. Half-gussets are often employed for the necks of night-shirts, &c. In these cases but a small portion of the two sides are sewed in first, and the remainder is turned and sewed down on the wrong side.

Gut, or Catgut. (*See* CATGUT.)

Gut, Silkworm. (*See* SILKWORM GUT.)

Gutta-percha.—This substance, now so useful in various arts and manufactures, is of comparatively recent discovery, having been first introduced to public notice in 1843. It is the produce of a forest tree, *Isonandra gutta*, of the order *Sapotaceæ*, growing in the forests of the Malayan Peninsula, in Borneo, and other islands in the Indian Archipelago. It separates from the tree very much in the same way as india-rubber, or caoutchouc, from the *Ficus elastica* (*see* INDIA-RUBBER), and in its general nature and properties it closely resembles caoutchouc. Instead of tapping the trees, however, to procure their sap, as with the caoutchouc tree, the natives used to select the largest trees and strip them entirely of their bark, or in some cases they cut down the trees and made deep incisions in the bark; a milky juice then exuded from the wood, and was collected by the natives and poured into troughs, afterwards to be kneaded into lumps with the hands. The supply thus obtained was very great, but there was some danger of its exhaustion, on account of the destructive method of acquisition. Now, however, an improved method of procuring the sap, somewhat similar to that adopted with india-rubber, is in vogue, and there seems to be no risk of a failure in the supply of this useful product. The gutta-percha is sent to this country in large blocks weighing two or three pounds, and generally requires to be purified after its



GUTTA-PERCHA.

arrival. At an ordinary temperature gutta-percha is hard and unyielding, but immersion in hot water renders it soft and plastic, so that it can be readily moulded to any required shape; on cooling it becomes, of course, as hard as before. When subjected to a temperature of about 350° Fahr., gutta-percha fuses, and remains viscid when it is cooled. When softened, gutta-percha is very elastic, and may be stretched into long slips, which retain their form when cold. Gutta-percha has been applied to a variety of purposes. Notable among these is its use as a covering for telegraph-wires, for which it is very valuable, in consequence of its being a bad conductor of electricity; to the discovery of gutta-percha is indeed due much of the efficiency of the submarine cables. Gutta-percha has also been applied to the manufacture of cements, tubes, water-pipes, bands and straps for machinery, buckets, bottles, soles for boots and shoes, &c. It is likewise used in book-binding (to render the backs of books flexible), for various ornamental purposes, and as a compound with india-rubber.

Gutta Serena.—An old name for what is now called amaurosis—a diseased condition of

the eye, causing imperfect vision or positive blindness. Its chief causes are said to be disease of the brain, affections of the nerve of sight, tumours, &c., around the eyeball, inflammation of certain membranes of the eye, disease of the kidneys, &c. The persons most liable to it are excessive smokers, persons suffering from debility or recovering from other diseases, and such as are compelled by their occupations to exposure to intense light or over-use of the eyes in such light. It may attack one eye only, or both, and may be temporary, intermittent, or continuous. The attack is sometimes sudden, but oftener gradual. Other distressing symptoms may accompany it, or it may be confined to failure or disorder of vision. Objects appear indistinctly, or double, or not at all; lights may appear to the eye when closed, and specks when open; other irregularities may occur. But the case is always one for professional advice, and we therefore indicate a few points, and omit the treatment altogether.

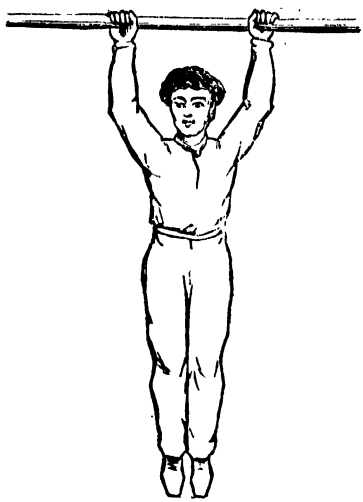
Gutter.—The open channel at the side of a street is a gutter, and its use need not be explained. In architecture, various kinds of gutters for carrying off the rain which falls upon buildings are recognised. The most common is the semi-circular pipe fixed under the eaves for receiving the water, which is carried away by upright pipes attached to the gutter. These are usually made of metal. Another sort of gutter is that which is formed between a roof and a parapet wall, or between two contiguous roofs. These ought to be of lead, and when well constructed are very durable. All kinds of gutters should be fixed with a sufficient fall for the water to the points of outflow.

Gymnasium.—Among the Greeks, from whom the word gymnasium (Greek, *gumnasion*) is obtained, gymnasia were originally places specially prepared for athletic exercises and games. Later on the word was extended in its meaning, and the gymnasia became large buildings, or series of buildings, set apart for the whole instruction of youth, both mental and physical. At the gymnasia of Athens and other cities, many of the orators and philosophers now famous in Greek literature delivered their discourses. In Germany the word gymnasium has retained much of its extended meaning; and the gymnasia of modern times are higher schools for the youth of the country preparatory to their entrance at a university. In Great Britain we go back, however, to the oldest meaning of the Greek, and gymnasia with us are places specially intended for gymnastic exercises, and fitted up with all the necessary appliances. (*See next paragraph.*)

Gymnastics. — A series of exercises designed to strengthen and develop the limbs and muscles of the human body. Among the ancient Greeks, all those exercises were comprised in the term gymnastics which were performed with the body partly naked (Greek, *gumnos*, naked or lightly clad). The advantages of physical training in connection with intellectual culture are as fully recognised at the present day as they were centuries ago by the Greeks and Romans, and gymnastic exercises hold no mean place in the higher systems of education now in vogue. The powers of the mind are influenced to a highly-appreciable extent by the condition of the body, and physical exercise is therefore not only conducive to bodily but also to mental vigour. At the same time, it should be carefully borne in mind that excessive exertion is injurious, and if real advantage is to be gained from gymnastic and other exercises, sudden and violent strains upon any part of the body must be avoided. Beginners should always start with easy and moderate exercises, proceeding by slow gradations to those demanding greater skill and effort. In all cases, *light* gymnastics (such, for example, as the use of light clubs or dumb-bells, in preference to heavy ones) are the most advantageous in every respect.

There are very many exercises which may be practised without apparatus of any kind, merely involving regular movements of the head, trunk, arms, and legs of the body. By these a wonderful amount of freedom and elasticity of the several limbs and muscles may be attained. But a description of all these various exercises, as also of those with apparatus, is altogether beyond the limits of this work; for particulars of them, some popular treatise on the subject should be consulted.

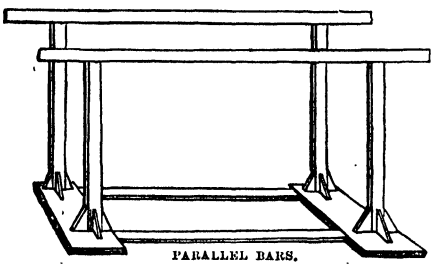
Of exercises *with* apparatus, the most usual in the gymnasium are those with rings, wands, dumb-bells, Indian clubs, horizontal and



HORIZONTAL BAR (SHOWING FIRST POSITION).

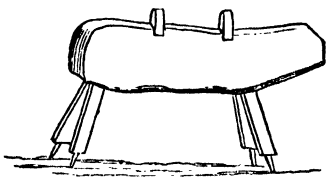
parallel bars, the vaulting-horse, climbing poles, ropes, ladders, &c.; also jumping and leaping exercises, both with and without a pole. For the *ring* exercises, two rings, usually of cherry-wood, about one inch in thickness and six inches in diameter, are required. These are grasped by two persons, one ring in each hand, and various movements are then executed by both persons in unison. *Wands* are smooth sticks, about an inch in diameter and from

three to four feet in length; wand exercises—consisting of various movements of the wand, grasped by both hands of the gymnast—are especially beneficial in inducing flexibility of the muscles of the neck and shoulders. *Dumb-bells* will be found described under a separate heading. *Indian clubs* are made of wood; they should be about a foot and a half in length, and with a diameter of from two and a half to four inches at the thick end, and should taper down in the handle to a convenient size for grasping with the hands. As with dumb-bells, their weight should vary with the person using them; they should never be so heavy as to call for violent effort in their use. The *horizontal bar*, though one of the most useful gymnastic appliances, is exceedingly simple in character. It consists of two upright posts, about seven feet in height, firmly fixed in or to the ground, and crossed by a round bar about two inches in diameter. This bar should be movable, fitting into round holes drilled at even distances in the upright posts, so that the exercises may be carried on at any desired height from the ground. The form of the *parallel bars* is shown in the accompanying illustration.



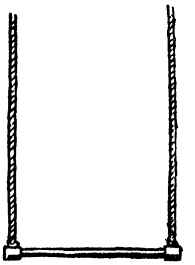
PARALLEL BARS.

They consist of two bars of strong wood, from six to eight feet in length, rounded so that they may be grasped by the hands; these bars are fixed in strong upright supports, fastened securely in the ground or to a solid frame. The transverse bar should be of such a height from the ground that the feet of the gymnast may be well clear of it when he supports himself on his arms, with one hand on each bar. The *vaulting-horse* is a wooden figure somewhat resembling a horse in shape, as shown in the illustration. The legs, which must be

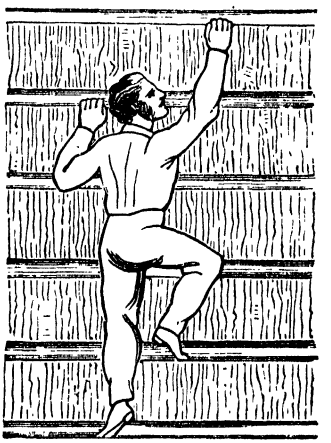


THE VAULTING-HORSE.

firmly fixed to the ground, should be so contrived as to allow of the elevation or depression of the body of the horse, and it is also advisable that the pommels be movable. A very large number of vaulting exercises may be advantageously carried out by means of this appliance. The *hanging bar*, or *trapeze* (*not* the trapeze of the professional gymnast), much resembles the horizontal bar, the main difference being that it hangs by ropes instead of being fixed in supports; the exercises are also very similar in both cases. Sometimes a pair of stirrups or rings take the place of the bar. *Climbing* is an exercise much practised in gymnasiums, and for this purpose poles, ropes, ladders (perpendicular and slanting), and also imitation walls, having transverse grooves or ledges, are brought into requisition. The last of these is shown in the accompanying illustration. It is generally constructed at one end of the gymnasium, and is formed by inserting either grooves or ledges



THE HANGING BAR.



CLIMBING THE WALL.

in the perpendicular face of the structure. *Jumping* and *leaping* also form an important feature in gymnastics. The high jump should be practised with the aid of a leaping stand, consisting of two upright poles about seven feet in height, and fitted with movable pegs to support a transverse bar or rope. This bar or rope should be supported so lightly that if kicked it would fall at once to the ground. For the long jump no apparatus is required, the starting-point and the distances jumped being marked on the ground with chalk or otherwise. For leaping with the pole, a pole from eight to ten feet in length, and about an inch and a half in thickness, is required. By means of a pole of this description, greatly-increased long and high leaps may be accomplished.

For all gymnastic exercises, special costumes of flannel or serge are desirable.

Gypsum is crystallised sulphate of lime. When burnt in a kiln, its water of crystallisation is driven off, and it falls into a white powder, which is plaster of Paris. Gypsum is often found in limestone rocks, when the mineral is produced from the decomposition of carbonate of lime by the action of sulphides;

it is also a common associate of rock-salt. The gypsum which is obtained at Montmartre, Paris, is combined with about 17 per cent. of carbonate of lime; and this when burnt makes a better article than pure gypsum will, as it sets much harder after being worked up with water. Besides its use for making plaster of Paris, it is of value as a top dressing for clover.

H

Habeas Corpus.—This ancient prerogative writ was originally a writ which a man indicted of a trespass before justices of the peace or in a court of franchise, and being apprehended for it, sued out of the King's Bench to remove himself thither at his own costs, and to answer the cause there. In its more usual sense it is the most celebrated writ in the English law. It formed part of the common law, but was much more restrained in its operation and effects, for the judges arrogated to themselves the power of granting or denying it, and the gaolers did not pay a proper attention to it, often putting the sufferer to the expense of an alias and pluries *habeas corpus* before they obeyed. These inconveniences, culminating in the oppression of an insignificant individual in the reign of Charles II., produced the famous Statute 31 Car. II. c. 2, the great bulwark of English liberty, which may be fairly placed on a level with the celebrated Magna Charta, its chief enactment being—That the Lord Chancellor, or any of the judges in vacation, on complaint or written request of any person committed for any crime (except felony or treason, or as accessory or suspected of being accessory before the fact to any petty treason or felony, or charged in execution by legal process), upon seeing a copy of the warrant, or affidavit that copy is denied, shall award a *habeas corpus* for such prisoner, returnable immediately before himself or any of the judges; and upon the return made shall discharge the party if bailable, upon giving security to appear and answer to the accusation. This writ is also effectual to remove every unjust restraint of personal freedom in private life, though imposed by a husband or father; but when women and infants are brought before the Court by a *habeas corpus*, they will only be set free from an unmerited or unreasonable confinement; and the Court will not determine the validity of a marriage or the right to guardianship therounder, but will hold them at liberty to choose whether they will go; and if there be reason to apprehend that they will be seized in returning from the Court, they will be sent home under the protection of an officer. If a child is too young to have any discretion of its own, the Court will deliver it into the custody of its parent or the person who appears to be its legal guardian.

Habendum of a Deed.—That part of a conveyance which defines the extent of the interest disposed of, or which limits, explains, or qualifies the grant of the premises which precedes it, although the habendum must not contradict or be repugnant thereto. (*See* DEED.)

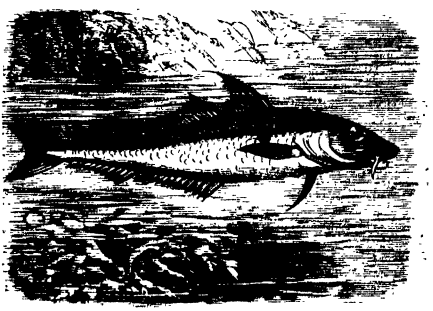
Haberdashery.—A term commonly applied to small wares, such as buttons, tape, pins, &c. &c. The name has possibly arisen from that of *hapartask*, which in old Norse language referred to articles of trifling value.

Habit, Riding. (*See* RIDING HABIT.)

Habit-shirt.—This article consists of a collar of linen, lace, or muslin, made as a frill or a man's shirt-collar, embroidered or plain, having a kind of sleeveless bodice attached to it composed of muslin or jaconet-muslin in three pieces, a back and two fronts. These are sewed together on the shoulders, but left open under the arms, and fastened at the throat with a stud or button, and a string round the waist. They are designed to keep the collar in its right place and the dress clean, it being also desirable that no garment should be worn next to the skin that is not of a washing material.

Hackney Coaches. (*See* CABS AND CABFARES.)

Haddock.—The haddock (*Gadus Æglefinus* is a fish of the same genus as the cod, which it much resembles in general appearance, although it is of a smaller size. One peculiarity about this fish is that a black spot is to be seen behind each of the pectorals. On the



HADDOCK.

British coast the haddock is more abundant than elsewhere, and those caught on the east coast are remarkable for their large size. Haddocks have been caught measuring three feet in length, although as a rule they are not more than ten or twelve inches long. The flesh of the large fish is, however, generally coarse; the small specimens are preferred, as being of a more delicate flavour. Haddocks are often cured by drying and smoking, though they do not take salt so well as cod. They are to be had in perfection during the last three months of the year and in January.

Hæmorrhage.—This is a term derived from two Greek words signifying "a breaking forth of blood." Two kinds of hæmorrhage are usually described—viz., arterial and venous. Arterial hæmorrhage is that which results from a wounded artery, and when it takes place externally is easily recognised by the bright red colour of the blood, and by the fact that it escapes in squirts or jets corresponding to the contraction of the artery and the pulsation of the heart. Venous blood, on the contrary, simply flows away until checked, the colour of the fluid being a deep purple.

Hæmorrhage has also been divided into active and passive. By active hæmorrhage is meant an escape of arterial blood from the capillaries under the influence of inflammation or excitement, characterised by pain and fever. This is a condition requiring perfect rest in a proper position, and the application or administration of ice. Passive hæmorrhage is venous, and is generally due to obstruction of the venous blood, to weakness of the walls of the blood-vessels, and to impurity of the blood itself. We have familiar examples of passive hæmorrhage in scurvy, bleeding from the nose, liver, uterus, piles, &c., and in putrid fever. The treatment consists in the use of such remedies as acetate of lead, dilute sulphuric acid, gallic acid, and other astringents, and, as this condition is essentially one of debility, in supporting the strength. (*See* BLEEDING, OR BLOOD-LETTING.)

Haggis.—Haggis is the name of a dish belonging peculiarly to Scotland, and though it is sometimes made in England, it is not often manufactured in the real Scotch fashion on this side of the border. The Scotch are evidently of opinion that none but themselves can fully appreciate their national dish, and their poet Burns has named it "the great chieftain of the pudding race." Haggis is made of the head, liver, and lights of a sheep, boiled, minced, and mixed with suet, onions, oatmeal, and seasoning, and moistened with beef gravy, then put into a haggis-bag or sheep's paunch, and boiled. A haggis, when cooked, will keep a week or two; it is quite firm, and may easily be packed for travelling. When it is intended to be kept for some time, the onions should be omitted.

Hair, Ailments and Care of.—It would require much more space than can be given here to go at all minutely into the topics of this article; we must, therefore, omit to describe the anatomy of the hair, the varied ways in which it has been dealt with by the nations of the world, and the symptoms and treatment of its ailments. The hair is conducive to the warmth of the body, it secretes an oil which lubricates and softens the skin, and it to some extent aids in the communication of intelligence from the outer world to the nervous system. We need not say how much the hair has been prized as an ornament in all times and countries. From the almost or quite invisible downy hair which covers the whole body, save the palms of the hands and feet, to the rankly luxuriant growth of the head and beard, the hair is subject to ailments, and may be a source of anxiety on sundry accounts. Among the so-called diseases of the hair the following may be mentioned:—Hirsuties, or excess of hair, which may extend over the whole body, or attack particular localities. Alopecia, or loss of hair, is one of the commonest affections, and may consist of loss of hair in patches, loss of hair by thinning out, and general failure and baldness. Hair thus lost may or may not be replaced, according to the circumstances under which the loss occurs. Canities, or blanching of the hair, is a loss of colour, sometimes sudden, usually gradual, and universally known as grey and white hair. The failure of the natural pigment by which healthy hair is coloured does not destroy its vitality. Closely allied to this is albinism, the subjects of which have white hair from their birth, and are usually endowed with other peculiarities, such as eyes of an abnormal tint. The head of hair is liable to serious affections of a painful character, such as ringworm, favus, and sycosis, all of which are as conspicuous as they are unpleasant, and are ascribed to the presence and growth of minute vegetable parasites. Animal parasites, or lice, are dealt with by doctors under the name of phthiriasis, or louse disease. We need not describe the *Morbus paxtonii*, the *Plica polonica*, the alleged chignon fungus, dandriff or scurf, parti-coloured hair, and affections of the fat-producing glands of the hair follicles, and other ills that hair is subject to. Some of the ailments we have named are never cured, some are within the reach of professional skill, and a few may be managed by the patient himself with proper instructions. It should be regarded as a duty by all who suffer from any of these disorders to seek professional advice.

The colour and quantity and other characters of the human hair vary with the complexion, constitution, temperament, and even the nationality of individuals; while it undergoes changes in one and the same person in the course of time. In adults, the rule is for the hair to harmonise in hue with the skin and the eyes; *e.g.*, a lady with dark complexion and black eyes will never have naturally fair, flaxen, or golden hair. The hair is capable of absorbing certain dyes, oils, and other substances, and it can be deprived by chemical agents of its colour and other elements. External applications can make it harsh and brittle, soft and supple, glossy or dim, curling or straight. If the hair is not killed, these effects are transient, and the process must be repeated if the result is to be kept up. The hair is not injured by the proper use of grease, glycerine, spirit, soap, water, acetic acid, and preparations of cantharides. The ingredients ordinarily used in hair-oils, pomades, and mere washes are seldom mischievous; the serpent lurks in the revivers, renewers, and restorers, which are often dyes impregnated with metallic substances. Silly people buy these, and are usually disappointed, but almost invariably keep their experience a secret, leaving the manufacturers to flourish unrestrained. If grey hair can be made to resume its natural colour, and to grow in that colour, or if a bald head can be made to grow its own hair, why do the world's princes and millionaires not avail themselves of the boon? There is nothing about which more delusion prevails and more fraud is practised than the hair upon our heads. The following hints are all we can give:—The appearance of the hair may be improved by art, but no art can make an old man's head a young one. Its health may be promoted, or retarded, or destroyed. The first law for its health is cleanliness—the only true hair-restorer—which includes proper washing, combing, and brushing. It should be trimmed occasionally to keep it within bounds and in order. Some hair-dyes

are simply mischievous, others are innocuous; but wise men never use them. The chemical, caustic, and alkaline mixtures for blanching the hair deprive it of its natural colour, clothe the head with a sham, and may seriously injure the hair they operate upon. Happily the hair is very patient, and quietly submits to the capricious tyranny of fashion: hence it is curled by means of hot irons, fluids, and papers; it is twisted, plaited, tied, powdered, shaved. All this and more it bears at the hands of its worshippers, and yet it lives and thrives. The reader will find additional information in succeeding articles, and some of the ailments of which we have spoken are further referred to under their respective headings.

Hair-brushes.—These are usually oval in shape, of various sizes, and have a handle at one end. Sometimes they are without the latter. The backs are generally of wood, otherwise of bone or ivory. Hog's bristles are employed in making them, of different degrees of coarseness, sometimes of uniform length; but when of various lengths, the brush is superior for use. The bristles are doubled and fixed into holes by means of wire, which latter is concealed by a thin plate of wood or ivory which is laid over it. This covering is sometimes glued and sometimes screwed on. Inferior brushes are made by fixing the small tufts of hair into the holes made for them by means of cement. In washing brushes, soap should not be used nor the backs wetted. They should be dipped into water in which a small piece of washing soda has been dissolved, and placed in the sunshine and wind, or near the fire, to dry.

Hair-cloth.—A stuff composed of woven horse-tail hair, procured principally from Russia and South America. It is all dyed—the white so as to produce scarlet, crimson, green, and claret—when permanent colours are obtained. The warp may be of cotton, linen, or worsted. Coloured hair-cloth is chiefly manufactured at Worcester and Sheffield, and also in Paris; and is extensively used in the fittings of steam-ships and railway carriages. It is also used for sofas and chairs, and some of the lighter colours for slippers and boys' caps. Gloves are also woven of it, and bands, for the purpose of friction after the bath. Some of the monastic orders wear shirts made of it. In its manufacture the weaver uses a kind of hook-shuttle, which he passes between the threads of the warp towards his left hand, the "sewer" placing a single hair over the end of the hook, which the weaver draws through the warp. There being no continuous thread of hair, the work is tedious, as the use of machinery is thus precluded. (*See* CAMEL'S-HAIR CLOTH.)

Hair Dyeing.—The question whether dyeing the hair is injurious either to the health or to the hair itself is answered in various ways. Many of the dyes politely called renewers, restorers, or revivers contain lead, but it is in proportions so small that lead-poisoning as a result is practically impossible. There are ingredients which would injure the scalp as well as dye the hair, but they are seldom or never used. With regard to the hair itself, dyes do not promote the growth of hair, and bleaching agents may and do injure the hair if their use is continued. It is to be noted that dyes do not prevent the hair from growing, and consequently the new growth will be of the original colour, the consequence of which is that, to keep up appearances, the roots must be dyed as fast as they come. Of the propriety of dyeing the hair opinions differ. Professor Erasmus Wilson speaks of those who do it as "willing slaves to a barbarous practice." That dyeing and bleaching do no good, and may do harm, is an established fact; but it remains true that the dictates of fashion and other considerations induce many to do these things in the vain hope of adding to their personal attractions, or of hiding the ravages of time.

Hair-dyes.—The readiness with which the hair absorbs certain substances or is acted upon by them was probably very early observed, and consequently we find that many nations either dye their hair or extract the colour out of it. We cannot give a full list of ingredients employed for these purposes, still less can we name the preparations which are advertised and sold at this moment under all sorts of titles, but all practically dyes. For dyeing hair black, a solution of nitrate of silver has been much used, and it is easily prepared by dissolving not more than ten grains of lunar caustic in an ounce of distilled water. With this the hair is well wetted, and then dried in sunshine or the open air to produce the desired effect more rapidly. The result may be obtained yet more speedily by applying a weak solution of sulphuret of potassium, or of hydrosulphuret of ammonia, a few minutes after the dye is used. More applications than one may be needed; but as nitrate of silver stains the skin, great care has to be taken in using it. Less objectionable is the application of perchloride of mercury, followed by one of hyposulphite of soda; the proportions are four grains of the former to an ounce of water, with a little ammonium chloride; of the hyposulphite two to three drachms are mixed with an ounce of water. The second solution is applied after the first is dry, and the process may be repeated till the desired shade is obtained, which is often not for some days. A third preparation is of fifteen or twenty grains of acetate of lead in an ounce of water. This is followed, when the hair is partly dry, by a solution of ammonium sulphide. The depth of the tint depends on the strength of the solutions, and in all cases the hair must first be freed from grease. Hair may be made brown with four grains of sulphate of copper in an ounce of water, applied alternately with one of potassium ferrocyanide of like strength. To give a light colour to hair, the process is really one of bleaching, which may be effected by means of liquor potassæ, liquor ammoniæ, or liquor sodæ, and even common washing soda will do it; but these things render the hair brittle, inclined to split, rough, and dull. A solution of hydrogen peroxide not only takes out the colour from dark hair, but gives it a golden lustre. Other recipes in abundance might be given, but these may serve as examples. We only add that the hair can be made of almost any colour the wearer chooses.

Hair-lip.—This is a deformity of the lip, due to arrest of development before birth, and usually associated with cleft palate. (*See* FACE, AILMENTS OF.)

Hair-nets.—The use of these varies with the mode of arranging the hair: for plaits they are not required, but when it is the fashion for the hair to lie smooth over frisettes or otherwise, then nets are necessary to keep the arrangement in order. Hair-nets should be made of very fine purse-silk, which should match the colour of the hair it covers. These nets are more serviceable when made by hand than by machine; the latter are cheaper, but the web very soon breaks. In Scotland these nets are called snoods.

Hair-oils and Pomades.—The oil of Behn is used in perfumery as the basis for receiving fragrant scents. It is prepared from the nut of the *Guilandia moringa*, and when a little perfume is added the oils are produced which are sold under the title "*Huiles Antiques*." But purified hog's lard may be substituted for the oil of Behn, and scented with bergamot or otherwise. (*See* ANTIQUE OILS.) Pomades are usually composed of clarified bear's fat, beef marrow, suet, or hog's lard; or all these combined with mutton suet in equal parts melted together, and while liquid a perfume added, in the proportion of two ounces of essence to four pounds of lard. Tincture of cantharides may be used to promote the growth of the hair. Castor-oil pomade was once approved by many, but objections to it have been discovered. Macassar oil has also had a great sale. Sometimes it is desirable to beat up a little brandy with the liquid pomatum. Spermaceti and oil of almonds melted together make a useful unguent. Rosemary pomatum may be obtained by boiling two large handfuls of the fresh leaves in a copper saucepan, with half a pound of hog's lard, till reduced to four ounces, and then strained.

Hair-pins.—Pieces of japanned wire, employed in the dressing of women's hair. The hair-pins most commonly used are black, but white are also manufactured. Some are covered with silk, wound round them in very fine threads. They can also be obtained of gutta-percha. A kind known as Italian hair-pins are so fine as not to be readily distinguished from the hair. The wire to form the hair-pin is bent in the centre, so as to bring the two ends parallel side by side, and the points are rather blunt.

Hair-powder is composed of wheat-starch powdered very finely. In former times it was of various tints and perfumed, and was worn by both sexes. At present it is only employed in fancy-dress, and for the servants of some of the upper classes. It may be seen on the closely-curled wigs of coachmen, and on the natural hair of footmen which has previously been coated with pomatum, to attach the powder in a thick layer over the surface.

Hair Sieves.—These useful articles serve the purpose of strainers in a variety of domestic and other operations. They are circular in form, and have a hair-cloth bottom fixed some distance above the lower edge of the wooden frame. They can be had in various sizes and degrees of fineness, and are light, convenient, cleanly, and durable.

Hair, To Dress.—The style of dressing the hair must depend as much on the form of the face, the size of the head, and height of the figure, as on the prevailing fashion of the day. Fortunately some discretion is always permitted as to the style to be adopted, two or three modes of dressing the hair usually prevailing simultaneously. Where the forehead is very high, it is advisable to cover it partially with the hair, and *vice versâ*. Where the head is large, little addition should be made to the *coiffure* by means of false hair, more especially if the wearer be short in stature, as the increase of size in the head dwarfs the figure. When the hair is red it looks best plainly dressed in smooth braids and plaits. Straining the hair tightly should be avoided, as it loosens it at the roots; but care must be taken that no loose portions should escape from the plaits or bands in which they were meant to be confined. Crimping is injurious, and tends to produce baldness.

Hair-wash.—One of the best washes for the hair for promoting the growth is made with a decoction of rosemary. Boil one pound of this in two quarts of water, filter through blotting-paper, add one ounce of spirit of lavender and a quarter of an ounce of Naples soap or salt of tartar. Bay-rum is much to be recommended, and is sold, like the rosemary wash, ready prepared for use. Camphor and borax combined will also produce a good wash. (*See also* DANDRIFF, OR DANDRUFF.)

Hair-work.—Ornamental manufactures and designs made of hair, human and otherwise. Trinkets and such-like decorations for ladies' wear have been brought to considerable perfection, such as necklaces, lockets, crosses, ear-rings, brooches, bracelets, chains, and designs for the insides of lockets and brooches, forming a species of monumental picture designed for mourning wear. Hair is also plaited to encircle rings. In India the fine hair in the tail of the elephant is thus employed. In America, specimens of the hair of each member of a family are often plaited into the shapes of flowers, leaves, and grasses, so as to produce a memorial bouquet. The term hair-work may include the manufacture of wigs and head-dresses.

Hake.—This fish is called by naturalists the *Merlucius vulgaris*, and belongs to the family *Gadidæ*, which also includes the cod, the ling, haddock, whiting, and some others. The hake is an inhabitant of the Mediterranean and some seas in Northern Europe. Though not very abundant around the Scottish coast, it is very plentiful on the south coast of England, as well as in many of the bays in Ireland. It is a fish of great voracity, and this has gained for it the name of sea-pike. It is not considered a very delicately-flavoured fish, but large quantities are every year cured for food, and a portion of them imported to other countries.

Half-pay.—This term is usually applied to the reduced pay allowed to those who have been in the service of Government, but are no longer in the actual performance of duty. The scale of payment varies, of course, with rank and department, and the rate in individual cases is modified by circumstances. Thus a major, if of the cavalry, may have 10s. per day, but if of the infantry, 9s. 6d. If he has been receiving "distinguished service pay," or been wounded or invalided in the service, he may take more; but should he voluntarily and for his own convenience retire on half-pay, there is a reduction from the standard amount.

Half-tester Bedstead. (*See* Bedsteads.)

Halibut.—This fish is likewise called Holibut, and sometimes the Fletan, and by naturalists the *Hippoglossus vulgaris*. It belongs to the natural family *Pleuronectidæ;* the genus has the two eyes on the right side, and is longer and stouter than other flat fish, some having been caught over 500 lbs. weight. Halibuts belong more especially to the northern seas; large numbers are caught about the Orkneys, as well as in Norwegian waters; and around Iceland and Greenland they are also abundant. The fish is rough and brown on the back or upper surface, while the under side is white and quite smooth.

Hall. (*See* Entrance Hall; Servants' Hall.)

Hall-marks on Plate, &c.—The custom of verifying the quality of gold and silver in manufactured articles is an ancient one, and the practice of marking officially the goods which conform to the standard is also ancient. At present there are in England the following places where gold and silver are hall-marked:—(1) London, a leopard's head; (2) Exeter, a castle with three towers; (3) Chester, a sword between three garbs or wheat sheaves; (4) Newcastle, three castles; (5) Birmingham, an anchor; and (6) Sheffield, a crown. These marks show where the articles are assayed; but besides them there are other marks, viz:—The duty mark, which is the head of the reigning Sovereign; the date mark, which is a letter which varies every year with each place; the maker's mark; and the standard mark, which, for gold of 22 carats, is a crown and a lion passant. For gold under 22 carats, figures are used thus: 18 carats, the figures 18 and a crown; for 15 carats, 15 and ·625; for 12 carats, 12 and ·5; and for 9 carats, 9 and ·375. As duty is not paid on gold of 15, 12, and 9 carats, the head of the monarch is omitted. There is a high standard of silver, which is marked with a Britannia and a lion's head erased, but it seldom occurs. The assay year in London commences on May 30th, and the date marks include twenty letters of the alphabet, which follow year by year in succession; the form of the alphabet is changed at the end of every twenty years. The date letters for other assay towns do not correspond with those of London. Plate marked at Edinburgh and Glasgow, and at Dublin, has some peculiar symbols, such as a thistle for Edinburgh; a tree, fish, and bell for Glasgow; and a harp for Dublin. Foreign marks are exceedingly numerous, and require a special study. It may be observed that the system of marks used in England has been altered from time to time, so that the date, &c., of old plate are by no means easy in all cases to ascertain. Often, too, small pieces only bear some of the marks which were impressed upon larger articles.

Hall-porter.—One who has charge at the hall-door or gate, or who waits in the hall to carry messages or parcels. The word is derived from the Latin *porta*, a gate.

Hallucinations.—In a loose general way we call by the name of hallucination any delusion under which a person suffers, so that in common parlance it means self-deception. Strictly speaking, hallucinations have no objective existence, but are the offspring of a diseased mind which sees and hears as actual external realities what are merely its own fancies. Many remarkable cases are on record of persons who have regularly had these visions for years, and have known them to be such. Other cases, and probably a very numerous class, have been associated with delirium, positive insanity, or a general break-down of the mental faculties through old age or disease. All illusions are symptomatic of an unhealthy condition, and when they befall an otherwise rational person, some obscure disease of the brain may be suspected, or that organ is distressed and overtaxed by too much work and care. In either case the sufferer, if a judicious individual, will take immediate advice, as delay may lead to serious results. The hallucinations of the delirious, insane, or worn-out will force themselves upon the attention of the professional adviser, and to him they may be safely left.

Ham. (*See* Hams.)

Hamburg Wines are supposed to owe their name to the idea that they are shipped from Hamburg; but whether under the name of port, or sherry, &c., they are not in good repute. It is a known fact that some of them contain no real wine at all, but are simple imitations, and that others are strangely sophisticated. Speaking of the Vienna Exhibition of 1873, Mr. Vizetelly says: "I am happy to chronicle that only one exhibitor of wines from Hamburg obtained a medal, and further that this was for a genuine wine exposed under its true name." This will sufficiently indicate the character borne by the so-called Hamburg wines.

Hamburg Wool.—In describing this material Miss Lambert says it is a common kind of wool, usually containing four threads, but it is made of various sizes, from four to twelve threads. It is very brilliant in colour, and glossy, and for working on coarse canvas is extremely good. An imitation, made and sold as Hamburg worsted, possesses none of the merits of the real Hamburg wool except its size. (*See* Berlin Wool.)

Hammer.—A well-known tool used in carpentry, carving, smith's work, &c., for driving in nails and rivets, and for other purposes.

Hammer-heads vary very much in shape, three kinds being shown below. Of these, Fig. 1—the claw-hammer—is that commonly used in the household, the claw being used to extract nails wrongly driven, &c. This hammer is often made entirely of iron, in which case the lower end of the handle is usually shaped as a chisel, thus providing a complex tool suitable



Fig. 1.



Fig. 2.

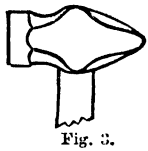
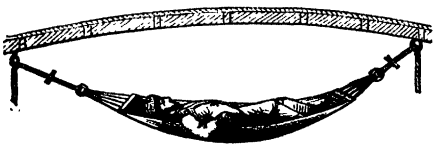


Fig. 3.

for three distinct operations. Fig. 2 gives the head of a tang hammer, the slight end, or tang, being convenient for light blows on small nails, or to fix nails in position preparatory to driving them in. Fig. 3 shows the head of a smith's chipping hammer, all the weight of which is in its lower end, thus rendering it suitable for heavy blows. Hammers used in carving are much lighter than those described.

Hammer-cloth is the covering of the coachman's seat of the carriages of the aristocracy, ornamented with fringe, and usually bearing the arms of the proprietor of the vehicle.

Hammock is a kind of hanging bed, mostly used on board ship. It is made of a piece of hempen cloth, six feet long and three feet wide,



HAMMOCK.

gathered together at the two ends by means of a clew, and slung horizontally under the deck. Pocket-hammocks are also made. These are in six sizes, varying from three-quarters of a pound in weight to three and a half pounds, and from eight feet to thirteen feet long, and were found of great service in the Ashantee expedition, as they are supplied in oil-cloth or india-rubber cases, and can be slung over the back like a knapsack (or can be attached to one), or carried at the side like a field-glass.

Hamper is a large basket, used principally by china and glass manufacturers for the conveyance of crockery, &c. Country produce is also usually forwarded in an article of this description.

Hams are prepared from the legs of oxen, sheep, and pigs, more especially the last-named. The process of ham-curing is performed in different ways, each locality having its peculiar method. There are dry salting and wet salting. The former requires about one month for its performance; the latter can be completed a few days earlier. When the curing is complete, the hams are dried and smoked, although in some districts the latter operation is dispensed with. In order to preserve them they are either enclosed in canvas, or are brushed over with pyroligneous acid. This is done to defend them from the attacks of a troublesome little insect, the *Dermestes lardarius*, which lays its eggs in them and soon fills them with its maggots. Ham is a very favourite article of food, and is highly appreciated by all classes. When smoked it possesses a very strong flavour, and is rather indigestible. It may be either boiled, baked, or roasted. The first of these processes is the most usual, although epicures declare that the last is by far the best, as it is certainly the most difficult. In choosing hams it should be remembered that those which are short in the hock are the best. The recently cut fat should be firm and white, the lean finely grained and of a pleasing red colour. An easy method of testing a ham that has not been cut into is to push a sharp knife under the bone. If, when it is withdrawn, it has a fresh agreeable odour, it may be concluded that the ham is in good condition. If the blade is greasy and smells offensively, the ham is bad. In England the best hams are cured in Yorkshire, Cumberland, Wiltshire, and Hampshire. In Scotland, Dumfries and Galloway are the counties most celebrated for their hams. Those of Ireland are inferior in flavour and coarsely grained. On the Continent the hams of Westphalia and Portugal are esteemed more highly than any other; those of Westphalia in particular are quite celebrated for their delicacy and flavour. Hams which have been long hung and dried should be soaked before they are cooked. The length of time required depends upon their condition. Foreign hams that are hard, dry, and salt will need to soak fully forty-eight hours, while from eight to twelve hours will be sufficient for Yorkshire or Westmoreland hams. When hams are to be eaten cold, it is always best to leave them for awhile after they are done enough in the water in which they were boiled. By this means their juices are kept in, and their flavour is greatly improved.

Hams, Essence of.—The real juice of the meat, extracted by heat. It is used as flavouring for soups and sauces, and may be bought ready for use.

Hand. (*See* HANDS.)

Hand-mills.—In ancient times the grinding of corn was accomplished by means of hand-mills. The principal of these, to which was given the name of quern, consisted of two circular stones, the lower one being stationary and forming a bed stone, with a central pivot for the upper one, which had an eye, and the upper stone was turned by means of a vertical handle. The references made to mills in the Bible all concern the hand-mills, which in old times were very common in the East. The quern was the hand-mill that the Romans found in the possession of the British at the time of their invasion of this country, and their use soon became universal in many parts of the world. After that period windmills

and water-mills were invented, and now the hand-mill for grinding corn is only regarded as a relic of past ages. Small coffee-mills are worked by hand where only a small quantity is required. (*See* COFFEE-MILL.)

Hand-rails.—The horizontal rails of a balcony or flight of stairs, so placed as to prevent those passing to and fro from accident.

Hand-screen.—These, in a variety of form and material, have for a long period been used in Europe. At the present day immense numbers, made principally of paper and bamboo, are imported from China and Japan, and may be bought for a few pence. Screens of this class should never be heavy or cumbersome, because when in use they are supported by the hand, to protect the face from the heat of the fire. Feathers can be prettily arranged for the purpose. Ornamental screens can be made by stretching white silk over hoops of wire or cane, and then painting flowers on the silk with water-colours; silk fringe is put round the edges, and cord with tassels on the handle. These screens are not always made in pairs. Their proper place is suspended from an ornamental nail beside the mantel-shelf, or resting on the extremity of the shelf itself.

Handkerchiefs. — These are made of silk, cambric, and of cotton. Those of silk—either of soft Chinese or Indian, or of the more substantial English fabrication—were extensively used by men, but, owing chiefly to their cost, have been generally superseded by those of cambric. A good silk handkerchief will cost from four to five shillings, for which sum three or four cambric ones could be bought. White handkerchiefs should be of pure linen threads; but too often deception is practised, and a mixture of cotton threads is sold. Cotton handkerchiefs are always stiff, soon soil, never look smooth, and quickly lose their whiteness of colour. Cambric handkerchiefs are made mostly in Ireland.

Hands, Care of.—The wearing of gloves is essential when any rough work, or that which will soil the hands, has to be done. Avoid the use of a nail-brush; the round gutta-percha "hand emollient," accompanied with a little scented soap, will cleanse them sufficiently without fraying the skin. While the hands are wet, after rinsing from the soap, apply a little honey, or else glycerine, before drying. Avoid their exposure to the external air and to the sun; and if rough and chapped, rub them with spermaceti ointment at night, and put on a pair of chamois-leather gloves, with the palms cut out, to sleep in. Use rain-water for washing, or add some bran to the water if hard. Take care to dry them thoroughly; the last rubbing should be given with flannel.

Hangings, or Curtains. (*See* CURTAINS.)

Hangings, Paper. (*See* PAPER HANGINGS.)

Hank.—A number of skeins of thread or silk tied together.

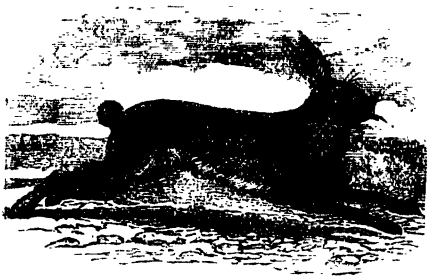
Hard Labour.—An incident of punishment, discretionary with the presiding judge. It was introduced into England in the reign of Queen Anne. It is in most cases attachable to the sentence of imprisonment.

Hard Water. — For ordinary purposes hard water is not nearly so valuable as soft water. As an article of food it may in some cases be useful, on account of its supplying a large quantity of magnesia, but on the other hand it is said to be a cause of disease. Those who are in the habit of drinking soft water may find the flavour of hard water harsh and disagreeable, as the majority of people prefer the kind of water they have been accustomed to from infancy. For cooking, also, hard water is not nearly so useful as soft water; and in the laundry, and for other domestic purposes, it causes an immense waste of soap, labour, and material. Hence it has been found desirable to discover some means of softening it, and this has been effected by the addition of lime. The hardness of water is known under two heads—temporary and permanent. The former condition, which is due to the presence of carbonic acid gas, may easily be removed by simply boiling the water, and by this means expelling the gas, when the salts are deposited; it is this which causes kettles and boilers to become furred. Permanent hardness, however, which arises from the presence of sulphate of calcium, can only be removed by distillation of the water.

Hare-skins and Fur.—For many centuries the skins of animals have been used in Europe as articles of clothing, and though the fur of the hare is not very valuable, it is extensively used, as also is the skin, in manufacture. The skin alone, divested of the fur, is cleaned and made into leather. The hair or fur is made to serve two purposes: it is manufactured into felt for making hats, and it is also dressed like the fur of other animals, and made into muffs, boas, and trimmings. When preparing the fur for felt the whole of the hair has to be cut and scraped from the pelt; the long hairs are first cut off, and then the true fur, which is thick and short, is removed by the aid of a knife. These hairs or filaments are made so to interlace or entangle as to form a very close texture. When used as fur the skin is not separated from the hair, however, but the two are used together, the skin forming a kind of leather, and acting as a strong foundation to the fur. The quality of the skin depends upon the time of year when it is taken from the animal. Winter is the best time for selecting hare-skins, and these, when thick, soft, and full of hair, may be dressed and dyed to closely imitate seal-skin.

Hares as Food.—The flesh of the hare resembles that of poultry or game more than that of butcher's meat. It is hard in texture, and very dry, but it possesses savoury and stimulating properties in a marked degree, and is one of the most nutritious kinds of flesh. It is not, however, particularly digestible, and constitutes a food for the healthy rather than for the sick. It is a noticeable fact that our British ancestors refused to eat hares on religious grounds, and that the Jews were forbidden by their law from eating either the rabbit or the hare.

Hares, Choosing, &c.—When a hare is fresh its body is stiff, when stale it is limp. If the cleft in the lip of the animal is widely spread, the ears tough, and the claws blunt, the hare is old, and should be jugged or stewed, but not roasted. It is usual to let a hare hang for



HARE.

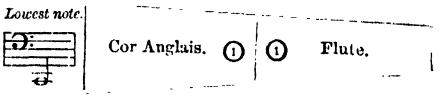
some time after it is killed before cooking it. This is done not only to improve the flavour, but to render the hare more easy of mastication and digestion. It is always better if it is not paunched for three or four days after it is killed. As soon as it is paunched, the liver should be taken out and scalded, the heart removed, and the inside wiped dry every day.

Haricot Beans.—Haricot beans are the seeds of the well-known French or kidney bean, which have been allowed to remain ungathered until fully ripe. To one particular variety of the French bean (of which there are many kinds) Linnæus gave the name of *Phaseolus Caracalla*, and the French recognise it as *haricot limaçon*. In England, unfortunately, the haricot is little known except in the unripe pod; indeed, it is the only vegetable which we eat in the pod, and in this condition is called by the French *haricots verts*. The two kinds of haricot beans that come to perfection in England are the dwarf kidney bean, a native of India, and the scarlet runner, a native of South America. Neither of them, however, is brought to such a state of perfection as to be cultivated for the sake of its seeds. The haricot seeds used in England are mostly imported from France. Of these there are four kinds—the green, white, and red beans, and the broad haricot of Soissons.

Harlequin.—A well-known character in pantomime, representing "a sprite, supposed to be invisible to all eyes but those of his faithful columbine. His office is to dance through the world, and frustrate all the knavish tricks of the clown, who is supposed to be in love with columbine." He is assumed to be possessed of magic power, and able with the stroke of his wand to produce sudden changes of scenery, &c. From the parti-coloured dress he wears, the term harlequin is applied to eccentric combinations of colour. Hence harlequin duck and harlequin snake.

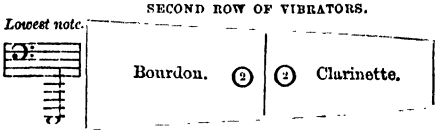
Harmonium.—A musical instrument of the free reed species—an enlargement, familiarly speaking, of the accordion or concertina (*which see*). The harmonium stands next to the pianoforte in popular favour as a domestic instrument; but, at the same time, no instrument has been more woefully misused. Its capacity for the prolongation of sounds has caused it to be regarded, and played, as though it were a miniature organ; and more than half the music written for the harmonium is unsuited to it. Properly used, the most brilliant effects can be obtained from even the smallest instrument, if provided with an "Expression-stop;" and compositions arranged for the harmonium and pianoforte are to be obtained which approach very nearly to the tone of an orchestra. The larger harmoniums contain as many as four, or even five, distinct rows of "vibrators," or reeds, all or any combinations of which can be used at the will of the player by drawing the knobs, or "stops," in front over the keyboard. But the names usually given to the various qualities of reed tone are somewhat fanciful—in fact, objectionable, because misleading. The following is the usual order of a twelve-stop harmonium:—

FIRST ROW OF VIBRATORS.



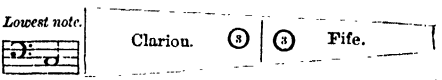
The foundation, or 8-ft. tone.

SECOND ROW OF VIBRATORS.



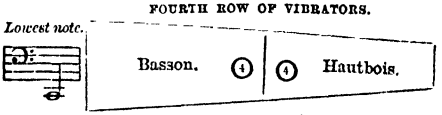
(All an octave lower, or 16-ft. tone.)

THIRD ROW OF VIBRATORS.



(All an octave higher, or 4-ft. tone.)

FOURTH ROW OF VIBRATORS.

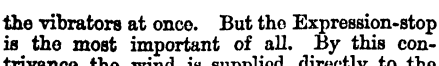


Foundation, or 8-ft. tone.

The compass of each row of vibrators is five octaves; the distance between the lowest note of the second row and the highest note of the third row, seven octaves. It will be seen that each row is divided in the middle, and acted upon by two stops. These stops are differently named, but in reality the one is merely a continuation of the other, having precisely the same tone. Four rows of vibrators are thus divided into eight "stops." In a twelve-stop harmonium the remaining four stops are mere contrivances—namely, two "Forte" stops, one for the treble, one for the bass; a "Tremulant," generally most unsatisfactory in its action; and a "Grand Jeu," which connects all
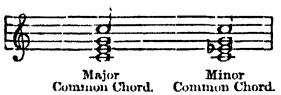
the vibrators at once. But the Expression-stop is the most important of all. By this contrivance the wind is supplied directly to the reeds, instead of through the reservoir; consequently the slightest pressure of the bellows is felt in the tone of the reeds. By the use of the Expression-stop clever performers are able to obtain an exquisite *tremolando* by means of the foot upon the bellows, far more delicate and sympathetic than the mechanical "fan."

In the purchase of a harmonium the reader is warned against estimating the true value of the instrument by the number of "stops" it contains. For example, a harmonium of "seven stops" very probably contains only one set of reeds, the remaining stops representing mere contrivances, nearly all of which can be rivalled by the Expression-stop. Take the plan of a seven-stop harmonium:—
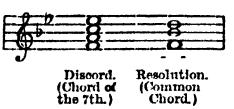


The only sound-producing stops are the *Flute* and *Cor Anglais*, which, as we have already explained, consists of one row of reeds, divided at the middle (about ). So that for all practical purposes an instrument with only one stop—the indispensable "Expression"—is very little, if at all, inferior to an instrument possessing the above imposing array.

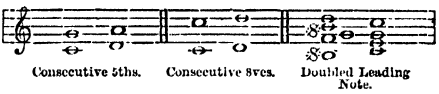
Harmony.—The science of sounds in combination. Harmony is produced by the simultaneous sounding of two or more notes, which thus form a chord. All chords may be classed as belonging to one of two kinds—*i.e.*, concords or discords. The common chord is composed of the tonic, or key-note, and its third, fifth, and octave, thus:
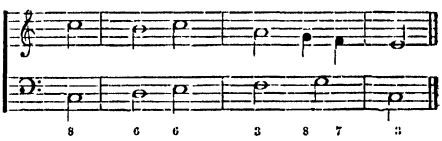


From this common chord all the "concords" may be learned. Thus we have the octave, C to C; the fifth, C to G; the fourth, G to C; the third, C to E; the sixth, E to C. (All intervals are reckoned upwards; that is, from the lower note.) The "discords," or "dissonances," are almost innumerable; the most important, however, are the seventh and ninth. The ear cannot rest upon a discord, which therefore has to be followed by a concord in order to produce the final sensation of rest: this is called the "resolution."



It will be noticed in this example that F descends to the tonic (B♭), and also holds on to make a fifth in the following chord; A ascends and C descends to B♭; while E♭, the seventh, which must always descend, does so to D. The final resolution may be delayed by the interposition of other discords, but "all music must end with an uninverted common chord." There are many rules for the progression of parts into which we cannot possibly enter here. The most commonly forbidden progressions may be set down thus:—



We must, however, caution the general reader against forming an unaided judgment upon these progressions when met with in the writings of composers. *Thoroughbass*, which forms an indispensable feature in the study of harmony, is a system of indicating by figures the harmonies of a given bass. The art of playing from a figured bass was greatly in vogue in the last century, much more than in the present day, when there appears to exist a sort of superstitious awe of the cabalistic signs above or beneath the bass stave. As a fact, nothing can be simpler than this mode of indicating harmony, the figures representing the distance of the intervals from the bass note, thus:—



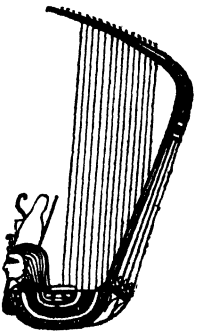
When three or more parts are represented in the figures, an elementary knowledge of harmony is necessary to guide the player in the "doubling" of intervals and the resolution of discords. In domestic music, especially where the pianoforte and some stringed instrument are played together, a knowledge of *thoroughbass*—that is, the art of playing from a figured bass—would be found most useful, especially as some of the finest gems of the old masters contain only a figured bass for the accompanist.

Harmony of Colours. (*See* Colours, Contrasts and Harmonies of.)

Harness consists of the furniture or equipments of horses, by which they are driven, guided, or controlled. Modern harness is made of leather, but rope harness is still used in some parts of France. Of the many constituent parts of harness may be mentioned the following:—The *bit*, which is a piece of iron put into the horse's mouth, and to which the bridle is attached. Bits may be classed under two heads—the snaffle and the curb; in the snaffle the bit is formed slightly curved, and frequently jointed in the middle, and the bridle or rein is attached to rings in the extremities of the bit. Curb bits are generally formed with a small semi-circular bend in the centre of the mouth-piece, and with arms or cheek-pieces formed at the ends of the mouth-piece. To the upper part of the cheek-pieces is hooked a chain passing under the lower jaw of the bone, and to the lower end of the cheek-pieces is attached

the rein, by pulling which the upper ends of the cheek-piece are thrown forward, and the curb chain pressed forcibly against the lower jaw. They are very powerful in checking a horse, but they tend greatly to injure the mouth and cause the animal much uneasiness, so have been voted cruel by most humanitarians. The *bridle* includes the head-stall, or leather that goes round the head; the fillet, that ties over the forehead; the throat band, that goes under the throat; and the reins, which the rider or driver holds. The *collar* is that part of a horse's harness which surrounds his neck, and to which the traces are attached by which he draws. It ordinarily consists of a stuffed leather pad, on which rest two bars called the hames, united at the lower ends by a few links of chain, and drawn together at top by a strap and buckle. The *saddle* is a pad adapted to fit the horse's back, the two sides of which pad are connected by a flexible strap that fastens underneath the horse. It is also connected by a curved inflexible bar, which is attached to the terrets through which the reins are passed. Harness requires great care and attention in order to preserve it, otherwise it soon looks shabby and tarnished. The room in which it is kept should be thoroughly dry and properly ventilated, and should contain hooks and pegs on the wall, on which the different parts can be hung. The following ingredients make a capital preparation for preserving the leather:—Melt three-quarters of a pound of beeswax and a quarter of a pound of mutton suet; then add a quarter of a pound of soft soap dissolved in water, three-quarters of a pound of sugar-candy, and two ounces of indigo powdered fine. When these are all melted and well mixed, add half a pint of turpentine. This blacking, or polish, should be laid on with a sponge, and polished off with a brush. When the harness has been neglected for some time and has a rusty appearance, use harness dye, which is made as follows:—Get two sixpenny packets of British ink-powder, four pounds of logwood chips, two ounces of indigo, six ounces of nut-gall, six ounces of copperas, and boil them gently in two quarts of water for half an hour. This will be found very efficacious, and completely restores the faded appearance it may have assumed from disuse. To polish harness, take four ounces of best glue, half a pint of good vinegar, two ounces of best gum-arabic, half a pint of good black ink, two drachms of isinglass. Break the glue in pieces, put it in a basin, and pour over it about a pint of the vinegar; then let it stand till it becomes soft. Put the gum in another basin, with the ink, till it is perfectly dissolved; melt the isinglass in as much water as will cover it, which may be easily done by placing the cup containing it on the hob about an hour before you want to use it. To mix them, pour the remaining vinegar, with the softened glue, into a saucepan upon a gentle fire, stirring it till it is perfectly dissolved, that it may not burn to the bottom, being careful not to let it reach the boiling point. Next add the gum; let it arrive at about the same heat again, and add the isinglass. When it is required for use, put as much as is wanted in a saucer, give it sufficient heat to make it fluid, and apply a thin coat with a piece of dry sponge. Then dry the harness quickly, as the quicker it is dried, the better the polish.

Harp.—A musical instrument of the plectral order. The harp—the shape and construction of which are so familiar that no detailed description of the instrument is necessary—is certainly one of the most ancient of musical instruments, and for thousands of years has maintained a universal popularity. The accompanying cut, which is taken from the well-known Egyptian monuments, shows that the harp, even in those early days, was a highly-developed instrument. It is supposed that it was originally introduced into Great Britain by the Phœnicians, who were, according to tradition, a very musical race. The primitive Irish and Welsh harps are very poor in comparison with the noble instruments produced by good makers in the present day. By the introduction of pedals, which act upon certain strings, the player is enabled to modulate from one key to another.



EGYPTIAN HARP.

Harpsichord.—A now obsolete instrument, the precursor of the pianoforte. In shape and compass the harpsichord was not unlike some of the old grand pianofortes; the "action" of the former, however, was totally different, the wires being "plucked" with a jack, or quill, instead of being struck by pellets, or hammers. Purcell, Corelli, Bach, Handel, Hasse, and other great masters wrote for, and also performed on, the harpsichord, which, however, grew into disuse in the latter half of the eighteenth century. Some of these harpsichords were very elaborate instruments, containing two key-boards, pedals, and swell; but the tone, which has been described as "a scratch with a sound at the end of it," has been vastly improved upon by the modern pianoforte, or hammer-clavier, as it was originally called. A splendid example of the harpsichord was exhibited a few years since at the South Kensington collection of musical instruments.

Hartshorn.—This is the name popularly given to ammonia in its various forms. Correctly speaking, the term should have been applied to the chloride of ammonium or sal ammoniac only, as it was in the preparation of this salt that hartshorn and other animal matters were used. As sal ammoniac is now, however, procured from the impure ammoniacal liquors obtained as secondary products in the manufacture of coal-gas and animal charcoal, the term hartshorn is a misnomer, and is not used by chemists. Hartshorn, or solution of ammonia, is largely used in the preparation of certain popular liniments, especially in that

form known as white oils, of which the following is the formula:—Yolks of two eggs, three ounces of solution of ammonia, one ounce of oil of origanum, four ounces of oil of turpentine, and a pint of vinegar; mix. Hartshorn is also used in the preparation of the liniment of ammonia of the Pharmacopœia. It is an excellent stimulant and counter-irritant, and is especially indicated in chronic rheumatism and indolent swellings. When inhaled—which in the strong state must be done cautiously—ammonia is a powerful agent in combating faintness. Taken internally, in the form of carbonate or sal volatile, it increases both the respiratory and circulating functions, as well as those of secretion, and is a most serviceable remedy in fever, pneumonia, and bronchitis. In the form of sal ammoniac it is largely given in Germany for rheumatism, chronic bronchitis, neuralgia, and headache; and, mixed with saltpetre, it makes a most valuable cooling lotion. Ammonia is always given, when practicable, in poisoning by prussic acid, and is supposed to exercise a strong counteracting influence in these cases. It has also been given internally, and injected into the veins of persons suffering from snake-bite, and sometimes with apparently marked success. Hartshorn shavings have frequently been made into a jelly, and given to consumptive patients; but the practice is not to be recommended. (*See* AMMONIA.)

Harvest-bug.—This insect, *Leptus autumnalis* (the *rouget* of the French), belongs to the *Acarus* tribe, and deserves its popular name from the fact that it attacks the legs of the labourers employed in the harvest, burying itself in the flesh at the roots of the hairs, producing intolerable itching, attended by inflammation, and sometimes even causing fevers. The harvest-bug is so minute that, were it not for the uncommon brilliancy of its colour, which is a brick-red, it would be almost invisible. It makes its appearance in July, and disappears about the middle of September. It is most usual in hot dry seasons. It prevails also near the sea-shore where the soil is light. Cats suffer greatly from its attacks, as also do horses, cattle, sheep, dogs, and rabbits. It is found on the blades of grass and on various plants, such as French beans, currants, gooseberries, raspberries, and other vegetables, yet it leaves these whenever it has an opportunity of fastening on animals, especially women and children. Harvest-bugs fasten chiefly where any part of the dress fits closely, and when disengaged they move very quickly. The point of a needle, with the aid of a magnifying glass, is best calculated for removing them. M. Megnin says that the insects may be got rid of by means of sulphur ointment, and by friction with benzine and oil of petroleum, or phenic acid.

Hash.—Hash is the name given to a dish made of cold meat re-dressed, and served hot with gravy and seasoning. Its excellence greatly depends upon the skill and ingenuity of the cook.

Hastener.—This article is now rather old-fashioned, having been very generally superseded by the modern meat-screen. It is made of wood lined with tin, and is placed round a fire before which meat is being roasted. It is intended to condense the heat, and to reflect it from the screen upon the joint, thus assisting the process of cookery. The hastener is sometimes provided with shelves, upon which plates can be warmed, and it is thus made to serve a double purpose.

Hasty Pudding.—Hasty pudding is simply pudding made in haste. There are several recipes for making it. In the one usually followed, flour is stirred briskly into boiling milk, and the preparation, after it has been boiled for a few minutes, is turned out into a buttered dish, and served hot with sugar and sauce. Hasty pudding is sometimes baked after being boiled, though it is more frequently preferred to be boiled only.

Hat-stands.—These are usually of wood, either light oak, dark oak, or mahogany, according to the character of the house and style of its furniture. Cast-iron and buffalo-horn are also converted into stands of this description. Where the space is not large, a stand combining receptacle for umbrellas as well as pegs for hats is very convenient. In all cases the stands which are flat in shape present the best appearance.

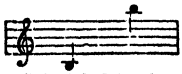
Hatchet.—A small axe with a short handle. (*See* AXE.)

Hatchment.—On the occasion of the decease of a person who is entitled by descent or office to bear arms, an armorial escutcheon is prepared, which is called by the above name. This is in the form of a lozenge, having the arms in the centre and a broad border of black wood. It is exhibited on the hearse, and afterwards is placed outside the house of the deceased, where it usually remains for a year. Sometimes hatchments are hung up in churches. Those displayed in Germany, France, and Scotland are considerably larger than those seen in England.

Hats.—Straw, felt, and silk plush are the chief materials in present use. The first is inexpensive, but not so durable as the second, and it also possesses the advantage of coolness. Felt has taken the place of cloth; it is considered unhealthy by some persons on account of its air-proof qualities. Fine silk plush made at Lyons and Banbury is now substituted for beaver skins for tall hats, owing to the latter being soon ruffled. (*See* HAT-STANDS.)

Haunch.—The haunch is a division of meat consisting of the leg and part of the loin. It forms a large joint, and is only used when a very large dish is required. A haunch of mutton is not uncommon, and a haunch of venison is a well-known favourite joint.

Hautboy.—A small reed instrument of a thin acid tone, peculiarly effective in the orchestra, and accordingly much used—we had almost said too much used—by composers. The compass of the hautboy is, roughly—



With all the Intervals.

The hautboy is a very ancient and popular instrument, and was much used in military bands about the seventeenth century. To go further back, Edward III. retained for his special entertainment a band of *weyghtes*, or hautboys. From this word weyghtes, or waites, the "Christmas waits" originally derived their name, the hautboy being the instrument most favoured by the nocturnal serenaders of olden time. That hautboys were formerly regarded as a necessary part of the pomp and circumstance of war may be gathered from many of Shakespeare's stage directions, especially in the historical plays.

Hawkers and Pedlars are such dealers or itinerary petty chapmen as travel to different towns or fairs with goods or wares. The 50 Geo. III. c. 41, imposed a licence duty on them, and made various provisions in regard to their trade. Many other Acts have been since passed relating to hawkers and pedlars; but the 34 & 35 Vict. c. 96 (known as the Pedlars Act), now regulates the exercise of this calling. Provisions are therein made for the grant of a certificate, which is to be made by the chief officer of police of the police district in which applicant has resided for one month previously, on such officer being satisfied that the applicant is above seventeen years of age, of good character, and that the application is *bonâ fide;* and power is given to extend this certificate, which is to be in force for one year from date, by endorsement in other districts than that for which it was granted. An appeal is given against the refusal of a certificate. By sec. 23 it is enacted that nothing in the Act shall render it necessary for a certificate to be obtained by commercial travellers or other persons selling or seeking orders for goods, wares, or merchandise, to or from persons who are dealers therein, and who buy to sell again; or selling or seeking orders for books as agents, authorised in writing by the publishers of such books.

Hay-fever, or, as it is frequently called, Hay-asthma, is a form of catarrh to which some persons are subject during the hay season. It is an affection characterised by all the symptoms of a severe cold in the head, which frequently descends into the respiratory passages, giving rise to cough and difficulty of breathing. It is due to irritating particles from the hay suspended in the air during hay-making, and which are often conveyed to a considerable distance. It would appear that a certain susceptibility is necessary to take the complaint, as comparatively few people are affected. A somewhat similar condition is, however, frequently produced by fog, and the presence of such irritants in the air breathed, as powder of ipecacuanha, &c. The treatment of hay-fever is at once to get away, if possible, from the neighbourhood of hay-making, a sea voyage being the best escape. Those who are susceptible, and who are able to get away, should do so before an attack is expected. Full doses of quinine (five grains at least) should be taken two or three times a day when the affection first manifests itself, and ammonia may be inhaled at the same time. If there is cough and difficulty of breathing, indicating that the respiratory passages are implicated, then a course of treatment similar to that recommended for bronchitis (*which see*) must be adopted.

Hazard.—A game played with dice, and depending entirely upon chance. Hazard was a noted gambling game in the beginning of the present century, and many large fortunes have been lost and won over it in the hazard-houses at one time existing in London.

Hazel-nuts.—These are the fruit or nuts that are gathered from the bush known as the *corylus*, belonging to the natural family *Cupuliferæ*. The plant is a native not only of our own country, but of various places in the north of Europe, Asia, and America. It is cultivated in some parts of this country, and then produces the filbert and the cob-nut. Kent is a county that is quite notable for its filberts. These cultivated kinds are not only much larger but much longer than the wild hazel-nuts. The common hazel-nut has its husk open at the point, while in the cultivated sorts this is longer than the nut itself. Large quantities of hazel-nuts are annually imported into this country from Spain, Portugal, and France. There are several varieties of the hazel-nut peculiar to different countries, as the beaked American or cuckold-hazel, a favourite in shrubberies, owing to its pretty purple leaves; the horned hazel-nut of Carolina; the Constantinople hazel-nut-tree, a tall, wide-spreading tree, with silvery bark; besides several other species common to some parts of Asia.

Head-dresses.—These may be classified as regal, national, antique, military and naval, academic, ecclesiastical, civic, legal, and historical. There are also fancy head-dresses, and those ephemeral styles of head-gear which, especially as regard the female population of most European countries, vary with age, season, and weather, their out or in-door use, the fancy of the wearer, or the prevailing taste of the time. Further information on the subject of national, historical, ancient, and modern head-dress must be derived from illustrated works, paintings, sculptures, and histories of all nations, savage or civilised. In this country, at the present time, the term is more especially monopolised to designate the *coiffure* of a lady, the style of which is perpetually changing. (*See* CAPS.)

Headaches.—These arise from various causes, the most frequent of which are indigestion (biliousness), nervousness, debility, rheumatism, and neuralgia. Bilious headache, being generally due to some excess of eating or drinking, is soonest relieved by an emetic of warm water or sulphate of zinc, by the application of ice or hot salt to the head, according to the feelings of the patient, by a brisk aperient, the warm bath, and perfect quiet in a darkened room. Strong tea or coffee may be given at the same time. When the headache has subsided, a brisk walk may be taken; the food must be of the simplest kind, and no stimulant should be taken. Nervous headache is more common among women than men, and in their case is frequently due to uterine disturbance. Sal ammoniac, in doses of from fifteen to twenty

grains in cinnamon-water, is often a specific in this form of headache. Sal volatile, or a little spirits and water, will also relieve it. A remedy called guarana (*which see*) has been highly recommended of late years. When headache arises from debility, the result of too much brain-work, absolute rest is necessary for a time, and such tonics as nitro-muriatic acid and gentian may be taken with benefit. Rheumatic headaches are generally recognised by the pain being all over the head, by tenderness on pressure, and by a history of rheumatism. The head should be wrapped up in cotton-wool, and the remedies suitable for rheumatism prescribed. Neuralgia frequently attacks the head, and is known by the shooting, darting character of the pain, the central point of which is frequently just over the eyebrow. In this affection quinine, in five-grain doses, should be administered, as well as scruple doses of bromide of potassium in an ounce of distilled water. (*See* NEURALGIA; RHEUMATISM, &c.)

Health, Care of.—In the care of health there are certain essentials which, in a work of this kind, it is only possible to glance at; we shall, however, give a few directions concerning those which are most important:—1. *Diet.* This should be plain and wholesome, and of the mixed character described under the headings of FOOD and DIET. It should also be moderate as to quantity, and regular, allowing neither too long nor too short intervals between meals. 2. *Exercise.* Daily exercise is necessary to the enjoyment of good health, and if possible should be taken where the air is good and free from smoke and other impurities. The best forms of exercise are walking, riding, rowing, &c. When out-door exercise is impracticable, the dumb-bells, single-stick, and billiards may be advantageously substituted. (*See* EXERCISE.) 3. *Pure air.* The thorough ventilation of the house or rooms we live in is another essential to health, and must on no account be neglected. Nothing is so conducive to sickness as hot and stuffy rooms; and this remark is especially applicable to the bedroom, which should be of sufficient size, permitting a free current of pure air to pass through it during the hours when it is not occupied. And here it may not be out of place to observe that it is not sufficient to open doors leading into passages or staircases which may contain all the bad air of the house, neither does it do to open windows looking into confined and impure spaces. Ventilation to be of any service must permit of the exit of the bad air in such a way that it cannot re-enter, and of the admission of the pure air from the best source without. 4. *Clothing.* This should be comfortable only, too much wrapping up being quite as prejudicial to health as too little. It should be adapted to the season of the year, and should always in this country include thick underclothing for the winter and light for the summer; the feet also should be well protected by warm stockings and strong boots. The custom of placing thick layers of flannel on the chest in the form of a chest-protector is very much to be deprecated, except in the case of really delicate people. 5. *The bath.* This is a valuable adjunct to health, and should be taken cold during the summer months, and with the chill taken off for the remainder of the year. A warm soap-and-water bath should be taken at bedtime once a week or once a fortnight, or the Turkish bath may be enjoyed by those who can indulge in the luxury, care being taken not to drive but to walk briskly home afterwards, if the distance is not too great. 6. *A calm temperament.* Those who are so constituted or who have sufficient command over themselves as to preserve this condition have a most valuable adjunct to health, as there is perhaps nothing so prejudicial in this age of over-work both of brain and body as the worries and anxieties of every-day life. *Cæteris paribus*, the easy-going, even-tempered man must digest his food better, and is less affected by the daily wear and tear of life, than the passionate, impetuous, and impatient man, and will live longer. 7. *Rest and amusement.* These are essentials to health, hence the proverbs, "You cannot burn the candle at both ends," and "All work and no play make Jack a dull boy." The want of rest may endanger life; Jack's dulness will end in sickness.

Hearing, Defects of. (*See* DEAFNESS; EAR, AILMENTS OF.)

Heart.—The heart is the great central organ of the circulatory system. It is conical or triangular in shape, and lies between the sternum, or breast-bone, somewhat obliquely—the base, or upper border, corresponding with the cartilage of the third rib; the apex, or lower border, corresponding with the cartilage of the sixth rib, but a little more external. The heart is formed chiefly of muscular fibres, which are so arranged as to impart great strength and power of contraction. Its weight averages about eleven ounces (in the female it is somewhat less), and it measures about five inches in length, three inches and a half in breadth at its broadest part, and two inches and a half in thickness. These measurements increase with age. The heart contains four cavities—viz., two auricles side by side above, and two ventricles side by side below. A longitudinal section of the heart would therefore divide it into two lateral halves, a right and left, each consisting of an auricle and a ventricle. Each auricle communicates by an opening, which is called the auriculo-ventricular opening, with its corresponding ventricle. These openings are protected by valves; that on the right side being called the tricuspid, that on the left the bicuspid or mitral. The auricles do not communicate with each other, neither do the ventricles. The circulation of the blood as respects the heart is as follows:—The impure or venous blood enters the right auricle by two vessels called the venæ cavæ; from thence it is propelled through the auriculo-ventricular opening into the ventricle, the tricuspid valve immediately closing the opening in order to prevent its return. From the right ventricle the blood is propelled into the pulmonary artery, to be carried to the lungs, where it is purified by contact with the air which it meets there. From the lungs it is returned by the pulmonary veins to the left auricle, from

which it is propelled into the left ventricle, and from thence it is driven into the aorta, or main artery, which, by dividing and subdividing, distribute it over the whole body. In these minute ramifications or capillaries the veins begin, and, gradually increasing in size, ultimately end in the venæ cavæ, which, as already mentioned, empty themselves into the right auricle of the heart. This constitutes what is called the circulation. The diseases of the heart are too numerous and complicated to be described in a work of this kind, and therefore it will be possible only to mention a few of the most important:—1. *Fatty heart.* This is a form of fatty degeneration, and is usually associated with a similar condition of the liver and kidneys. It is a condition characterised by great debility and tendency to faintness, or syncope, which sometimes terminates fatally. Those who suffer from fatty heart should, when faint, take a tea-spoonful of sal volatile in water; if this is not available, a little brandy may be substituted. 2. *Valvular disease.* This may affect either the mitral, tricuspid, or the semi-lunar valves. The former is perhaps the most frequent, and often results from rheumatic fever. 3. *Pericarditis.* This is inflammation of the serous membrane which invests the heart. It is a condition likely to occur during an attack of rheumatic fever, and is generally recognised by great difficulty of breathing, with pain and oppression over the region of the heart. Leeching, blistering, and calomel, with opium, are the most ordinary remedies; but it is a dangerous state, requiring professional skill and attention. 4. *Endocarditis.* This is an inflammation of the inner lining membrane of the heart, and is generally due to the same cause as pericarditis. It is not so frequent as the latter, but is even more dangerous. 5. *Hypertrophy of the heart.* This is an abnormal enlargement of the heart, with or without dilatation of its cavities. It occurs as the result of valvular disease, as well as from violent and protracted exercise. Pugilists, boating-men, and others who overtask their strength are subject to this condition. 6. *Palpitation.* This may arise from disease or from functional disturbance of the stomach, as flatulence. When it results from the latter cause, the following mixture will be found useful:—Sal volatile half a drachm, bicarbonate of soda a scruple, tincture of capiscum five drops, and peppermint-water one ounce; to be taken at intervals of three or four hours until relieved. Mustard or turpentine should be applied to the stomach, and a brisk aperient given at bedtime. 7. *Angina pectoris, or breast-pang.* This is a most painful affection which frequently proves fatal. It appears to be due to some impediment to the circulation in the blood-vessels which nourish the heart itself, and is generally associated with dilatation or fatty degeneration of the organ. The pain, which comes on suddenly, is most intense, and gives the sufferer the impression of approaching dissolution. It is generally referred to the lower part of the breast-bone, to the root of the neck, the left shoulder, and down the arm, sometimes as far as the hand, which feels numb. Stimulants, as brandy, ether, ammonia, chloroform, &c., appear to be the only remedies likely to do any good. Mustard or turpentine applications may be of service, and the bowels should be quickly and effectively relieved.

Heartburn.—This is a burning sensation at the pit of the stomach, frequently accompanied by acid eructations. It is one of the symptoms of indigestion (*which see*). Cardialgia is the term usually employed by medical men in describing this condition. The two Greek words from which cardialgia is derived signify "a heart-pain;" but as the stomach and not the heart is at fault, it is manifest that both terms are inappropriate.

Hearth. (*See* Fireplace.)

Hearth-brushes.—There is nothing that makes a room look more disorderly and more uncomfortable than an untidy hearth, whilst in cold miserable weather a bright clear fire, with a freshly-swept hearth, is one of the most cheering of objects. If a hearth is to be kept constantly in a tidy condition, it should be swept each time the fire is mended. Tidy housekeepers usually keep a brush for the purpose in some convenient corner near the fireplace. It is perhaps needless to say that this brush should be kept exclusively for its special purpose. Hearth-brushes are generally made with long handles, and are more or less handsome in appearance; one variety can, when not in use, be drawn back and shut up closely in a sort of box, and thus made to last for a long time, as ordinary hearth-brushes are particularly liable to get burnt with red-hot cinders falling upon them.

Hearth-cleaning. — The usual mode adopted for cleaning hearths is either to blacklead or to hearthstone them. When the hearth in a sitting-room is not tiled it is generally blackleaded, and the fender is then made to cover nearly the whole of it. A kitchen hearth should be washed daily with flannel and clean water, and then rubbed with pipe-clay or hearthstone. Should any grease spots exist, they may be removed by rubbing the place with an infusion of potash and quicklime. If the stain be a very bad one, a little powdered hot lime may be put upon it before the infusion is used.

Hearth-rugs.—Hearth-rugs are manufactured in every variety of design and material, usually to suit the carpet with which they are worn. The kinds most common are made with a foundation of flax, into which tufts of wool are woven and then cut. Other descriptions are, however, frequently supplied, amongst which are those made in strong green and crimson cord, about the thickness of small string, which is firmly fastened into strong canvas; rugs made in this way are very durable. Woollen hearth-rugs are also extensively used. When these are large in size, and when the hair is long, thick, and woolly, they are both warm, comfortable, and pretty. For drawing-rooms they are often supplied in pure white. Dining and breakfast-rooms generally have either black or coloured hearth-rugs. Very good hearth-rugs for nurseries and kitchens are often

made in the north of England from the remnants of cloth that are cut off by the manufacturers. A quantity of these may be purchased at very little cost. The cloth is cut up into thin strips about an inch wide and three or four inches long. These are then fastened into strong canvas, the two ends of each piece being allowed to come to the surface, and by arranging the colours artistically a pattern may be formed. Hearth-rugs made in this way, though not very ornamental, will bear rough usage better than any other kind.

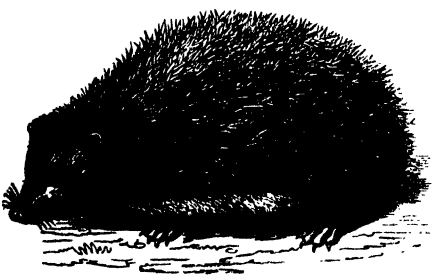
Hearth-stone.—Almost any kind of stone that is soft and pliable may be used in cleaning stone floors. In many parts the yellow stone is preferred, and may easily be procured from the stone-quarries. Much of the white hearth-stone that is used consists of pipe-clay. This is a soft fine clay which easily absorbs the moisture, and is especially suitable for the purpose. The same clay is used in the manufacture of long clay tobacco-pipes.

Heat, Conductors and Non-conductors of. (*See* CONDUCTORS OF HEAT.)

Hebrew Calendar. (*See* JEWISH CALENDAR.)

Hectic Fever.—This is a peculiar, well-known, and easily recognised fever, which results from any exhausting drain upon the system, as discharge of matter, protracted nursing, &c. It is a condition characterised by profuse perspirations alternating with a hot burning skin, by a bright red or pink spot usually circumscribed on the cheek, and by a clearness and brilliancy of the eyes; there is usually but little if any pain; the spirits are wonderfully good, and the intellect remains clear almost to the last, only becoming a little clouded just before death. As the disease is one in which the body, with its various organs, wastes faster than it can be repaired, it is obvious that the main object is to support the strength, removing or checking, if possible, at the same time anything that may be exhausting the system. If it has not gone too far, this treatment, with quinine and the mineral acids, will generally prove effective in arresting its progress.

Hedgehog.—This well-known little animal is called by naturalists the *Erinaceus Europæus*,



HEDGEHOG.

and is placed in the family *Erinaceidæ*. It is indigenous to our country, but is also found in Europe, Asia, and Africa. It is a very harmless little creature, living when in the wild state on slugs, snails, insects of various kinds, and probably roots; when tamed it will eat bread and milk; it is also kept in many kitchens for the purpose of destroying the common beetle or cockroach. When attacked it makes use of its spine-covered body as a protection, and rolls itself up into a ball for this purpose. The hedgehog is a hybernating animal. It brings forth its young early in the summer-time—four or five at a birth. They are, like dogs and cats, born blind, and have at first their spines quite white and soft enough to bend. It is a mistake to suppose that they suck cows, but they have a partiality for the eggs of birds, and thus sometimes destroy game.

Heelball.—A black composition used by shoemakers for filling up crevices in the edges of boot-soles and heels. It is also used for making rubbings from engraved plates, &c. This is done by laying white paper upon the engraved surface, and carefully rubbing it over with the heelball, the result being to show the pattern—all the raised parts in black, and the hollow ones in white. It is made in small flat cakes of a circular form, and appears to be a mixture of lamp-black and wax. It is sold by dealers in materials for shoemakers.

Heir is a person to whom lands, tenements, or hereditaments, by the act of God and right of blood, descend of some estate of inheritance. There are several kinds of heirs, as:—1. *Heir apparent.* He whose right of inheritance is indefeasible, provided he outlive the ancestor, as the eldest son, who must by the course of the common law be heir to his father on his death. 2. *Heir by custom.* He who is heir by a particular and local custom, as in borough English lands, where the youngest son succeeds his father; while in gavelkind lands all the sons inherit as parceners, and make but one heir. 3. *Heir general, or heir-at-law.* He who after his father or ancestor's death has a right to inherit all his lands, tenements, and hereditaments. 4. *Heir presumptive.* He who, if the ancestor should die immediately, would be his heir (as a brother or nephew), but whose right of inheritance may be defeated by the contingency of some nearer heir being born; or a daughter whose present hopes may be hereafter cut off by the birth of a son.

Heiress.—A female heir. Where there are several they are called co-heiresses or co-parceners. Estates descend to all females possessing an equal title thereto, the law of primogeniture not obtaining among women in equal relationship to their testator; they are, therefore, together deemed to be one heir.

Heirlooms.—Personal property which it is desirable should be kept with an estate, such as family pictures, jewels, or the furniture of the principal mansion, go by custom to the heir-at-law, and are then in popular language sometimes described as heirlooms. But heirlooms, strictly speaking, are only such chattels as by custom belong to the freehold; muniments of title, for example, and the chests in which they are contained. In a looser sense, any article of

personal property which has continued in a family for some generations is commonly styled a heirloom.

Helioscene Blinds.—These are placed outside to prevent the sun from unduly heating the window-glass, and for this purpose they are very useful. Their name has been bestowed from *helios*, which is Greek for "sun." They are made of very strong linen, usually a colour striped with white. There are differences of arrangement and form: some are made by certain contrivances to lower themselves in bonnet form, and some resemble the ordinary in-door blind; the latter are not satisfactory, because the weight of the material is considerable, and as a consequence the wheel, roller, and cord constantly get out of order. Another kind of these blinds is that which has the appearance of a series of flounces of linen, a short distance apart; the advantage of these is said to be that air can come in through the divisions as well as light, and that views of the outside world can also be obtained. Venetian blinds are sometimes placed outside; they exclude air and light to a great degree, and are not so pleasant as those of linen.

Heliotrope.—A popular garden and window plant, which from its peculiar scent is sometimes colloquially styled cherry-pie. It is easily propagated from cuttings in summer, and is a long time in flower when properly attended to. The perfume of the flowers can be extracted



HELIOTROPE.

by different processes, and is used for scenting pomades, or in the usual form of an essence for scenting pocket-handkerchiefs, &c. It may, however, be imitated by a combination of other ingredients, and this is sold as extract of heliotrope, though not a particle of the latter is contained in it. Heliotrope is also another name for the bloodstone (*which see*).

Hematite, or Hæmatite.—Another name for the bloodstone (*which see*).

Hemlock.—This is the *Conium maculatum*, or spotted hemlock, of botanists, and belongs to the natural family *Umbelliferæ*. It is a native of waste lands in this country, of Europe, Asia, and the cultivated portions of America; and possesses qualities which, although useful in medicine, rank it with the narcotic poisons. It is extremely valuable for allaying troublesome coughs, such as whooping-cough, &c. It is given also as an alterative and a resolvent, and also for rheumatism and cancer; but it should always be administered by a medical man only. It is used not only in powder and extract, but in juice and tincture, and externally by poultice. There is no known chemical antidote to poisoning by hemlock; emetics are, therefore, used as speedily as possible, and in severe cases artificial inspiration has been resorted to.

Hemp.—This strong and tough fibre is obtained from the plant *Cannabis sativa*, which is said to be a native of Persia, but is now extensively cultivated in Russia. The fibre is attached to a woody stem by glutinous matter, and a separation is effected by placing bundles in stagnant water. After being dried, the fibre becomes loosened. Cordage and sails are made of Russian hemp; ropes of Manilla hemp; coarse linens, such as huckabacks, of English hemp.

Hemp, Dyes for.—The same dyes are employed, and similar mordants, in the dyeing of hemp as in that of linen stuffs; but there is even less affinity in this substance to colouring matters than in linen. As it is a material chiefly employed for the manufacture of matting and ropes, the coarsest sail-cloth and huckaback, and of buckram, the difficulties which would be presented by subjecting hemp to any process of dyeing is of no importance.

Hemp-seed is used as food for cage-birds, and also crushed for the oil it affords. This oil is much used for lamps in Russia, and in making paints and varnish in this country.

Hems and Hemming.—The material should be cut by a thread before hems are turned down, for no hem will remain straight if the material is crooked. If the hem is to be sewed by machine, the first turning should be fully as broad as the hem; this depth is not required when sewed by hand. When the hem is broad, an exact measure should be taken by marking a card, and repeated measurements should be made with it. In hemming, the needle should be put in the work in a slanting direction, and not straight upwards. Neatness and regularity of size of stitches and space between should be observed.

Henbane, called by botanists and medical men *Hyoscyamus niger*, belongs to the natural family *Solanaceæ*. Henbane is a plant of no very sweet savour that grows to the height of two feet, in uncultivated grounds, wastes, or commons, and flowers in July. Being used in medicine, it is cultivated to some extent in several parts of England, such as Cambridge, Mitcham, &c. The leaves of the plant are used officinally, an extract or a tincture being made from them. It is given in many painful affections, as for rheumatism, neuralgia, and cancer. It is also given to calm the nerves and soothe mental irritation in some cases of sleeplessness, and, combined with camphor and ether,

to allay palpitation of the heart. On the whole, it is a very valuable remedy, but should only



HENBANE.

be prescribed by a medical man, as in large doses it is a narcotic poison.

Henna, sometimes likewise called Hinna, and by botanists *Lawsonia alba*, belongs to the natural order *Lythraceæ*. It is a thorny plant much cultivated by the Arabs and Indians in their gardens. The women of Asia dye their nails an orange colour with it, as well as the tips of their fingers and the soles of their feet. The men use it at times to dye their beards, the orange colour produced being afterwards changed to black by the application of indigo. It seems to have been in use for this purpose from a very early age.

Hepatic.—This is the term used by medical men to signify the diseases and disorders which are connected with the liver. Thus an abscess of the liver is called hepatic abscess. Inflammation is called hepatitis; biliousness, hepatic derangement; and so on. The term is derived from the Greek word for "liver."

Heptarchy, compounded of the Greek word signifying "seven," is a government of seven persons, or a country governed by seven persons or divided into seven kingdoms. The Saxon heptarchy included all England, which was cantoned out into seven petty independent kingdoms, peopled and governed by different clans and colonies—viz., those of Kent, the South Saxons, West Saxons, East Saxons, Northumberland, the East Angles, and Mercia. The heptarchy was formed by degrees, commencing in the year 455, when first the kingdom of Kent was erected, and Hengist assumed the title of King of Kent immediately after the battle of Aylesford; and it terminated in 827 or 828, when King Egbert re-united them into one, made the heptarchy into a monarchy, and assumed the title of King of England. King Egbert, however, did not become perfectly absolute. The kingdom which he actually possessed consisted of the ancient kingdoms of Wessex, Sussex, Kent, and Essex, which had been peopled by Saxons and Jutes. As for the other three kingdoms, whose inhabitants were Angles, he contented himself with preserving his sovereignty over them, permitting them to be governed by kings, who were his vassals and tributaries. The government of the heptarchy, reckoning from the founding of the kingdom of Mercia, the last of the seven Anglo-Saxon kingdoms, lasted 243 years; but if the time spent by the Saxons in their conquests from the arrival of Hengist in 499 be added, the heptarchy will be found to have lasted 378 years from its commencement to its dissolution. The causes of the dissolution of the heptarchy were—the great inequality among the seven kingdoms, three of which greatly surpassed the others in extent and power; the default of male heirs in the royal families of all the kingdoms, that of Wessex excepted; and the concurrence of various circumstances which combined in the time of Egbert.

Heraldic Devices in Needlework.—These look best when executed with floss, filoselle, or purse-silk, upon cloth or canvas. The device must accord with the laws of Heralds' College both as to form and colour. It should be carefully traced, and worked in fine small stitches, so that no marked distinction may be noticeable between one and another. The shading should be carefully observed.

Heraldry.—This term comprehends all the multifarious signs and symbols which form the compositions of armorial bearings. In its early stage it consisted in the knowledge of arranging the order of processions and public ceremonies, for then there was no prohibition to the assumption of arms, crests, or mottoes. In the fourteenth century regulations were issued in consequence of the confusion which had arisen, and from that period it was considered illegal to assume any or other arms than those claimed by descent or granted by special authority. Various parts of heraldry are described in this work under their respective headings.

Heralds' College was formed in the fifteenth century by Richard III. The body corporate consists of a president, three kings-of-arms, six heralds, and four pursuivants. The office of president is an hereditary one, and is held by the Duke of Norfolk as Earl Marshal. The college is situated in Doctors' Commons. To it persons apply who wish to have pedigrees traced, titles proved, or to gain leave to resume disused coats of arms or crests.

Herbarium.—This word is used to denote a collection of dried specimens of plants, intended for future study and examination by botanists. Plants intended to be placed in the herbarium should be gathered on a dry day, and put in a tin box called a vasculum, which is obtained for the purpose, and in which they will keep fresh for some hours. After all moisture has been removed, the specimens are laid between sheets of botanical paper, care being taken that they shall as much as possible retain their natural appearance and position. These sheets are then placed between boards, and pressure is applied, at first gently, but increasing as the plants become dry. It is

necessary that the flower and leaf should always be exhibited, and as much as possible of the rest of the plant. Herbaria are generally systematically arranged. The preparation of them is exceedingly interesting, and when the different specimens are well preserved, they are as useful to the botanist as the living plants, and have assisted greatly in the study of botany. Some herbaria are consulted at the present day which have been in existence in past centuries; and in order to preserve them from the ravages of insects, camphor or a little corrosive sublimate may be employed.

Herbs, Drying. (*See* DRYING HERBS, &c.)

Herbs, Sweet.—In former times the word herbs included all the green herbs provided for the service of man; now it is generally confined to those plants used as flavourers in cookery or as ingredients in domestic medicine. Apart from the value of herbs in cookery, herbs have a stimulating effect upon the system, and when mixed with food in small quantities are beneficial. If taken in large quantities, however, many of them are highly injurious. The cultivation of herbs is very simple. As the English climate is specially suited to the growth of aromatic plants, herbs grow in England in great abundance.

Hereditaments.—The most comprehensive word for the description of lands or houses, it signifying every kind of property that can be inherited. Hereditaments are corporeal or incorporeal: corporeal are tangible, and mean the same thing as lands or houses; incorporeal hereditaments are not tangible, but are the rights, profits, or conveniences annexed to or enjoyed with lands or houses, such as rents, services, tithes, commons, and other profits in *alieno solo*, pensions, offices, franchises, liberties, villeins, dignities, lights, ways, &c. There is a third signification of this word, wherein it is used to denote inheritable rights relating to land, or something issuing therefrom or exciseable therein, or having some local connection or relation distinct from the enjoyment of the land itself. In this view hereditaments divide themselves into real, personal, and mixed, and therefore, as was said before, they are applicable to all the kinds of property.

Hereditary Right to the Crown.—The Crown of England, by the positive Constitution of the kingdom, has ever been descendible, and so continues in a course peculiar to itself, yet subject to limitation by Parliament; but notwithstanding such limitation, the Crown retains its descendible quality, and becomes hereditary in the Prince to whom it is limited.

Hereditary Tendencies.—The doctrine of what may be called inherited faculties seems to be regarded with favour by many modern physicists. It is maintained that children inherit the intellectual bias and character of their parents or of some remoter ancestor, and that in the same way they become the heirs of the good and evil habits and propensities of their fathers or forefathers. No one doubts that the features of the face, the colour of the hair, and many other physical characteristics may be inherited; and it is equally true of such peculiarities as the tone of the voice, gait in walking, and temper or disposition. The very diseases which parents have contracted, or have themselves inherited, are passed on to their children. To all these departments of human existence the principle of hereditary tendencies is applied. Probably the notion is by some carried too far, and it is one which may be turned to either bad or good account; but truth underlies it, and the social reformer will know how to use it. Where intellectual and moral qualities are concerned, the true man of science will devise means for strengthening and educating the right, for keeping down and extirpating the bad, by bringing the proper influences to bear upon the mind and heart, in which good work he will be greatly aided if he can awaken and keep in active exercise the sense of moral responsibility in the subject of his efforts. With regard to hereditary tendencies to disease, little can be said: they are but too well known to the medical profession, who nevertheless find their knowledge of the facts a very valuable acquisition. It will scarcely be expected that we should here give a catalogue of what might go under the name of hereditary tendencies, nor indeed could we draw up a complete list if we would. The doctrine has been applied to the lower animals, and some singularly interesting phenomena, such as those of migration, have been tentatively explained by it. The whole theory and its possible applications may be commended to the attention of all thoughtful people.

Hermetic Sealing. — This is adopted wherever it is necessary to exclude air or prevent the escape of a subtle spirit. Chemists most commonly seal hermetically by heating the neck of the vessel in a flame till it is sufficiently softened to be twisted tightly together with a pair of pincers. The word hermetical is derived from Hermes or Mercury. Chemistry was originally known as the hermetic art, on the supposition that it owed its origin to the Greek god Hermes or Mercury. Glass stoppers well luted are also used for sealing hermetically.

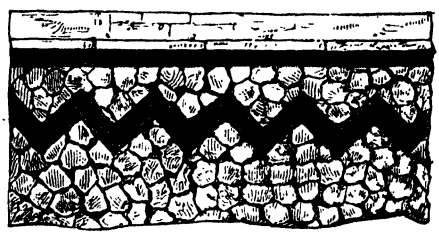
Hermitage Wine.—Wine known under this name is so called from the ruins of an old hermitage that is still in existence in the vicinity of the town of Tain, on the Rhone. The vines from which the wine is manufactured grow on the slopes of the hill at the summit of which the old hermitage stands, and they are remarkable for the fine rich juice they contain. Red hermitage is highly esteemed for its dark purple colour and for its full body; the high colour, however, greatly diminishes with age. In the St. Peray district, where the hermitage is situated, five different specimens of hermitage wine are produced. The best of these is the *ermitage paille*, which is very choice and expensive.

Hernia.—By hernia, or rupture, is meant the protrusion of some portion of the bowels through the abdominal walls. Naturally the accident occurs most frequently where the parts are weakest, as, for example, where important vessels have to pass outwards, and hence we find it for the most part in the groin. Hernia

is usually the result of a violent strain, as in jumping, lifting a heavy weight, &c., and is first observed as a soft compressible tumour, which receives an impulse from coughing, and is, if not strangulated, unattended by pain. This tumour generally goes back into the abdomen at night, only to protrude again upon getting up in the morning. This is a simple reducible hernia, or rupture, which necessitates the use of a proper instrument called a truss, which is worn during the day and taken off upon getting into bed. There is another form of hernia which is called irreducible. This, from such causes as adhesion, enlargement of the omentum, &c., does not go back into the cavity of the abdomen as the reducible hernia does, and has to be supported by a different sort of instrument. Hernia, whether reducible or irreducible, need not, with proper care and under ordinary circumstances, be attended by danger. It is only when, as the result of an accident, or from derangement or obstruction of the bowels, the rupture becomes strangulated, preventing the passage of the usual secretions, that danger arises. This condition, called strangulated hernia, is recognised by acute pain at the seat of rupture; by sickness, soon followed by vomiting, which becomes fæcal if the strangulation is not soon relieved; by a foul tongue, weak pulse, and general symptoms of collapse. The treatment of this condition is, in the first place, to send without any delay for a medical man. Before his arrival, however, the patient may lie on his back, and with his knees drawn up may gently knead the tumour, with the object of getting it back. A warm bath will often aid this effort, and a full dose of laudanum or sedative solution of opium may be taken at the same time; this failing, the application of ice may be tried. If successful, the tumour will disappear with a little snap and gurgle, and there will be instantaneous relief. Should this, however, not be the case, nothing more can be done until the arrival of the medical man, who may reduce the rupture by a more scientific manipulation, or by putting the patient under the influence of chloroform, or, failing this, by a surgical operation. After an attack of strangulated hernia, the bowels should be kept quiet for two or three days. To ensure this, a dose of opium is usually necessary.

Herring.—This well-known fish belongs to the family of *Clupeidæ*, a branch of the order *Malacopterygii*. Herrings abound in the seas of the northern part of the world, but are more common in those of the temperate than of the Arctic regions. The annual shoals of herrings begin to appear off the Shetland Isles in the months of April and May, and by the end of June and in July they arrive in vast numbers. The largest quantities of fish, however, are caught in August and September, at which time the herring fishery becomes general on all parts of the British coast. Herrings generally swim near the surface of the water, and extend over the sea for miles. They are usually followed by multitudes of larger fish which prey upon them, and they are greedily devoured by sea-birds; besides which, immense numbers are taken by the net; yet so exceedingly prolific are they that this wholesale destruction appears to make no diminution in their numbers. In order to give an idea of their fecundity, it may be stated that as many as 68,000 eggs have been counted in the roe of a single female herring. The herring fishery, and the preparation of salted, dried, and smoked herrings, give employment to thousands of persons both in the British Islands and in Holland. The Dutch fishery is of great importance, and the prosperity of Holland is greatly owing to it. There is an old saying that Amsterdam itself is built on herring-bones. At the present time, however, the Dutch trade is exceeded by that of Scotland, which is the largest in the world. There is reason to believe that the fishery and commerce of herrings have been carried on in England since the beginning of the eighth century. It is said that, according to ancient charter, the town of Yarmouth was bound to send a hundred herrings baked in pasties annually to the king; and it is recorded that in the reign of Edward I., Eustace de Corson, Thomas de Berkedich and Robert de Withen held thirty acres by tenure of supplying twenty-four pasties of fresh herrings for the king's use, on their first coming into season. Considered as food, the herring is both excellent and wholesome. It is rather oily in its nature, and consequently is not very easy of digestion, but it is exceedingly nutritious; and under ordinary circumstances, a fresh herring offers the largest amount of nutriment for a given sum of money of any kind of animal food. According to Dr. Smith, a fresh herring weighing four ounces and a half, and costing one penny, contains 240 grains of carbon and 36 grains of nitrogen; and a dried herring weighing three ounces contains 269 grains of carbon and 41 grains of nitrogen. The largest and best flavoured herrings are obtained from Loch Tyne.

Herring-bone, in architecture, is a peculiar arrangement of the courses. The stones, instead of being laid horizontally or perpendicularly, are placed standing on their edges; a first course leaning to the right may be succeeded



HERRING-BONE WORK.

by a second sloping in the contrary direction. Between two courses so arranged a row of flat stones may come horizontally, and other variations may be met with, introduced for the sake of effect.

Herring-bone Stitch is used for all flannel work; the edges of flannel being turned down, but not turned under, and this stitch preventing the edge from roving. Progression is

effected by going backwards. A series of cross stitches are made resembling the letter X. Unlike ordinary hemming, in this instance the needle does not pass through the single and double material at once, but takes one stitch on the hem and one entirely off it, alternately. The excellence of this work depends upon the regularity of size in the stitches. As so much thread is visible, it should never be very thick.

Hessian.—A strong coarse cloth made of hemp, much used for packing bales of goods.

Hessian Boots.—High boots with tassel in front, worn over tight trousers, much used in the last century by military officers. This style of boot superseded that of the top boots, and in its turn gave place to Wellington boots.

Hiccough, or Hiccup.—This is due to a contraction of the diaphragm, the muscular expansion which forms the floor of the chest. The cause of hiccough is not very clear. In its ordinary form it will often be stopped by drinking cold water or sucking ice. The attention should be distracted as well by some absorbing employment. Children are usually cured by frightening or exciting them in some way. When it assumes the hysterical form, as it occasionally does with women, and becomes troublesome, the galvanic battery may be applied with advantage, one pole being placed at the pit of the stomach and the other at the corresponding part of the back. Hiccough is frequently a sign of approaching death in gangrene and other malignant diseases.

Hickory.—This wood grows in this country, and on a very large scale in the United States. It is a cross-grained heavy wood, red at heart, and of great strength and toughness, liable to decay when exposed to the weather, and very much subject to the attacks of worms. Several species of the hickory-tree exist, but in their woods we find no perceptible differences. It is chiefly used in the making of carriage-shafts, screws, chair-backs, handles of whips, hoops, presses, bows, wooden cogged wheels, and for a large variety of other purposes. In North America, where it is most abundant, hickory wood is largely used for fuel.

Hiera Picra.—An old-fashioned and once very popular remedy, the name of which literally means "holy bitter," but which is a compound of powdered aloes and powdered white canella. It is used as a domestic medicine and by veterinary surgeons. The most common use of it is in cases of constipation, for which it is not unsuitable, the canella being a stomachic, and the aloes a laxative. As sold in the shops, the ingredients may somewhat vary in their proportions.

Hierarchy.—Government in religious concerns and ceremonies, consisting of bishops, priests, elders, or chief ministers, &c., according to the church or sect, and these constitute the hierarchy of such church or sect, whether in the Churches of England, Scotland, Geneva, or Rome, or among Dissenting communities.

High Steward.—A legal dignitary of high rank, who presides over a court known as the "Court of the Lord High Steward," instituted for the trial of peers indicted for treason or felony, or for misprision of treason. It is a very ancient court, and the proceedings from the Queen's Bench Division of the High Court of Justice, on the finding of an indictment by a grand jury, or at the assizes, are removable into this court by writ of certiorari. The Sovereign appoints to the office. The proceedings are pretty much the same as on a trial by jury, but no special verdict is given, the judges being competent to deal with the whole case.

There is also the *High Steward of the University of Oxford*, who is the president of a chartered court for the trial of criminal offences committed there. This officer is nominated by the Chancellor of the University, and approved by the Lord High Chancellor of England. A similar jurisdiction was formerly exercised by the University of Cambridge, but it has been abolished by Statute 19 & 20 Vict. c. 17.

Highness.—This title, with that of "Grace," was at one period used when addressing the English Sovereign, but now only when speaking of or to children of royal personages. The form of usage is "Your Royal Highness" for the children of kings, "Your Imperial Highness" for those of emperors.

Highways.—The public roads or ways of the kingdom, which all subjects have a right to use. They exist either by prescription, by local Acts of Parliament, or by dedication to the use of the public. The liability to keep highways in repair, however they may have originated, attaches generally to the parishes through which they respectively pass. Sometimes it attaches by prescription to particular townships or divisions of parishes, and sometimes to private individuals, who are bound in right of their estates to repair the same. The Statute regulating highways is 5 & 6 Wm. IV. c. 50 (amended by 4 & 5 Vict. c. 51 and 59; 8 & 9 Vict. c. 71; 25 & 26 Vict. c. 61; and 27 & 28 Vict. c. 101), which has repealed all former enactments on the subject, and applies to all highways whatever, except turnpike-roads, and roads, pavements, or bridges falling under the provisions of local Acts of Parliament—a description which applies generally to the streets of towns. Highways are by the above Acts placed under the care of surveyors (appointed for the respective parishes interested), under the control and superintendence of the justices of the peace, at special sessions to be holden for the highways. By the Public Health Act, 1875, the powers and duties of surveyors of the highways and vestries under the above-mentioned Act of William IV. are vested in urban authorities; and by 35 & 36 Vict. c. 79, the powers of the Secretary of State under the Highway and Turnpike Acts are transferred to the Local Government Board. The highway rate necessary for the maintenance and repair of the highways is to be made and signed by the surveyor, who keeps accounts, which may be seen at all reasonable times by the rated inhabitants without fee or reward. The yearly account is laid before the vestry, and examined and passed before the justices at special sessions, as mentioned above. The high-

way rates are made applicable to turnpike-roads in certain cases. (See the Statutes 4 & 5 Vict. c. 59, and 23 & 24 Vict. c. 67.)

Hinges.—These are constructed in various ways, according to their purpose, and are either plain or richly ornamental. In the commonest the construction is exceedingly simple, being that of a hollow cylinder working round a fixed central pin. In some cases, where great weight is concerned, hinges are so constructed that the principal share of the friction is borne by a hollow fitting a sphere, the latter being formed, as it were, upon the end of a pin, and having a cavity provided for the reception of oil to lubricate the rubbing surfaces. Other hinges are made resembling the first we have mentioned, but having the hollow cylinder divided by a kind of spiral line, instead of transversely at right angles, thereby causing the door to rise slightly when it is opened, and so avoid rubbing or pushing up a mat or carpet. Spring-hinges are made, which ensure the closing of doors after they are opened. For door-flaps, and other doors intended to open in every direction, hinges are constructed on the ball-and-socket principle.

Hinna. (*See* HENNA.)

Hip-bath.—This is a form of bath in great request. It is so constructed as to be capable of being used either for the daily cold or tepid sponge, or as a warm bath in time of sickness. It should be always sufficiently large for the latter purpose. No house should be without one or more hip-baths. (*See* BATHS.)

Hips.—This is the fruit of the dog rose, or *Rosa canina*, which grows so plentifully in our hedges and thickets. It contains tannin, sugar, and citric and mallic acids, and is somewhat cooling and astringent. It is employed, therefore, in medicine in the shape of confection. The hairy seeds are first removed, the hips are then beaten to a pulp in a mortar, rubbed through a sieve, and afterwards mixed with double its weight of sugar. This confection is chiefly used as a vehicle for other medicines, especially in making pills of quinine.

Hips, Ailments of.—Dislocations, rheumatism, sciatica, &c., are the most important ailments of this region, and these will be found described under their respective headings. One ailment, however, and by no means an uncommon one, may be briefly alluded to here—viz., hip-joint disease. This is caries, or ulceration of the bones and cartilages which form the joint, and is usually of scrofulous origin. The earliest symptom is one which in the case of children should be anxiously watched—viz., a dragging of the affected leg with a feeling of weariness, and perhaps some pain in the joint. As the disease progresses, the pain is more frequently referred to the knee, becomes more intense, and even excruciating, if the cartilage is ulcerating; the hip has a flattened appearance, and for a time there is, in some cases, a real or apparent shortening of the limb, in others a real or apparent lengthening. After a variable time the leg becomes shorter, the wasting continues, and usually an abscess is formed, which may open in the groin or in the thigh, or it may burst through the pelvis into the lower bowel. The treatment of this formidable disease is, in the first instance, to ensure complete rest of the limb by means of a long splint properly adjusted, and by keeping the sufferer in bed or on a couch. Cod-liver oil, iron, and all the remedies suitable for the scrofulous condition must be administered; but it will be many months, even in the most favourable cases, before it will be safe to use the limb. When matter forms it must be relieved in such a way that air shall not enter as the matter escapes. In favourable cases the patient sometimes gets well, with perhaps a stiff joint only; but in a great number of cases the result is not so favourable, and either excision of the joint or amputation of the thigh has to be resorted to. If this is not done, the patient usually dies from hectic fever, produced by the protracted discharge of matter from the diseased parts.

Hiring Carriages. (*See* CARRIAGES, HIRING.)

Hiring Horses. (*See* HORSES, HIRING.)

Hiring Servants. (*See* SERVANTS, HIRING.)

Hitch.—1. To check the speed of a running rope, or temporarily to stop it altogether, sailors and others by a dexterous twist coil or throw their rope into a noose or simple kind of knot, which is called a hitch. There are several varieties. (*See* KNOTS.) 2. A check or sudden obstacle in the way of carrying out some business or project. Hence, "a hitch in the proceedings" means a hindrance or impediment which holds them back and in suspense.

Hoarseness.—This is an affection due to a variety of causes, the most common of which is catarrh or cold. It may result also from over-straining the voice, as in excessive singing, shouting, and long-continued speaking, and is therefore frequent amongst singers, street vendors, and public speakers. In the advanced stages of consumption hoarseness is often present, and is due to an ulcerated condition of the throat and larynx. If cold is the cause, inhalations of hot water at a temperature of 140°, and confinement to a warm room for a few days, are all that is requisite. If from excessive use of the voice, rest and inhalations as just mentioned will do good, especially if combined with the internal administration of ten-grain doses of nitrate and chlorate of potash, in an ounce of cold water, two or three times daily. Sal prunella, or saltpetre (nitrate of potash), fused into little balls, is a favourite and useful remedy for hoarseness. The ball is allowed to dissolve slowly in the mouth. In the hoarseness of consumption, also, the remedies just mentioned will be found useful. There is a form of this affection which is, more correctly speaking, aphonia, or loss of voice, which may be mentioned here. It is common amongst hysterical women, and the person affected can speak only in a whisper. It comes on quite suddenly, and, as a rule, after a variable time disappears. If troublesome, and the case is a suitable one, galvanism may be tried, and will often be found successful.

Hob.—This word is derived from the Anglo-Saxon verb *habban*, to hold. It means that part of the grate on which anything is placed which is to be kept warm. The chimney-corner, where at one time a settle stood on each side, was also called "the hob."

Hobnail.—This is a nail having a thick strong head, and used for giving strength to the soles of heavy boots and for shoeing horses.

Hock.—In this country the German wines produced on the banks of the Rhine generally pass indiscriminately under the name of hock. This name is derived from the town of Hochheim, which is situated on the river Main, on the sunny slopes of which the vines are grown from which the wine is manufactured. These wines are mostly white. The best of them is the Schloss-Johannisberger, made from vines grown under the walls of the old abbey of Johannisberg, on Prince Metternich's estate. The old monks were particularly careful of the produce of their vineyard, and curiously enough the finest Johannisberg is made from vines which grow over and near their cellars. The Steinberger wine is sometimes said to rival even the precious Johannisberg. Both these wines are very choice and costly, although the Steinberger is the stronger of the two. Of the other Rhenish wines which pass under the general designation of Hock, the best known and most esteemed varieties are Rüdesheim—a particularly choice wine produced from a vineyard which was said to have been planted by Charlemagne—Marcobrunn, Geisenheim, Raüenthal, Rothenberg, and Nierstein. These wines are all white, and are full of aroma; they are amongst the most enjoyable wines which can be placed on the table. Their fermentation is perfect, and though they are not, strictly speaking, acid wines, they possess a slightly acid flavour which renders them sweet and cooling. They are prepared with great care, and are kept in the cask for several years before they are bottled; but notwithstanding this they are rarely to be had perfectly clear. Of the red varieties of hock the best is grown at Asmannhausen, a village near Rüdesheim. Sparkling hock is preferred by many to champagne. It is lighter and has a cleaner taste, and is very delicate in flavour. It is superior to the sweeter kinds of sparkling champagne in this, that it far more rarely upsets the stomach than they do.

The name of hock is also occasionally applied to that part of the leg of an animal which is between the knee and the fetlock.

Hockey.—A game popular throughout the United Kingdom, and known as hockey in England, shinty in Scotland, and hurling in Ireland. It is played on a ground marked out very much as for football (*see* Football), and with two goals. A hard ball of small dimensions is used; it should be made of some material well adapted to stand the repeated blows of the hockey-sticks—such as india-rubber, wood, or cork, covered with a lacing of cord. A large bung in its natural state, or strongly quilted over with string, is often used. The object of each side, or set of players, is to strike this ball with their hockey-sticks through their opponents' goal. The hockey or hookey-sticks vary very much in shape according to the option of each individual player, but in their general form they consist of a straight stick with a hook or crook at the striking end. There is hardly any limit to the number of players that may form sides and play this game. In frosty weather it is often played on the ice by skaters and others, and affords much amusement. As, however, players have little command over their strokes on the ice, the game thus played is in some measure dangerous.

Hog-nuts. (*See* Cob-nuts; Pig-nuts.)

Hog's-lard. (*See* Lard, Hog's.)

Hogshead.—An ancient measure of capacity containing for wine 63 gallons, and for beer 54 gallons, both in old measure. A hogshead of claret contains about 46 imperial gallons. (*See* Weights and Measures.)

Holdfast.—This is a name given to a long nail or spike with a flat head, used for driving into brick walls, and for other similar purposes. A large piece of iron shaped like the letter **S**, and used for strengthening walls, is also known as a holdfast. The term is used by carpenters, cabinet-makers, carvers, &c., as the name of a tool which is attached to the bench, and used to hold securely and firmly material which is being worked by the hands.

Holding Over.—A legal term signifying the act of keeping possession of premises by a tenant or lessee after his interest therein has expired, the consequence of which is in general a liability to pay rent to the amount of double the yearly value of the premises.

Holibut. (*See* Halibut.)

Holidays.—Those days, exclusive of Sundays, on which no business is transacted at public offices, nor generally elsewhere. These days vary very much in the different Government offices, &c.; what are known as Bank Holidays, however, are now these most commonly observed. (*See next paragraph.*)

Holidays, Bank.—Special days set apart by the Bank Holidays Act as those on which all banks are to remain closed, and generally observed by the commercial world as public holidays. In England and Ireland the Bank Holidays are as follow:—Good Friday, Easter Monday, Whit Monday, the first Monday in August, Christmas Day, and the 26th of December (or the 27th of December, should the 26th be a Sunday). In Scotland the Bank Holidays are Good Friday, the first Mondays in May and August, Christmas Day, and New Year's Day; if either of these last fall on a Sunday, the day following.

Hollands. (*See* Geneva.)

Hollands.—Unbleached linens which bear the name from being first manufactured in that country. The two kinds are glazed and unglazed—both are very serviceable materials: the former is useful for the linings of trunks, and for chair and carriage covers, its gloss keeping it clean for a considerable time; the latter is used for children's frocks and pinafores, for

which purpose it is specially suited, being strong and easily washed.

Holly.—The common holly (*Ilex aquifolium*) gives a fine-grained, heavy, white, compact wood, which is used chiefly by the turner and the mathematical-instrument maker. It is a prickly shrub, and is useful for hedges, being thick and impenetrable. The variegated hollies are very remarkable for their beauty; some of them bear white, others yellow berries, which, although birds eat them, are poisonous. There are sixteen distinct species of this shrub or tree. The common holly is usually from twenty to thirty feet in height; it bears cropping well, and its verdure does not suffer. The bark of the holly produces the common bird-lime (*which see*).



HOLLY.

Hollyhock, the *Althæa rosea* of botanists, belongs to the natural order *Malvaceæ*. In China this plant grows wild. Hollyhocks are of different colours, and are now exceedingly common in English gardens. They require good garden soil, about two feet deep, and well mixed with decomposed manure. They are probably best propagated from cuttings in the spring-time, but may be so from single eyes in July or August. The young plants should be taken up in October, and placed in roomy pots, in light, rich, sandy earth; they are turned out in March, and should be planted in rows or beds, three feet apart from plant to plant, and four from row to row. They must be staked to make them grow straight, and frequently watered. If nicely grouped according to shade of colour, they make a very nice show.

Home-sickness, or Nostalgia, is a peculiar morbid sensation which overcomes all rational argument, and fills the patient with an irrepressible longing for a distant home. Persons who have left retired and mountainous places where they were born and brought up are said to be most liable to this malady. The cases of certain Swiss and Scotch regiments are usually referred to in illustration. The anxious wish to go home, if not complied with, is followed by failure of the appetite, loss of sleep, melancholy, and possibly lung disease. Of course the remedy is obvious, but to prevent the disease is less evident. It may be aggravated by the association of ideas due to anything which forcibly revives the scenes of the past. To such an extent has this been true that even national airs have had to be prohibited among troops engaged in foreign service. The faculty which gives rise to nostalgia is an important one, and no doubt has an immense influence in bringing together the scattered members of communities which would otherwise soon cease to exist.

Homicide.—The act of taking away human life. It is either *felonious*, as in the cases of murder and manslaughter (*which see*); or *excusable*, as where the act occurs through accident, ignorance, or necessity; or *justifiable*, as the execution of a criminal by the proper authorities, the death of a person in resisting capture by a police-officer, &c., or where the death occurs in self-defence.

Homing.—A term applied to a characteristic of various sorts of pigeons, which have the faculty of finding their way home after being carried a distance of many miles. These homing or carrier pigeons have been used to convey intelligence from the race-course and the stock exchange, from ships at sea and besieged cities. This faculty is not properly an instinct, but is due to intelligence, which is very much developed by training, but is, however, useless in a fog or in the dark.

Hominy.—An American preparation of white Indian corn, shelled from the cob, divested of the outer skin by scalding in hot lye, and then winnowed and dried. It is quite white. For use, wash it in two or three waters, pour boiling water on it, cover it, and let it soak all night. Then put it into a saucepan, add two quarts of water to one of hominy, and boil till perfectly soft; after which drain it, put it into a deep dish, add butter, and send it hot to table uncovered. It is eaten with any meat, but chiefly corned beef or pork. What is left cold may be made into thick cakes and fried in butter. Hominy should boil four or five hours. What are called hominy cakes are a mixture of hominy, salt, fresh butter, eggs, and milk. They are baked on a griddle, and eaten hot with butter. There are other preparations.

Homœopathy.—In the popular mind this is pleasantly associated with the idea of physic in the smallest of doses, and of magical effects by the minutest of agents. This, however, is not the principle of homœopathy, which was introduced in 1810, or thereabout, by Dr. Hahnemann, a German physician, who had made a new application of the old adage, *Similia similibus curantur*. In former times this idea of like being cured by the like was taken to mean very curious things. External resemblances between a plant-leaf, for example, and the lungs or liver were construed into evidence that nature pointed out a remedy. Some very ludicrous results ensued of course. Dr. Hahnemann's view was that diseases could be cured by means of remedies which, when administered to one in health, would produce symptoms like those of the disease to be acted upon. This is the foundation; then comes the doctrine that the curative power of a drug increases in proportion to its minute subdivision. The conclusion is that infinitesimal doses are always best. It is not for us to enter into the merits of the system, its mode of treatment, or its Pharmacopœia; but we have no doubt that with other systems of medical treatment it has its particular advantages.

Hone.—The hones and oil-stones used for setting the edges of cutting tools are obtained

from different sources, and are various in kind. They are found in many countries, and in comparatively small pieces. To prevent the hone from breaking, and protect its oily surface from dust, it is usually mounted in a piece of hard wood, and provided with a wooden cover. In setting chisels and straight-edged tools upon the hone, they should be so held that the hands move nearly at right angles to the line of the cutting edges; but it is sometimes desirable, as in the case of carpenters' gouges, to set the edge by moving it in the direction of its length, for which purpose the tool is held with the right hand, bearing to one side of the stone, so that every portion of the edge may be brought in contact with its surface at each stroke, backward or forward. The chief kinds of hone and oil-stone are the Washita, used where a coarseness of edge is of small importance; the Turkey, which varies greatly in quality, and is used for securing a finer edge; the Charnley Forest stone; the Canada oil-stone; the Grecian hone; Welsh oil-stone; Arkansas oil-stone, a superior kind used for surgical and other instruments that require extremely careful and perfect setting; German hone, a fine soft kind, chiefly used for razors; and others.

Honey and Honeycomb.—The sweet substance called honey is collected by the working or neuter bees, for their own use, from the juices of the nectaries of flowers, then taken possession of and consumed by man. It consists of syrup or sugar mixed with odorous gummy colouring, and waxy matter. It varies much both in colour and thickness, and partakes of the qualities of the flora of the locality from which it is gathered. It is on this account that the honey obtained in one district will be mild and bland, and in another aromatic and stimulating. English honey is collected from heather and broom, and is more waxy and of a very different flavour to that which comes from the south of Europe. Narbonne honey is produced from rosemary, and is very fine. The honey of Mount Ida, in Crete, is peculiar for its fragrant odour and choice taste; the honey of Surinam and Cayenne is red; that of Madagascar is green; while the honey of Trebizonde, on the Black Sea, is poisonous in its character, and causes giddiness, vomiting, and a kind of intoxication. It is said that it was this honey which poisoned the soldiers of Xenophon, according to the record of the Retreat of the Ten Thousand. When honey is good it is nourishing and slightly laxative in its action. It is employed in the preparation of gargles, and is highly valued as an emollient and demulcent. It is not, however, particularly digestible, and in a disordered condition of the stomach may cause or increase dyspeptic symptoms. Honey has been employed from the remotest times as an article of food, and the ancients, who were unacquainted with sugar, valued it even more than we do. Among Eastern nations, "a land flowing with milk and honey" was a proverbial expression for a land possessing the highest conceivable advantages. Aristotle and other learned writers did not know where honey came from: they thought it fell from heaven like rain, and they regarded it as the food of the gods. Pliny was uncertain whether it was a juice that came from the stars, or was formed by the purification of the air and afterwards collected by bees. It is mentioned by writers of antiquity of all nations, and has been a source of profit in all ages. In our own land honey has always been highly esteemed, and in country districts it is a common thing to meet with cottagers who keep hives, and materially increase their income by the sale of the produce of the bees. Hives vary very much in the quantity of honey that is obtained from them; those of our cottagers which are robbed every year yield twenty to forty pounds, while in the American forests they have been known to contain more than two hundred pounds. Although this substance is produced at home in considerable quantities, it is also largely imported from abroad. What is called "virgin honey" is honey obtained from young bees which have never swarmed, although the term is also applied to that which flows spontaneously from the combs. It is much better than that which is obtained from the combs by heat and pressure, as the forcing process is sure to contaminate the honey with foreign matter. Virgin honey is pure and sweet, but the other kinds are of a deeper colour, and frequently possess a peculiar sticky, waxy flavour. They are always purified before they are used.

The *honeycomb* is the waxen structure made by bees to hold their honey and eggs. These combs consist of a series of hexagonal cells, which adhere to each other by their sides. These cells are constructed with geometrical accuracy; they are open to the bees till they have been filled with honey, and then they are closed with wax until the honey is required for use. They are, perhaps, the most surprising of all the works of insects.

Honey Soap. (*See* Soap.)

Honeycomb. (*See* Honey and Honeycomb.)

Honeycomb Pattern.—In silk, the material is run with needle and thread in diamond form, the thread is then tightened, when little cells appear. In knitting, the same effect can be gained by reversing the order of stitches, the cell made of plain knitting and the partitions of purled stitches.

Honeysuckle.—This plant is also called Woodbine, being probably a corruption of "woodbind," and is called by Milton the twisted eglantine. Its botanic name is *Lonicera periclymenum*, and it belongs to the natural family *Caprifoliaceæ*. Honeysuckle is a common twining plant well known in hedgerow and thickets. It bears irregular flowers of a pale yellow colour and fragrant scent, and is known to every country child from the honey they contain. The berries are red, or yellow and red, and formerly were supposed to contain medicinal qualities of some value. They are not now, however, used officinally. This beautiful trailing plant is very easily cultivated and trained, and adds a peculiar beauty to some portions of our gardens and summer-houses.

There are several varieties of honeysuckle, and they may all be propagated by cuttings. Let



HONEYSUCKLE.

each cutting have four joints, and only leave one above ground.

Honiton Lace. (*See* LACE.)

Honour, Maids of. (*See* MAIDS OF HONOUR.)

Honourable.—A title bestowed upon, and prefixed to the Christian name of, the younger sons of earls, and all the children, both sons and daughters, of viscounts and barons; also on maids of honour, and other persons filling certain public offices, as lords of session, &c. The title of *Honourable* is also prefixed to the description of certain public institutions, such as the House of Commons, the United States Congress, &c. Members of the House of Commons, though not entitled to the prefix of Honourable, are known as the "Honourable member for ———," &c. The title of *Most Honourable* is reserved for marquises and marchionesses; all temporal peers and peeresses of a lower rank (whether by right or by courtesy) are entitled to the prefix *Right Honourable*. The title Right Honourable is also conferred on the younger sons of dukes and marquises, and their wives; on all the daughters of peers above the rank of a viscount; on all privy councillors; and on several civic dignitaries, as the Lords Mayor of London, York, and Dublin, the Lord Provost of Edinburgh, &c.

Hoods.—Coverings for the head of a loose-fitting shape, designed to protect the ordinary out-of-door head-dress from inclement weather, as well as to add warmth, and to shelter the throat. They are made of various materials, are sometimes attached to a cloak or coat, or have a cape only. Hoods of oil-silk were formerly worn; now they are superseded by those of india-rubber or mackintosh, waterproofed tweeds, or of thick cloth to match the Ulster waterproofs and other overcoats. They are much used by soldiers, especially by foreigners, and sailors on Arctic expeditions. In Continental countries ladies wear them instead of hats or bonnets, of light scarlet cloth ornamentally trimmed. In this country they are generally used for going to evening entertainments. This latter description is lined with silk, and used to be called a *calèche*. Hoods are worn by Bedouin Arabs, by the monastic orders, and in former times were used at funerals in this country.

Hoods, Academic.—Ornamental folds of silk, satin, &c., worn over the gown, and hanging down the backs of graduates of a university to denote their degree. (*See* GOWNS, ACADEMIC.) Hoods vary very much in size, shape, and colour, since not only has each degree—whether in Divinity, Medicine, Law, Arts, Science, or Music—its own special hood, but each university has often its own distinctive set of hoods for the various degrees.

Hooks and Eyes.—A hook is an appliance used by dressmakers, upholsterers, sailmakers, and others, made of metal wire, and so bent as to hold the article, to which it is sewn securely, to another object, by means of passing the curved point through an eye or eyelet-hole. A piece of wire is bent in the middle, and the two ends are pressed tightly together; the part united at the end is turned over to form a loop, and the two ends are curled outwards on either side, forming two complete circles, by means of which the hook can be sewn to the article requiring it. The eye is made by bending the wire into a circle, in which to receive the point of the hook; and the two ends are curled outwards in a similar way to those of the hook, and for the same purpose. They are made of various sizes and metals, and for men's coats and women's dress are manufactured both in white and black.

Hooks, Curtain. (*See* CURTAIN RINGS, HOOKS, &c.)

Hoop-rings are now old-fashioned, and but rarely made. Those known as half-hoops have taken their place: in these the stones are set so as to extend across the top of the finger, and are not placed entirely round the ring as is the case in hoop-rings.

Hooping-cough. (*See* WHOOPING-COUGH.)

Hoops.—When used to extend the skirt of a lady's dress they were made of narrow bands of steel, whalebone, or cord, encased in parallel runnings round an under-petticoat. (*See* CRINOLINE.)

Hop-tops.—The young shoots of the hop-plant cut off in early spring have been used for the table. They are boiled, are somewhat like asparagus, and are accounted very wholesome. In times gone by they were a much more common dish than they are now.

Hoppers, Cheese. (*See* CHEESE-HOPPERS.)

Hops.—The hops of commerce are the strobiles or catkins of the hop-plant, which grows wild in Great Britain, and is indigenous in most countries in Europe. The active principle of hops is a bitter resinous matter called lupuline, and also an essential oil. Both of these act on the nervous system, and are extensively employed as a medicine, besides being

used in the manufacture of ale. The lupuline and the oil give to the hops their bitterness and aroma; and the real bitter ale, or that which contains the greatest amount of hops, is a better tonic than mild ale. The lupuline is a peculiar granular substance lying between the outer shell and the small kernel of the fruit. It is not a mere powder only, but each grain is a little organised cellular body, and in this substance exists the aromatic principle which is of so much value in brewing. According to all accounts, hops were cultivated in Germany in the eleventh or twelfth century, but they were not known in England until a much later period. They were at first regarded as dangerous, and during Henry VI.'s reign were condemned as an unwholesome and "a wicked weed." In 1530, Henry VIII. issued an order forbidding the servants of his household to add hops or sulphur to his beer; and later than this the Common Council of London petitioned Parliament against the use of hops, "in regard that they would spoyl the taste of drinks and endanger the people."

Horehound.—This is the *Marrubium vulgare* (natural order *Labiatæ*), a plant containing a bitter principle as well as a volatile oil.



HOREHOUND.

It was formerly much used as a tonic and expectorant in cough, affections of the liver, and debility, but is not now officinal. Horehound, however, is still a popular remedy, and in certain cases of ordinary cold and cough may do some good—at any rate it can do no harm.

Horn. (*See* HORNS.)

Horn.—A brass musical instrument much used in the modern orchestra and in military bands. Its "register" is tenor or bass, varying according to the key or natural bass note of the instrument. The orthodox horn possesses no valves or pistons, and produces but a limited number of notes—viz., the key-note and octaves, the fifth, flat seventh, eighth, ninth, and tenth, &c. Other notes are produced by the insertion of the hand of the player into the bell of the horn. The pistons introduced by Adolph Saxe have obviated the necessity of stopping the bell, but at the same time much of the soft "velvety" tone so characteristic of the horn family has been destroyed. The horn is a "transposing instrument" (*which see*), and music for it is written in the violin clef.

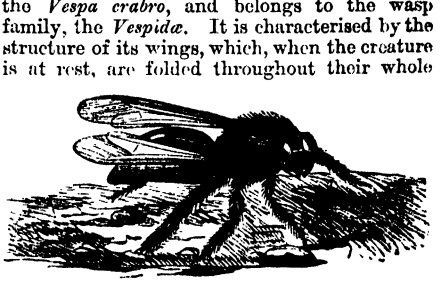
Horn-book.—This consisted of a small frame like a little picture-frame, and having a plate of horn instead of glass. Behind the horn was placed a sheet of paper upon which were printed the letters of the alphabet, and a few other elementary lessons for children. From the circumstance that the letters were once arranged in the form of a cross, this ancient form of school-book was often called Cris-cross-row (Christ-cross row). The specimens which are now preserved as curiosities are mostly furnished with handles.

Horn, Dyes for.—The following dyes will be found serviceable for imparting colours to horn:—For *black*, wash the horn in a solution procured by steeping brass in aquafortis (nitric acid) until the liquid becomes green. For the same purpose a weak solution of nitrate of silver may also be used. It is applied repeatedly, and after each application is exposed to strong daylight. For *green*, the horn is first boiled in alum-water, and afterwards with verdigris, ammoniac, and white-wine vinegar, in which it remains hot until the requisite colour is obtained. For *red*, it is treated as for green, and then boiled in strong lime-water (strained), in every pint of which three ounces of Brazil-wood chips are to be put. For *blue*, the horn is first boiled in alum-water, and secondly in a solution of sulphate of indigo.

Horn, To Polish and Mend.—To polish horn, the materials required are whitening, and the ashes of burnt willow wood. To mend it, heat is the required agent.

Hornbeam.—This (in botany the *Carpinus*) is a wood of a coarse, fibrous, and exceedingly tough character, used largely by millwrights for the cogs of wheels, &c., and for tool-handles, mallets, and other purposes in which toughness is the quality most desirable. The growth of the tree, which is indigenous to this country, is very graceful, resembling that of the beech.

Hornet.—This insect is called by naturalists the *Vespa crabro*, and belongs to the wasp family, the *Vespidæ*. It is characterised by the structure of its wings, which, when the creature is at rest, are folded throughout their whole



HORNET.

length. It is much larger than the common wasp, which it attacks and destroys; it is more pugnacious, too, and the poison from its sting is very dangerous; indeed, a hornet has been known to destroy a human life. The hornet

builds a round or globular nest, smaller than that of the wasp, the mouths of the cells being turned downwards. This nest is usually found in old walls, banks, tree-trunks, or the thatch of country-houses. Unlike the wasp, the hornet will carry on the building of its nest even by moonlight. The best application for a part that has been stung is liquor ammoniæ, after the place has been well sucked.

Horns.—Horn is a gelatinous matter in combination with inorganic salts. The principal horns used in manufactures are those of the ox and buffalo; but the horns of other animals—the antelope, goat, sheep, and deer—are also largely used. Horn is distinguished from bone by its soft, tough, semi-transparent character, and in many points its substance resembles nails, claws, hoofs, hair, scales, feathers, and skin. It is largely employed in turnery, and as it can be softened and cut or pressed into various forms, it is used for the handles of knives, whips, umbrellas, &c.; for combs, snuff-boxes, lanterns, buttons, bell-pulls, drawer-knobs, &c. The horns of goats and sheep are whiter and more transparent than those of other animals. Horn is now employed extensively in the place of tortoiseshell, in consequence of its greater cheapness. The microscope shows that horn is composed of layers one within another, having epidermal-like cells, the innermost being upon the vascular membrane, sheathing a bony core. The part projecting beyond the core at the tip is so dense that the different layers are not perceptible, while at the base their successive terminations forming visible rings clearly distinguish them. In using horns for manufacturing purposes, the first thing done is the removal of the core of bone—which is also useful—by steeping the horns for several weeks in water, whereby the vascular membrane outside it and within the sheath of horn is so far decomposed that the core can be readily removed. The dense, solid tips are then removed with a saw, and these are used in the making of handles of various kinds, buttons, &c. The remainder of the horns are separated into the thin transparent plates or layers, or sawn into solid lengths, according to the intended uses. The lower portions near the roots of the horns are used chiefly in combmaking. To mould the horn, it is softened in boiling water, and while hot subjected to the action of a flame of fire, until it acquires the temperature of melting lead and is reduced to a partially fluid condition ready to be moulded, or is cut to the required size, while in this state, with a strong pointed knife something like that used for pruning. The curve is, when necessary, destroyed by the aid of pincers, by which it is pulled open and rendered nearly flat, perfect flatness being afterwards secured by placing the pieces between alternate plates of iron. They are then ready to be scraped, rubbed, and polished. When exposed to decomposition by heat, horn produces a large supply of the gaseous compound forming the base of prussic acid, for which reason the refuse cuttings of horn are used in the manufacture of Prussian blue and the yellow prussiate of potash. Such refuse is also of great value as manure; indeed, no portion of the refuse horn is without its commercial value. In bone combmaking, the teeth are formed by means of circular saws.

Horns, Drinking.—Horns were anciently used for drinking, mounted upon feet of wood or metal, and relics of such drinking-vessels are still to be found in a few rare antiquarian collections. Drinking-cups of horn were in common use in more modern times, but they are now disused, glass having altogether supplied the place of horn.

Horology.—Literally, this term denotes the principles of the methods of construction of machines, &c., for measuring and indicating time. But while formerly all time-measurers, such as sun-dials, &c., were included in the term, horology is now usually understood to include the principles of construction of those time-machines which are moved by weights, springs, &c., such as clocks and watches.

Hors d'œuvres. (*See* COURSES AT TABLE.)

Horse. (*See* HORSES.)

Horse-chestnut.—This (*Æsculus hippocastanum*) is a white wood with a close, soft, even grain, largely used for the famous Tunbridge ware, and other similar productions, chiefly of an ornamental character. There is some uncertainty as to the country of which the horse-chestnut is a native; it appears, however, to have been introduced from the East, towards the end of the sixteenth century.

Horse-mint. (*See* MINTS.)

Horse-power.—The dynamical unit employed to express the force of a steam-engine, and is estimated at 33,000 lbs. avoirdupois weight raised in one minute to the height of a foot—a force equal to that which an ordinary horse is capable of exerting. In comparing the power of a steam-engine with that of horses in connection with the execution of work, it should, however, not be forgotten that although the engine horse-power is estimated as above, the real power of a horse is not equal to more than about 22,000 lbs. raised to the height, and in the time, already mentioned.

Horse-radish.—The fresh root of the common horse-radish (*Armoracia rusticana*) is largely used as a condiment. It has a pungent and acrid taste; it stimulates the appetite and assists digestion, and when scraped or grated down forms an excellent accompaniment to roast beef. In medicine it is regarded as diuretic, anti-scorbutic, anti-rheumatic, and diaphoretic, and when chewed is useful as a remedy for hoarseness, sore throat, and toothache. Applied to the skin it produces vesication. Horse-radish grows wild in damp meadows, in the middle and south of Europe, and has been naturalised in Great Britain. It is rather rampant in its growth, and difficult to eradicate from any ground in which it has once become firmly established, and on this account it should be planted in some out-of-the-way corner of the kitchen garden where it will not interfere with anything else. Almost any portion of the root will grow, and a bed will continue to do well for five or six years. After the root is taken up it may be kept fresh for some time, if it is buried in

sand in a cool place. It is said that when horse-radish is taken on an empty stomach it is most unwholesome. The root of aconite or monks-hood, which somewhat resembles horse-radish, has occasionally been mistaken for it, and lamentable instances of poisoning have followed the accidental substitution of the one plant for the other. These roots may, however, be distinguished by the different appearances they present when scraped with a knife. That of aconite will be observed to be of a succulent character, and the scraped portions will soon acquire a pinkish or reddish hue, whilst the horse-radish root will scrape firm and dry, and not alter in colour.

Horsehair, Uses of.—The short hairs are curled and used for filling mattrasses, chair-seats, &c.; the long hairs are woven into cloth for covering seats of chairs, railway carriages, for sieves, &c. The brightness and durability of hair-cloth depend much upon the warp, whether of cotton, linen, or worsted; it is made at Sheffield and Worcester, and is much appreciated in South America.

Horsemanship. (*See* Equestrianism.)

Horses.—So many items invite attention in connection with this subject that we can only find room for little more than a bare enumeration of the chief, though even this will be very serviceable to the inexperienced. Under ordinary circumstances the first point requiring attention is the selection of a horse, and to do this properly counsel should be taken with a veterinary surgeon, who will render valuable aid for a moderate fee. The animal is of course to be chosen in view of the position he will have to fill, and no dealer's mere word ought to be taken as to his soundness, fitness, and other qualities—all which should be inquired into and carefully tested. A warranty should be obtained from a professional man. It is not needful for us to specify the points which a horse should possess for any particular kind of work. When purchased the animal should have a good stable, well ventilated and drained, light, and sufficiently roomy. A loose box is better than a stall, and needful in case of illness. Racks and mangers are better made of iron than of wood. Good grooming is a blessing to a horse, but must be learned by observation and practice; and the same is true of such operations as singeing and clipping. (For a list of articles needed by a groom, *see* Stable Requisites.) A head-stall should fit a horse, and should have a fastening of rope or leather, not a chain. The clothing of the animal comprises a sheet, a hood, rollers, knee-caps when taken by road or rail, and a boot for cases of sudden lameness. Feeding should be regular and sufficient; oats and beans should be bruised, and hay ought to be cut into chaff, whether mixed with corn or not. The diet should be varied with bran, mash, carrots, &c. Water should be given more than twice a day, but not just before great exertion, nor when the animal is heated. Grazing is not good to any great extent. Daily exercise is necessary, and as regards work too much of it is to be avoided. A horse for riding should be carefully bridled and saddled, and its shoes should be carefully looked after. Horses are subject to sundry vices, such as kicking, rearing, jibbing, and shying, and they are often capricious and whimsical. These faults may be cured by skill; but where they are very marked, and the owner would avoid trouble and peril, it is best to part with the animal. The diseases of horses are numerous, and except in very trivial cases should be referred to the veterinary surgeon. Many persons who on various accounts do not wish to keep their horses on their own premises, contract with the keepers of stables who undertake the necessary care of them; but this plan is open to objections. Hence if a horse is not continually needed, arrangements can be made for hiring one whenever wanted. This plan is adopted by many in large towns, and they arrange terms according to the amount of accommodation they require. For a single hiring the charge varies with circumstances, but in all cases the hirer should know beforehand what he has to pay. (*See* Driving; Equestrianism; Harness; Horses, Hiring.)

Horses for Linen, &c. (*See* Clothes-horse.)

Horses, Hiring.—A little knowledge of the law on this subject is of great utility, and therefore the following very brief summary is inserted here:—The letter of a horse (or carriage, or both) for hire for the performance of any particular journey is regarded as warranting the same to be fit, proper, and competent for the work. The hirer is bound to deal prudently with the horse hired, and is answerable for ordinary negligence; but if a horse falls lame on the road, he may leave it behind at an inn, &c., and on receiving proper notice the owner must send for it. The owner is liable for any accident which may happen to a horse used fairly by the hirer. The equipments of a horse let saddled and bridled are taken to be warranted as well as the horse, which is assumed to be not only well shod, but neither unfit nor dangerous to ride. For damage caused by negligence or mismanagement, the hirer is responsible, whether it be due to himself or his servant. If accidents occur from a horse taking fright at anything improperly placed in the road, those who have placed it there are liable; and so when they arise from falls over a heap or in a hole in the road, the parties who placed the obstruction are liable.

Hose.—Flexible tubes attached to hydraulic engines for conveying water or other fluid to any required point. Flax, or hempen hose, woven without a seam is sometimes used; but the London fire establishments have found leather pipes constructed as follows to be the most durable:—The leather levelled to a proper thickness, and in lengths of about four feet, is gauged to the breadth required; holes are punched four at a time, all down the sides, by means of a small press. The ends of each piece of leather are cut crosswise, at an angle of about 37°; the different pieces of leather necessary to form a length of hose (forty feet) are then riveted together at the ends. The length of leather thus formed is then placed on a bench, and a long flat iron bar laid upon it; the rivets are next put into the holes on one

side of the leather, and the holes on the other side brought over them; washers are then placed on the rivets and struck down with a hollow punch. The points of the rivets are then hammered down over the washers; this done, the bar of iron is shifted along, and the operation continued until the whole length is completed. The hose used for watering gardens, &c., is made of india-rubber.

Hose and Hosiery. — The term hose formerly applied to breeches as well as to stockings, that of trunk hose denoting breeches and stockings made in one piece. The term hosiery includes the many woven articles, such as stockings, vests, drawers, gloves, braces; those made of wool are manufactured at Leicester, those of cotton at Nottingham, of silk at Derby. At Balbriggan, in Ireland, very fine stockings are fabricated of thread. The cheapest kind of hosiery is that which is woven circularly; the better kinds are sewn into shape afterwards. The peculiarity of all hosiery is the manner in which it is woven; the thread is continuous, and forms loops and links, which are interlaced and connected by the single thread; this method of fabrication gives that elasticity which is observable in hosiery goods. Those which are unbleached wear considerably longer than the whiter kinds.

Hospitals.—These are buildings which have been erected by charitable persons for the reception of the sick, infirm, aged, and demented, and are usually supported by endowment, annual subscriptions, and donations. The name hospital is derived from the Latin *hospes*, which means both host and guest, or stranger, and was given by the early Church to buildings which were erected and endowed for the poor, and for strangers in distress. As abuses crept into the Church this laudable purpose of the founders was not adhered to, and hospitals became religious houses only, their revenues being absorbed by the clergy, until the Council of Trent forbade by decree the giving of any hospital to secular priests in the way of a benefice. This put a stop to the abuse, and hospitals have since then been devoted to charitable purposes only. With regard to the arrangement and building of hospitals, great improvements have taken place within the last few years. It would be impossible, however, to describe them in a work of this kind; suffice it to say that the classification and isolation of cases in detached buildings, a thorough system of nursing, and a better knowledge and application of laws relating to contagion and ventilation, are amongst the most important features. Special hospitals are those which, as a rule, take in only one class of disease, or analogous diseases. A village or cottage hospital is simply what its name implies—viz., a cottage arranged for a few beds, with proper appliances, and one or more skilled nurses. These hospitals in miniature are most useful in villages and other out-of-the-way places. The cases treated in them have a marked success, owing to the advantage of a pure air, and the absence of many of the objections unavoidably connected with a large hospital.

Hostile Witness.—One who so comports himself in his examination in chief that the party who called him, or his counsel or solicitor, is permitted to cross-examine him, under 17 & 18 Vict. c. 128, s. 22; in other words, to treat him as though he had been a witness called by the opposite side. As to discrediting a witness in criminal cases, see 28 & 29 Vict. c. 18, s. 3. (*See also* Evidence; Witness.)

Hot Baths. (*See* Baths and Bathing.)

Hot-bed.—The hot-bed of the gardener is a bed of earth and horse-manure protected with glass, and intended for forcing the growth of young plants. The manure and moist litter from stables, used when moderately fresh and full of heat, are heaped together well mixed to form the seed-bed, and allowed to remain in a state of fermentation between a week and ten days, after which lapse of time, the rank steam and fierce heat having evaporated, its temperature will be in a fit condition. The best situation for the hot-bed is one where it will be open to the morning and south sun, dry, and sufficiently sheltered. It is best made on the surface of the soil, as this plan enables the gardener to augment the heat when necessary with a lining of fresh hot manure quite down to the bottom, and also prevents wet from settling at the bottom of the beds, as it does when a trench is dug, in which case the manure is chilled and rapidly deprived of its heat. The bed should be a foot beyond the frame on either side; the manure should be beaten with the fork after it is well mixed, *not trodden down with the feet*, and it should be about three feet high. Immediately after the hot-bed is made, place the glass frame over it, and allow it to remain undisturbed till the heat and steam arise, when it may be raised to permit the latter to escape. Three or four days after the hot-bed has been made it is levelled and covered with rich light earth to the thickness of about four inches, the earth being in a properly dried condition, as moisture would be injurious either to seeds or young plants. After sowing the seed, cover with the frame. If the steam rises too copiously, give it vent by raising the frame about an inch from the surface. In cold weather the frame must be protected with matting during the night. Give the plants a little fresh air as often as you can without exposing them to cold, and examine the bed every day to ascertain the degree of heat. Fresh manure will be required occasionally to keep up the temperature, a regular degree of internal heat being essential to the resistance of the cold outside the bed, and the preservation of your plants in a freely growing condition. (*See* Gardens, Flower; Gardens, Kitchen.)

Hot-closets.—These are of several kinds, but they all serve one purpose and involve one general principle. Their purpose is to preserve the heat of dishes which are ready before they are wanted, as must happen when large hot dinners are prepared. The principle is a square case or closet fitted with shelves for the dishes, and heated or kept hot in various ways. In some cases the heat of the kitchen fire or that of the oven is utilised, while in others the heat is kept up by means of pipes conveying hot steam from

a boiler. The best construction comprises an inner case for the shelves, and an outer one, so ordered that the steam or hot air circulates between the two.

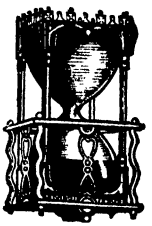
Hot-water Dishes and Plates. — Joints which require to be served very hot should be placed on a hot-water dish. These very useful articles, like hot-water plates, are arranged with an empty space underneath the plate to be filled with boiling water. This will keep hot both the dish which is over it as well as the joint and the gravy. These dishes and plates are made both of Britannia metal and of tin. The former are the better and more expensive kind.

Hot-water Pipes.—Owing to the necessity that exists for imparting artificial heat to workshops, mills, churches, and other large buildings, many plans for the attainment of this end have within the last few years been suggested and adopted. Among these the hot-water apparatus has proved as successful as any. The use of hot-water pipes was first introduced into England in 1816, by the Marquis de Chabannes, and as early as 1777 they were applied by M. Bonnemain, in Paris, to warm the hothouses at the Jardin des Plantes. In fixing hot-water pipes, a boiler is placed in some part of the building, from the top of which a tube issues, which, after circulating round the walls, re-enters the boiler at the other end. At the top of the circuit is a cistern, which keeps the boiler constantly supplied with additional cold water. The warming surface may be enlarged by coiling the pipe so as to increase the amount both of metal and hot water. The objection to the general adoption of hot-water pipes is that they are very costly, and also that they are very liable to burst. With these exceptions they have proved to be attended with as few drawbacks as any other regulated mode of heating.

Hotchpot (from the French *hoche en poche*). —A confused mingling of divers things; a blending or mixing of lands and chattels, answering in some respects to the *collatio honorum* of the civil law. As a legal phrase it signifies that of two or more persons jointly entitled to property, whether real or personal, any one of them who has received part of his or her share before the ultimate distribution must bring into the common fund or property the part so received before he or she is entitled to share in the general distribution. Thus if the owner of one hundred acres of land has several daughters, and gives one of them twenty acres on her marriage, and then dies intestate, leaving his daughters his co-heiresses, the daughter who had already received the twenty acres shall bring that part into hotchpot, and then take her share of the original one hundred acres, or refusing so to do, shall leave the remaining eighty acres to her sisters. The same principle applies to money. A hotchpot clause is usual in wills and marriage settlements.

Hothouse.—Under this general term are included all artificially-warmed glass structures used in gardening. (*See* CONSERVATORY; GREENHOUSE; PINERY; VINERY.)

Hour-glass. — An instrument used for measuring intervals of time by the running of sand, water, &c., from one glass to another. In the olden time hour-glasses were to be found in almost all churches, and up to the present day they still remain in some few old ones throughout the country. The hour-glass here figured was in the church of St. Alban's, Wood Street, London.



PREACHER'S HOUR-GLASS.

House.—In a general sense, houses are buildings or sheds intended and used as the habitations of men or animals. In a limited sense the word signifies the dwellings in which the middle classes reside, in contradistinction to the palaces or mansions of the noble and wealthy, and the cottages of the poor. The style and character of the houses of a country are determined by the degree of civilisation which its inhabitants have attained, by their manners and customs, by the climate and situation of the country, and by the materials which the builders can obtain. The houses of Eastern nations consist usually of a number of apartments, opening into a central court, which is generally adorned with shrubs and flowers, and which is separated from the street by a high wall, having one door in it intended for the ingress and egress of the members of the household. The floors of the houses are paved with stone; and the roofs, though thick enough to keep out the rain, are made flat, to serve as terraces, upon which the inmates of the dwelling can sit and walk, and even sleep. This style is adopted because Oriental nations have to contend against great heat, and therefore with them coolness is the great desideratum. The houses of the north of Europe are constructed on an entirely different plan, because they are required to serve as a protection against cold and rain. In England the houses of the middle classes were for a long time mere huts or sheds. Even as late as the twelfth and thirteenth centuries they were not much to boast of; they were built of brick and stone, certainly, but the interior arrangements were inadequate and uncomfortable. It was not until the reign of Elizabeth that the habits and comforts of the inmates were really provided for in the building of houses. Since then rapid improvement has been made. At the present time the best houses are not only elegant in external appearance, but internally they are laid out in a roomy style, and great pains are taken to ensure the comfort and to provide for the wants of the members of the household. The improvement is not universal, however. In large towns, and among second-class houses, there is, it is to be feared, a growing tendency to build houses too quickly, to use inferior materials, and to sacrifice solidity and thoroughness to superficiality and cheapness. This is most unfortunate, and, if it be not stopped, will cause a deterioration in domestic architecture

which will amount almost to a national calamity.

House Agents.—It is the duty of the house agent to assist the owner in letting his house, and the occupier in obtaining one suited to his wants. In large towns, where the number of houses built does not keep pace with the requirements of the community, the business of the house agent is one of increasing importance.

House-bote and Hedge-bote are the necessary allowances of timber, &c., out of the lord's wood for the repairing or support of a house, or the hedges and fences of land. A tenant (unless restrained by covenants or exceptions, which is usual) may cut down timber for necessary house-bote, hedge-bote, &c., which are legally known as reasonable estovers.

House-cleaning.—In the management of a house of any kind, cleanliness is one of the most important items. However methodically the work may be arranged or the meals punctually served, if there is a want of thorough cleanliness in the appearance of things, the whole effect is spoiled. Good handsome furniture, well chosen and tastefully arranged, does not show to the best advantage if allowed to bear traces of finger-marks, or if placed in rooms where the ceilings look smoked and dingy, and the paint dusty and dirty. A house free from dirt, with the windows bright and clean, has a cheering effect upon the person who enters it; while, on the contrary, a dull dirty house has a depressing effect. One old lady housekeeper used to say she never cleaned down, because she never needed it—she always kept clean—meaning she did not require to have the house upset all at once. It is quite possible in a house that an even state of things should continue for a long time; indeed, it is astonishing how long a house may keep a bright, clean appearance, without there being any sign of cleaning. Still, where whitewashing, papering, and painting have to be done, it is impossible that the house should retain its tidy appearance. Apart from the whitewashing, &c., a house may be kept beautifully clean and tidy the year through by having each room thoroughly cleaned once a week: this includes the paint being washed where it is dirty, the windows cleaned, the stove and fire-irons and the furniture well rubbed. If each room be made to undergo this process once a week, it is impossible that the house should look dirty. With regard to the bedrooms, the weekly cleaning must include the brushing of the mattresses and hangings, and the sweeping of the corners, for dust should not be allowed to accumulate anywhere.

House-fly. (*See* FLIES.)

House Furnishing. (*See* FURNISHING, HINTS ON.)

House, Hiring.—If the landlord pleases, houses may be hired by the week, month, quarter, or year; or they may be taken by agreement for three years, or by leases for a longer term of years. Leases for three years do not absolutely need a written agreement, although it is much safer to use one, and the form, when drawn up, does not cost more than a guinea. Leases which are drawn up for longer than three years must be by deed, and this entails a good deal of expense. The cost of drawing up a lease is rarely less than £8, and may be a good deal more. Therefore the cost of the lease is a consideration in the rent, although houses which are hired for long terms are generally let at a cheaper rate than those which are taken for a short period. In order to avoid expense, it is a very common expedient to hire the house for a short term, and then to have an agreement drawn up for a future lease. It is important to remember that when a lease has been drawn up it is not considered complete until the premises have been entered and taken possession of, either by the lessee or by his agent; and until this has been done he could not bring an action for trespass against any one who entered or damaged the house and grounds. The parish rates (except sewer's rate) and the house-tax are paid by the tenant. Property-tax, land-tax, ground rent, and sewer's rate are paid by the landlord. It is a usual arrangement for the tenant to pay the sewer's rate, and to deduct it from the rent. If the tenancy is a yearly one, that is, if the house has been let at a yearly rent, notice to quit must be given six months before the house is given up. This is the usual notice required, although there may be a special arrangement by which three or even one month's notice will be sufficient. If the house is taken quarterly, a quarter's notice is required; if by the month, a month's; if by the week, a week's notice. If the house has been taken for a fixed period, the tenancy terminates at the end of it, and no notice is required, although if the tenant stay, without any further stipulation, after the term of his lease is expired, he must pay the same rent that he paid under the lease. When a house is taken on lease, the incoming tenant should, if practicable, take the precaution to ascertain whether or not the proposed landlord is the freeholder of the premises, or simply the leaseholder. If he be the latter only, the tenant must carefully inspect the lease, in order to see that there are no inconvenient restrictions contained in it. Besides this, he must be sure that all arrears of rates and taxes have been paid by the first lessee, for if they have not, he, as under lessee, would become liable for them. Before signing an agreement or taking possession of a house, the tenant should satisfy himself that it is in a reasonable state of repair. The panes of glass should be in perfect condition, the bolts and shutters in good order, the locks duly provided with keys, the water-taps in a proper state, the sinks and water-courses carefully trapped, and the bells should ring easily. The floors too should be level, for fear of wearing the carpets unevenly; and if there be any gaps between the boards, the fact should be duly noted. More important than all, however, it should be ascertained whether or not the house is properly drained and free from damp. Imperfect drainage may be detected by the presence of an unpleasant smell in the building when it is entered after being closed for some time. Dampness in a house may be discovered by the condition of

the walls and floors, especially in the lower rooms. If the lower parts of the walls are darker in colour than the upper portions, and if the wood round the skirting-boards is darker than the rest of the floor, the house is damp, Sometimes in newly-built houses dark patches of damp appear on walls and ceilings, and disappear as the house gets dry. These arise from recent construction, and prove only that time and good fires are called for before the house is lived in. But dampness that arises from defective construction will always remain, and indicates most unmistakably that the house is unfit for occupation. The health and comfort of the family depend so much upon these points, that before entering on his tenancy the occupier can scarcely be too careful in seeing that everything is in good condition.

House of Commons. (*See* PARLIAMENT.)

House of Lords. (*See* PARLIAMENT.)

House Rent.—Rent is paid monthly, quarterly, half-yearly, or yearly, according to the agreement made between the landlord and tenant. Yearly rent is almost always paid quarterly, and is due on the quarter days—March 25th, June 24th, September 29th, and December 25th. It may be demanded on any of those days between sunrise and sunset. As a rule, however, rent is not paid exactly on the day it is due. If collected it is called for a few days afterwards, or it is sent about a week after the quarter day. Weekly rent is paid weekly. If a house is taken on a term of years, the rent is generally less than when it is taken by the year, and if it is taken on a lease it is lower even than when taken by the term.

House Repairs.—When a house is taken for a short term the repairs are usually undertaken by the landlord, and if after doing this he fail to do what is reasonable, the tenant may make the necessary repairs and charge the expense of them to the landlord. When a tenant has a house on a long lease, however, he generally undertakes to do the repairs himself, and to paint the house at certain fixed intervals of time. The tenant is not liable for damages by storm and lightning, although, unless there is special agreement on the subject, he is bound to pay his rent even after the premises have been burnt down, nor under these circumstances can he compel the landlord to re-build. If, however, the landlord agreed to keep the house in good repair, and it were burnt down, the tenant, though liable for rent, would have a claim to relief during the time the house was uninhabitable.

House-steward.—This functionary is employed in great families to manage the domestic concerns, to look after the servants, and to keep the household accounts, and perform other responsible work of a like character. The word steward appears to be derived from the Saxon *stede*, place, and *weard*, a guard, and it is probable that a steward was originally a chamberlain or a butler.

House-tax, or Inhabited House Duty.—A tax on inhabited houses imposed by 14 & 15 Vict. c. 36, in lieu of the window duty, which was thereby abolished. It is as follows:—For every inhabited dwelling-house and premises of the rental or value of £20 per annum, if occupied for trade purposes, or for the retail of beer, ale, wine, or other liquors, or as an hotel, inn, or coffee-house, or for a farm-house, or purposes of husbandry, 6d. for every 20s. of annual value; and where not occupied for any of the above purposes, 9d. This is one of the assessed or Queen's taxes, and is payable yearly.

Housebreaking. (*See* BURGLARY.)

Household Economy. (*See* DOMESTIC ECONOMY.)

Housekeeper.—Excepting in very large establishments where a house-steward is kept, the housekeeper is regarded as second only to the mistress in the authority which she exercises over the servants. Her position is a most responsible one; the comfort of the family and of the domestics, the efficient performance of each department of service, the care and preservation of the property of her employers, and the judicious outlay of that part of their income which is devoted to housekeeping expenses, together with the rendering of an exact account of the same, all devolve upon her. It is evident, therefore, that she needs to be a person of strong character and of an active disposition, and that in her the qualities of honesty, industry, vigilance, discernment, method, order, and punctuality are pre-eminently called for. With these she must possess a knowledge of the details of domestic work, which will enable her at once to detect inefficiency or wrong-doing on the part of any of her subordinates. The duties of the housekeeper are determined by the position and extent of the establishment over which she presides. When a house-steward and a man cook are kept, the housekeeper will be relieved of the responsibility of keeping the accounts, and of marketing. When these functionaries are dispensed with, these important duties will fall to her share. In smaller households where a limited number of domestics are engaged, and where the cook is not particularly clever, a portion of the practical business of the kitchen may be done by the housekeeper. In a case of that kind she would certainly take the responsibility of the cooking upon herself, and undertake the performance of the more difficult branches of the art. The arrangement of the routine of daily work, the thorough cleaning of the house in spring, the preparation in their proper seasons of jams, jellies, sauces, pickles, and home-made wines, the provision of light covering for the beds and light furniture in the rooms in summer, and their substitution for warmer articles in winter, and details of a like nature, will all be seen after by her. A housekeeper, when she first enters upon the duties of her situation, should be provided with an inventory of all the articles under her care. It would be a good plan if, at stated intervals, quarterly or half-yearly, she were to draw out a fresh list, and to compare it with the one which was given to her and with the last one

made by herself. By this means she will know what has been lost, broken, or injured, and will be able to make a statement at any time she is called upon of the number and condition of the things in use. It would also be a source of satisfaction to herself, and doubtless also to her mistress, if her accounts were examined systematically and regularly. This would enable her to ascertain whether or not her management of the household gave satisfaction to her employer, and it would make an opportunity for her to speak of any matter that needed explanation.

Housekeeping, Hints on.—Housekeeping is a science which is not so easily learnt as many inexperienced people imagine, though no definite theory can be laid down as to the precise mode in which the business is to be performed. Unless there be both method and practical knowledge, the proper management of a house is impossible. In no business of life is the knowledge which experience only can give more essential than in the business of housekeeping. Not only is it indispensable that the details of cooking, cleaning, and accounts should be thoroughly understood, but it is also necessary that method and order should be rigidly practised, that extravagance and waste should not be allowed to exist, and that the expenditure should not on any account exceed the income. Great failures have taken place in housekeeping entirely through want of economy, method, and determination.

Housekeeping Accounts.—The habit of keeping a strict account of every farthing received and spent is one of the most effectual checks to unnecessary outlay. If it is to be of any service, this account must be kept regularly and precisely. The entries, however trifling, should be made daily, and at the end of the week the sum-total on either side should be added up and balanced, care being taken to notice whether the cash in hand agrees with the statement of account. At certain fixed dates, such as the end of each week or the end of each month, the details of payment should be examined, and each item carried out and placed under its respective head, such as meat, bread, milk, beer, &c. By this means a comparison can be easily made between the expenses of one week and those of another, and excess or unnecessary expenditure can be at once discovered and checked. When the ready-money system is not adopted in the family, and bills are sent in for payment, a separate book should be kept, in which an entry can be made of every article supplied for household use; and this book should be compared with the tradesmen's accounts when they are presented for payment, so that any discrepancy between the two may be pointed out and rectified.

Housemaid.—The housemaid has been named the handmaiden of the virtues of order and cleanliness. Her title sufficiently proclaims her occupation: she is employed to work about the house, and the extent of her daily duties is regulated by the means and style of living of her employers. Where a footman and parlour-maid are kept, or where there are an upper and under maid, the range of her work will be limited, though its amount will probably be just as great. In by far the larger number of English households, however, one housemaid only is engaged, and therefore a housemaid's work, though varying slightly according to circumstances, is on the whole tolerably well defined.

A good housemaid will rise betimes both in winter and summer. The earliest duty will be to open the shutters, clean the grates, sweep the rooms, and light the fires that are first wanted. When two servants only are kept, it is sometimes arranged that the cook shall look after the dining-room, and the housemaid have the drawing-room, library, and breakfast-room under her supervision. Whatever the order of the house may be, the breakfast-room is to be first looked after. If it is not possible to do all the rooms, the drawing-room may be left till after breakfast. When all the fires have been lighted, the housemaid goes up-stairs, washes her hands, and calls her mistress and takes hot water to her, or whatever else is required. On her return the dust will have settled; the rooms can therefore be finished, and she may proceed to sweep down the stairs. She now lays the cloth for breakfast, and is particularly careful that everything which is likely to be required is provided. When arranging for and waiting at breakfast, she must remember to be perfectly clean and tidy, to have on a clean apron, and to put everything that is to be handed on a waiter. When breakfast is over, she goes up-stairs, throws up the windows, if this has not been done earlier by the occupiers, and opens the beds in all the rooms; after which, empties all the slops, scalds the chamber ware with hot water which she brings up in a can for the purpose, and wipes it dry with a soft cloth. She then makes the beds, first putting on a clean apron kept for the occasion, afterwards takes up the pieces in a dust-pan, dusts the room, shuts the door, and proceeds to the next room. When all the rooms are finished, the stairs, hand-rails, and window-ledges must be dusted, and everything set in order. Besides doing the rooms in this way every day, each one should be cleaned thoroughly once a week; and the housemaid will do well to plan her work and divide it so that one day is equally occupied with another. The way in which the work is thus planned out must be regulated by the habits of the family. It is, however, very desirable that all extra work should be finished by twelve o'clock, so that the housemaid may dress for the day, be ready to wait on the family, and do needlework. At sunset the housemaid should close every window in the upper part of the house. Before going to bed she should turn down the beds, empty the slops again, fill the ewers and water-bottles once more, and make everything ready for night. Besides the rooms, the china, glass, and plate are usually under the care of the housemaid when no footman is kept.

The dress of a housemaid is rather an important consideration. When engaged about her morning work, washing dresses are the best, and a wide holland apron should be worn over a white one when cleaning is going on. The

upper apron can be thrown aside in a moment, if the housemaid has to answer the door or the bell. For afternoon, dark dresses are the best, and a neat cap should always be worn. The most desirable characteristics of a housemaid are cleanliness, willingness, and *quietness*. These, combined with a pleasing manner and appearance, and sound health, are sure to give satisfaction.

Housemaid's Box.—This consists of a plain deal box, made with a lid and a handle, so that it may easily be carried from one part of the house to another. It is meant to contain brushes of all descriptions, dusters, dust-pan, leathers, and everything that a housemaid is likely to require during the performance of her work. By keeping this box in order, and well supplied, much economy in time is secured.

Housemaid's Knee.—This name is given to a complaint common to domestic servants who have to perform much of their work in a kneeling position on damp stones. (*See* KNEES, AILMENTS OF.)

Housewife.—This is a term given to an old-fashioned kind of needle-case, made of a strip of white flannel, seven or eight inches long and two or three wide. One side of this is covered with material of a pretty colour, and on the other side figures are worked, so that the needles may be placed according to their sizes. The whole is rolled up and fastened with a ribbon.

Huckabacks are coarse, strong linens, with raised surface, made of English hemp, and used for towelling and such-like purposes.

Hucksters.—Small retailers of trifling articles were so called, probably because they originally carried their wares about upon their backs. The word is sometimes employed as one of contempt for mean, tricky people.

Hue and Cry.—This term signifies the old process of the common law for the pursuit and capture of felons, and which the sheriff can still put in force. But modern necessities and facilities for arrest have rendered it comparatively obsolete. It is also used to signify a paper circulated by order of the Home Secretary, announcing the perpetration of offences.

Hundred, Hundred Court.—A Hundred is a division of a county. It differs in extent in different counties. The institution of hundreds in England is usually attributed to Alfred the Great. In Germany it has a very ancient history, having been established in the sixth century. A Hundred Court is a large Court Baron, held for the inhabitants of a hundred, the free suitors being the judges, and the steward the registrar, as in a Court Baron. By the Statute 30 & 31 Vict. c. 142, s. 28, no action capable of being brought in a County Court shall thereafter be brought or maintained in any hundred or other inferior Court, not being a Court of Record.

Hundredweight.—A hundredweight—abbreviated cwt.—contains 112 lbs. avoirdupois, and is the twentieth part of a ton. (*See* AVOIRDUPOIS.)

Hungary Water.—A very celebrated distilled water, made from the tops of the flowers of rosemary, fresh sage blossoms, sliced ginger and other spices, and rectified spirit. The preparation is employed chiefly as a perfume, but it is sometimes used also as a liniment, and is even taken internally as a tonic and stimulant. The name is supposed to be an abbreviation of the Queen of Hungary's water; and the water was thus designated because the original recipe for making it was said to have been given by a hermit to a Queen of Hungary.

Hunger.—This is the sensation experienced when we are warned that something is wanted to repair the waste of solid matter which is continually going on in the body. In healthy and temperate persons the feeling of hunger is usually proportionate to the requirement; but it may be modified to some extent by habit, temperament, and mode of life. Hunger may be unduly stimulated by condiments, certain sorts of food, and by vegetable bitters, with wine, brandy, &c. It may be blunted by the use of tobacco, opium, alcoholic excess, &c. Hunger is sometimes a sign of disorder or disease, as, for example, in worms, *tabes mesenterica*, &c.; it is then called morbid. The absence of hunger is the usual condition experienced in most febrile and inflammatory affections. (*See* RELAPSING FEVER.)

Hurling. (*See* HOCKEY.)

Husband and Wife (anciently termed baron and *feme*) are one person in law; that is, the very being or legal existence of the woman is suspended during the marriage, or, at least, is incorporated and consolidated into that of the husband, under whose wing, protection, and cover she performs everything. She is, therefore, called in law a *feme-covert*—that is, under the protection and influence of her husband, her baron, or lord; and her condition during her marriage is called her coverture. A man cannot grant lands to his wife during her coverture, nor any estate or interest to her, nor enter into any covenant with her. But he may, by his deed, covenant with others for her use, as for her jointure, or the like; and he may give to her by devise or will, because the devise or will does not take effect till after his death. The custody of the wife's person is vested in her husband. If he, by ill-usage or threats, jeopardise her life or person, she may obtain sureties for his good behaviour from a magistrate, the Court of Sessions, the Queen's Bench Division of the High Court of Justice, or the Lord Chancellor, by articles of the peace and *supplicavit*. She may also obtain a *habeas corpus* at her own instance if under illegal restraint, though not at the instance of others, to enable her to make a will or an appointment of her property. If a wife be taken away or harboured, she may be re-taken; or the husband may issue a *habeas corpus*, or bring an action for her detention. He may defend his wife by force, to the extent even of killing her assailant when her life or person is in peril. *As to the wife's property.* In

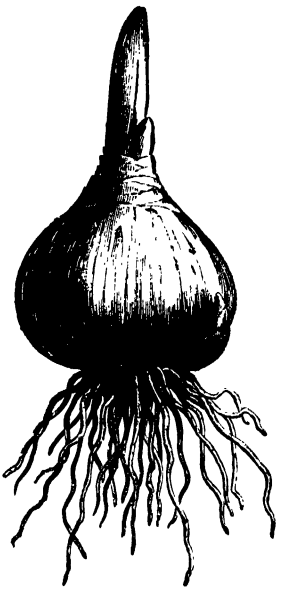
the absence of a settlement in her favour, the husband by the marriage has the following rights:—1. In her real estate he is entitled to the entire rents and profits arising therefrom during the coverture; and if he survive his wife, and has had issue by her capable of inheriting, he takes an estate by the curtesy of England (*which see*) for the residue of his life. But as to marriages solemnised after the 9th August, 1870, the wife takes the entire rents and profits of real estate coming to her during the coverture—as heiress, or co-heiress of an intestate—independently of her husband, and the husband has only his curtesy estate. 2. In the personal estate of his wife, the husband takes all that part of her personal estate of which, being chattels personal, he has obtained possession (except her paraphernalia, which consists of the clothing and ornaments possessed at the time of her marriage, or which have been given to her by her husband since, and which are suitable to her condition in life), or, if chattels real—that is, leasehold estate—alienates during the coverture. And if he survive his wife, all that other portion of her estate of which he has either not obtained possession, or, if chattels real, has not alienated, during the coverture, go to him as her administrator. But by the Married Woman's Property Act, 1870 (the 33 & 34 Vict. c. 93), the wages and earnings of married women from any employment, occupation, or trade, or from the exercise of any literary, artistic, or scientific skill, are to be their own separate estate, as also are all investments thereof and all deposits in savings-banks. And further, all personal property coming to married women under an intestacy, and all personal property not exceeding £200 coming to them under a will, are to be their own property; and married women may effect policies of life assurance, either on their own or their husband's lives, and such policies are to form part of their own separate estate. As to all the before-mentioned rights of the husband in both the real and personal estate of his wife, the rule or practice of equity, called "the wife's equity to a settlement," prevails, whereby the Court of Chancery (now the Chancery Division of the High Court of Justice) is empowered to set apart for the wife a proportion of her estate previously to the husband obtaining possession of the same. *As to the wife's rights in her husband's estate.* 1. As to his real estate. If the marriage were solemnised before the 1st of January, 1834, and the wife survive her husband, she is entitled to her dower, *i.e.*, to the rents and profits of one-third part of all the lands of which her husband was at any time during the coverture solely seized for an estate of inheritance (*see* DOWER), and in gavelkind to one-half on certain conditions. (*See* GAVELKIND.) If the marriage were solemnised after the above date, she is entitled, for the residue of her life, to the rents and profits of one-third of the lands of inheritance remaining to the husband undisposed of by him, either by deed or will, and whether he were legally seized or only equitably possessed during the coverture, and in gavelkind one-half, as before mentioned. Formerly her right of dower, when once attached, was indefeasible by any adverse disposition or adverse declaration of the husbands but the right of a woman married after the 1st January, 1834, is defeasible by disposition, and even by the husband's declaration contained in his deed or will. 2. As to the husband's personal estate. The wife is entitled to a third of the husband's personal estate if he die intestate, leaving issue, or to a moiety if he die intestate without issue. *As to the liabilities of the husband.* He formerly incurred an absolute liability to pay all his wife's debts contracted before the marriage. He was, and is, bound to provide her with the necessaries of life during the marriage, whether she be living with or (from no fault of hers) apart from him. He is also liable on all contracts for necessaries supplied. Under the Married Woman's Property Act, 1870, as to marriages after the 9th August, 1870, the husband is not liable for the debts of the wife contracted before marriage, but her separate estate (if any) is liable for the same. But under the Amendment Act of 1874 the husband is again subjected to his wife's previously-contracted debts, though to the extent only of the property coming to him through her. *As to the wife's liabilities.* A wife formerly incurred no pecuniary liability at all, but was bound only to be obedient and chaste. Now by the Act of 1870 above referred to, when her husband becomes chargeable to the parish, she is liable, under the Poor Law Amendment Act, 1868, to be called upon to contribute to his maintenance and that of her children, in the same way as a widow is liable. And by the Act of 1874, above mentioned, she is rendered liable jointly with her husband for her own debts contracted before marriage. We have now gone through, although necessarily somewhat briefly, the effect of this important relationship from a personal, a property, and a liability point of view on either side. (*See* COVERTURE; DIVORCE; MARRIAGE.)

Hutches.—Hutches may be called small dwelling-houses for such animals as rabbits, pet rats, guinea-pigs, &c. They are either hutches for living in, or breeding-hutches. It is important for both kinds that they should stand well off the ground and be perfectly dry, and also well sheltered from draughts. The ordinary hutch is composed of two compartments—the one cage-like, in which the animals feed and drink; the other a dark chamber communicating with it by means of a hole or slit. Both should have doors, for the purpose of cleaning them out, which ought to be done regularly. The edges of doors or holes, or wherever the animal can gnaw, ought to be protected by tin. The breeding-hutch should be larger and roomier, and have an extra compartment, into which the doe is to be admitted when need demands. The hutches should stand somewhat slantingly on their stools, and have each a little hole or two for fluid to drip away.

Hyacinth. (*See* JACINTH.)

Hyacinth.—The hyacinth is a native of the Levant, where it flowers naturally in the month of February. The bulbs are usually imported from Holland, where they grow in a soil

composed of about equal parts of fine sand and vegetable mould; they should be obtained in October. In purchasing them, select sound, firm, healthy bulbs, which are of a conical form, swelling below and pointed at the top, because flat bulbs, though larger, are apt to break into offsets, which weaken the main flower. If the bulbs show a continued disinclination to throw out roots, they may be planted for a few days in earth to coax them forward. But they must not remain long there, or the roots will spread laterally, so that you cannot afterwards force them into a glass. The water should be



BULB OF HYACINTH.

changed once, and as soon as the flower has protruded, twice a week. When the water is changed, do not draw the roots out of the glass, but tilt the bulb a little on one side, and so pour the water out and in. If the bulbs are inclined to become soft and putrefy, add a tea-spoonful of powdered charcoal, and change it every alternate day. Hyacinths require plenty of light and a moderate degree of warmth. They have generally too much warmth and too little light, and if kept in a hot dark place, like a chimney-piece, they will never flourish. The most important thing of all is to obtain a sufficient quantity of roots before the flower makes its appearance, otherwise the supply of nourishment is not equal to the demand. This object is gained by keeping the plants at first in a cold room, and not too near the light, where they will push their roots, and then bringing them into a warm room to draw forth the flower.

Hyacinth Glasses.—These should be full-sized and of a dark colour, in order that the roots of the hyacinth may not be exposed to the light. An invention for holding hyacinth glasses has been patented, whereby they can be readily held and fixed or unfixed in the ornamentation of windows or other parts of rooms, or in exhibitions or halls, &c., much in the same way that wax candles are affixed with brass fittings to pianos.

Hydragogues. — These are purgative medicines which act powerfully upon the mucous membrane of the bowels, causing a large secretion of fluid. They also act upon the portal veins, and in this way relieve the whole circulation. The most familiar examples of hydragogue purgatives are cream of tartar, elaterium, and gamboge. These are useful drugs, either alone or in combination with other medicines, in certain dropsies, constipation of the bowels, &c.

Hydrates.—Potassium and sodium decompose water, forming compounds consisting of one atom of the metal to one of hydrogen and one of oxygen. These are the hydrates of potassium and sodium, which are more familiarly known as caustic potash and caustic soda. Quicklime, which is an oxide of calcium, is converted into a hydrate when it is slaked with water.

Hydrocephalus, Chronic. (*See* WATER ON THE BRAIN.)

Hydrochloric Acid, called also Muriatic Acid, and often in old books Spirit of Salt, because it was made from common salt, which is the chloride of sodium. When this is treated with sulphuric acid, an interchange of their respective constituents takes place, forming hydrochloric acid and sulphate of soda. In making the ordinary acid, water is added to the two articles above mentioned, and aqueous hydrochloric acid is distilled over. Hydrochloric acid consists simply of chlorine and hydrogen; it is a gas, but is highly soluble in water, and in the liquid form it is an article of very great utility, enormous quantities of it being used in the various branches of chemical manufacture. The common commercial acid generally has a yellowish tinge, in consequence of a trace of iron being dissolved up in it; but for experimental purposes it should be colourless. It is one of the strongest acids, capable of dissolving most of the metals, and forming salts. Some of the most important of these are described under the heading of CHLORIDES.

Hydrocyanic Acid is the same as was formerly known as Prussic Acid, that name having been given to it because it is an ingredient of Prussian blue. It is intensely poisonous, but is used in medicine in a dilute form, the pharmaceutical preparation containing only 2 per cent. of the acid to 98 per cent. of water. Even this weak solution should be used with caution, and only very small doses given. It then allays irritation, and is of benefit in convulsions and spasmodic affections. A somewhat larger dose will produce irritation, hardness of breathing, giddiness, fainting, and other painful effects. Chlorine-water or ammonia is the best antidote when an over-dose is taken. Its smell resembles that of the essence of bitter almonds; indeed, the kernels of stone-fruit and the leaves of the laurel derive their characteristic odour from the presence in them of this acid. It combines with the metals to form cyanides (*which see*).

Hydrofluoric Acid.—A very corrosive liquid obtained by distilling a mixture of fluor spar and sulphuric acid. It is a compound of hydrogen and fluorine. Its fumes are very irritating, and great care should be taken to avoid inhaling them. It attacks glass very rapidly, and a weak solution of the acid is therefore used for the purpose of etching on glass. Of course it cannot be kept in an ordinary bottle, but a vessel made of gutta-percha, lead, or silver must be used instead.

Hydrogen (Gas).—A colourless, tasteless, and inodorous gas which has never been liquefied. It is inflammable, and burns with a flame which is very hot but has little illuminating power. It is the lightest substance known, and, although not poisonous, is incapable of sustaining life. Water is a combination of two atoms of hydrogen to one of oxygen, and hydrogen is present also in nearly all organic compounds; hence this gas is one of the most generally diffused of the chemical elements. In addition to its being nearly always associated with carbon, it combines directly with sulphur, phosphorus, iodine, chlorine, bromine, fluorine, and other elementary bodies.

The gas is easily made; the simplest plan is as follows:—Take a wide-necked bottle, and fit it with a sound cork, through which two holes must be bored for the reception of glass tubes; one of these must extend nearly to the bottom of the bottle, and be funnel-shaped at the top; the other tube should only extend just below the cork, the outer portion being considerably longer, and bent downwards, so that the end of it can be put under the water in a pneumatic trough. Granulated zinc, together with a little water, being put in the bottle, the cork, with the two tubes passed through it, must be fitted in air-tight, and then a little sulphuric acid must be poured in through the funnel. After a short time sufficient hydrogen will have been evolved to displace all the air in the bottle, and after that only hydrogen will be given off at the open end of the bent tube. On putting the end of this tube under a receiver in the pneumatic trough, the water in the receiver will soon be displaced by the hydrogen gas.

In chemistry there are several compounds of hydrogen and carbon, known as carburetted hydrogen. Of these the most important are light carburetted hydrogen, or marsh gas—the fire-damp of coal-mines and the principal constituent of coal-gas—and heavy carburetted hydrogen, or olefiant gas.

Hydrometer. (*See* Areometer.)

Hydropathy.—This is a term derived from two Greek words signifying "water-cure." That water is a great remedial agent, no one with any experience can doubt, but whether it merits the special place assigned to it by hydropathists is a matter of question. Be this as it may, the system of cure by water has a great number of admirers, and hence large and expensively conducted establishments have been erected all over the country for the purpose of carrying out its details. These comprise all sorts of baths, as the shower, rain, sitz, wet pack, &c. The wet pack merits a special description, as it is now frequently used in our general hospitals for the purpose of reducing the temperature and making the skin act. The patient, who must be comfortably warm, is undressed, and stretched on a wet sheet, in which he is thoroughly packed; he is then covered with blankets, and over this a mackintosh, or in some instances with a feather-bed, and a wet towel applied to the head. In this state he is allowed to remain for about twenty-five minutes, by which time a complete re-action is established, and the patient, being in fact enveloped in a huge poultice, perspires profusely. He is then douched with cold water, which completes the process. Hydropathic establishments are, as a rule, admirably situated, both as regards scenery and air; and these, combined with plain wholesome food (an important and special feature of these establishments), have a marked beneficial effect in certain cases, apart from the special effects of the water system, which doubtless aids in bringing about this result. At the same time it must be said that the use of hydropathy, except under proper advice, may be attended with mischievous and sometimes serious results in unsuitable cases, and it is against its abuse or indiscriminate use that this warning is given.

Hydrophane. (*See* Opal.)

Hydrophobia.—The name hydrophobia is derived from two Greek words signifying "to fear water," and the terrible malady is so called from a dread of fluids being one of its principal symptoms. There is no such symptom in the dog when suffering from rabies, which is the canine equivalent for the disorder. Hydrophobia is caused in man from its inoculation, either by bite or otherwise, with the rabid saliva or other secretion from some of the lower animals, usually the dog or cat. The disease may set in at almost any time, in from a simple day up to several years, and is characterised by great nervous depression and extreme excitement and restlessness, culminating in paroxysms or fits of frenzy, with spasmodic action of the muscles of the pharynx, especially on making any attempt at deglutition. These fits also come on if a draught of air falls upon the patient, or if his eye should rest for a moment upon any glittering object. There is, moreover, a flow of viscid saliva, called the hydrophobic slaver. The poor patient is at last worn out by the repetition of the fits, and sinks exhausted, the mind remaining clear until the last. There is all throughout the disease the greatest terror, and seeming fear of impending death. There is, as far as our knowledge goes, no cure for the malady. Perhaps the greatest chance of life lies in keeping the person as quiet as possible, and administering large and frequently repeated doses of the hydrate of chloral. This may alleviate, if it does not cure.

Hydrostatic Balance.—A balance used for the purpose of weighing bodies in water, thus determining their specific gravities.

Hygrometer.—As its name denotes (from Greek *hygros*, moist, and *metron*, a measure), the hygrometer is an instrument by means of which the moisture in the atmosphere may be ascertained. Hygrometers are of many dif-

ferent forms, but they all depend either on the principle of absorption or on that of condensation. Absorbing hygrometers are not, however, as a rule to be relied upon, and those constructed on the principle of condensation of the moisture of the air are now generally used.

Hyoscyamus. (*See* HENBANE.)

Hypertrophy. — This is a term derived from two Greek words signifying "over-nourishment" or "over-growth." It is applied medically and surgically to certain conditions of the heart, liver, breast, lips, bones, &c., in which these parts are more or less abnormally enlarged. Some cases of hypertrophy admit of removal by surgical operation.

Hypnotics.—These are certain medicines, such as morphia, opium, chloral-hydrate, &c., which produce direct sleep. The term is synonymous with soporifics, and is used in the same way.

Hypochondriasis.—This is a condition in which the affected person attaches an exaggerated importance to certain sensations which he experiences. It is generally associated with the most aggravated forms of indigestion. Hypochondriasis not unfrequently takes the form of complete delusions, and these are often of the most absurd description. One patient, for example, fancies he is a mutton chop, and requests that he should be taken to the butcher's to be trimmed; another believes that he is a crown-piece, and goes round the shops in his neighbourhood requesting them, if his wife brings him, not to take him in payment for goods, nor give change for him. A third imagines himself made of butter, and avoids the fire and every kind of heat, lest he should melt. The term hypochondriasis is derived from two Greek words signifying "under the cartilage," and no doubt referring to the liver as the seat of the disorder.

Hyson. (*See* TEA.)

Hyssop.—This is a hardy plant, growing



HYSSOP.

a foot and a half high, with low bushy stalks and branches, terminated by spikes of flowers of different colours. The leaves have an aromatic smell and pungent taste. Hyssop was much used by the Jews for the purposes of purification, and in the cleansing of lepers it was the custom to dip a bunch of hyssop, with some branches of cedar and a little red wool, in water mixed with the blood of a bird. Hyssop is not now officinal, and does not appear in the Pharmacopœia.

Hysteria.—This is a morbid condition of the cerebral functions, characterised by various phenomena, the most remarkable of which are alternate fits of laughing, crying, screaming, and a tendency to simulate serious diseases and disorders. The symptoms of an ordinary attack of hysteria are too well known to require description, and with regard to the more unusual forms of the affection, they are not such as can be here advantageously treated. The treatment *par excellence* during the paroxysm is to pour cold water from a height and without stint over the head and face of the patient, having previously loosed the clothing about the neck, and opened doors and windows for the free access of air. The after-treatment consists in the removal of disturbing causes, and in the administration of tonics, aperients, &c., when required.

I

Ice.—At a temperature of 32° Fahrenheit water freezes, and takes the solid form of ice. Water in the act of freezing expands with very great force, and strong proof of this is afforded by the frequent rupture of metal pipes, &c., in the house in times of severe frost. The uses of ice in this country are very numerous. By means of its preserving properties a large trade in fish, game, and other perishable commodities is carried on between various parts of the country. Further than this, indeed, with its help, meat, fish, fruit, &c., are brought from far distant lands in a good state of preservation. Ice is also of the greatest value in the household in hot weather as a food-preserver, being employed in the direction of ice-safes and refrigerators; its use in the manufacture of cooling drinks is also well known. In sickness, in resolving inflammation, in allaying fevers, in stopping hæmorrhage, in deadening pain, and as an outward application in spinal and other complaints, ice is invaluable. (*See* ICES; ICING.)

Ice-breakers.—An instrument is made on purpose for breaking ice into small pieces. It is named an ice-pick, and is something like a brad-awl, but has a longer blade. It has a very sharp point: the sharper the point, the more easily the ice is broken. When large quantities of rough ice are to be broken and crushed, hatchets or hammers are first used, and then the pieces of ice are pounded with an ice-crusher, which is a large-headed pestle, fastened to a strong handle about a yard long. A common wooden mallet will answer the same purpose. Awkward pieces of ice which have

been accidentally put round the freezer may be broken with the ice-dibble, which is a kind of wooden roller with an iron ferule at one end of it. This ice-dibble is used also to push down a mass of ice, in order to let the water off more quickly. Ice-planes are used for preparing shaving ice for juleps and similar drinks. What is called snow ice is made by breaking ice into small pieces, wrapping these in a coarse, strong cloth, and pounding the mass to snow. In America, ice is collected in large quantities for commercial purposes, and the lakes which supply it form a valuable part of the property of those whose lands border thereon. When winter comes, and the ice is formed, the ice harvest begins, and the ice has to be broken up before it can be stored in the ice-houses. The snow is first cleared away, and then the whole surface of the ice is marked into small squares measuring about three feet. These are cut by means of an ice-plough, which is drawn by horses, and driven by a man who rides upon it. Some of the squares are detached by hand-saws, but the greater number are broken off with crow-bars. When they are all broken, they are floated off to the ice-houses where they are to be preserved.

Ice Coolers and Pails.—Admirable machines of various kinds have been introduced of late years for the artificial production of ice, and these are so simple in construction and reasonable in price that they have to a certain extent already superseded, and in all probability will in course of time entirely supersede, the old mode of freezing. When they are not at hand, that method must be adopted, and for this the utensils which are required are ice-pails, freezing-pots, spatulas, and ice-coolers or ice-caves. Ice-pails are generally made of oak, with iron hoops, and with a hole at the bottom of the tub to let off the ice-water. Another hole should be made about four inches from the edge of the tub, to let off the water that rises as the ice melts. Spigots of wood should be kept for these holes, to keep the ice-water from being wasted. The tub should be painted both inside and out, not only for the sake of appearance, but also to keep the hoops from getting rusty. Sometimes the tub is made large enough to hold several freezers, and this is a convenience, because when the freezers are set up together, they can be worked by one person more easily and with greater expedition than they could be if set up separately. When the pail is to be used, a round, thick cake of ice should first be put at the bottom for the freezing-pot to revolve upon. The freezing-pot is made either of pewter or tin. Pewter pots are the best, for when tin ones are used the congelation goes on too rapidly, and the preparation may be lumpy. When the freezer has been set on the ice, the ice-pail should be filled with pounded ice, which has been mixed with about half its weight of common salt or soda. The preparation to be frozen should now be poured in, and the freezing-pot should be turned round rapidly by the handle, to keep its contents in rapid motion, backwards and forwards, until congelation commences. The spatula, which is usually made of copper, is used to stir up the cream, and break down that which congeals and adheres to the sides, so that the whole may be equally frozen. When the process is complete, the ice-pot is covered closely, and is put into a leaden ice-stand; ice is put upon it, and it is left until wanted. When the piston freezing-machine is used, the process is more easily accomplished. The preparation to be frozen is placed in cylinders, and outside these are pounded ice, salt, and a little water. The piston is worked up and down, and this moves the stirrers inside the cylinders, by which the ice is made smooth. When ready, the ice is pressed down firmly, then imbedded in ice till it is wanted. Freezing-powders for generating ice are much used. They are, however, rather expensive. Ice-chests, or ice-coolers, for the preservation of ice for domestic purposes, are made of various sizes. They are wooden boxes, either lined with cork or made with double walls, the space between which is filled with some non-conducting substance, such as charcoal. These chests have closely-fitting lids, and in them ice may be preserved for a considerable time.

Ice-house.—Ice has always been regarded as such a luxury in hot weather that great pains have been taken to store and preserve it during the winter for use in summer. For this purpose ice-houses have been constructed. For a long time it was believed that underground structures of masonry were necessary for the preservation of ice, and this idea arose from the prevalence of the belief that heat was the chief enemy to be guarded against. Now it is known that damp is the more dangerous foe of the two, and that the chief advantages of the underground building are that it is lasting and easily filled. An ice-house in a high and dry position is by most authorities now held to be safer. Great improvements have been made of late years in the construction of these buildings. An ice-house, however built, should be situated in a spot sufficiently elevated to allow of perfect drainage. The side of a hill which slopes towards the north is the best, and if possible the drain should be made to open into the bottom of a stream, so that water may flow out without admitting air. The style of the building must of course depend upon the taste, means, and requirements of the builder; but it should always be remembered that ice keeps better in large quantities than in small ones, and therefore it is an advantage for the house to be of a large size. It is a disputed point whether it is good for an ice-house to be shaded by vegetation. Trees are certainly beneficial so far as they keep off the rays of the sun and render the earth cool below them, but their presence is objected to by many, because they have a tendency to produce dampness. The Chinese build their ice-houses on raised platforms. They consist of a framework of bamboo, thickly thatched with straw, and the ice is packed within between layers of the same material. The Americans adopt the same method, and put sawdust between the blocks of ice. Ordinarily in filling ice-houses the ice is thrown in loosely, and the small pieces are made to run in among the larger as closely

as possible. Some persons beat it down to form it into one mass, and this does certainly exclude the air very effectually, but it has the effect of making the ice rough in quality. The following is an excellent contrivance for keeping a small quantity of ice; it is a very inexpensive method, and may easily be adopted by all who have cellars in their houses:—"Take a butt or puncheon; knock out its head, and bore in the bottom a small hole about an inch in diameter. Place inside this a tub with a similar hole in the bottom, and let it rest on three pieces of wood, so that it may not touch the bottom of the larger tub. Pass a pipe through the two holes, to carry off any slight waste that may occur; then fill the space between the two tubs with powdered charcoal. Fit to the smaller one a lid with a convenient handle, and on this lid place a circular bag of powdered charcoal about six inches thick, covering it entirely, and over this place another wooden cover. Bury it four-fifths of its height in a dry cellar, keeping it a few inches from the earth at the bottom by means of brick ends. Nearly fill the tub with ice, or snow beaten hard, leaving room enough to place within it any surface that is to be iced. Always take care to keep it well closed." A simpler method is the following:—"Put the ice in a deep dish or jug, cover it with a plate, and place the vessel on a pillow stuffed with feathers, and cover the top carefully with another pillow, by this means excluding the external air. Feathers are well-known bad conductors of heat, and in consequence the ice is preserved from melting."

Ice-tongs.—Ice that is to be taken to table for the purpose of being put into wine or other beverages should be broken up into very small pieces with an ice-pick. (*See* ICE-BREAKERS.) In order to hand it round more conveniently, ice-tongs made of silver or plated metal are usually placed near the vessel which contains it.

Iceland Moss.—This well-known lichen (*Cetraria Islandica*) is employed both as a nutri-



ICELAND MOSS.

tious food, and as a mild mucilaginous tonic in catarrh and consumption. It is found in all the northern parts of the world. In very old regions it grows on the sea-coast, but in more temperate latitudes it flourishes best upon the mountains. In Norway and Iceland it is collected as an article of commerce. It is not uncommon in the more northerly parts of Britain. The inhabitants of the Orkney Islands and other isolated districts, where the people are often on the brink of starvation, use it as food; and in Iceland it is frequently pounded and made into bread, or prepared by boiling. A very usual way of cooking is to make it into a kind of jelly with either milk or water. When it is used as food it must be first deprived of its bitterness, by being heated twice in water to the point of boiling, or it may be purified from its bitter principle by being soaked in water with a little soda. When eaten with meat, the bitter flavour is generally allowed to remain. Iceland moss is said to contain 10 to 15 per cent. of nitrogenous, and 60 to 70 per cent. of carbonaceous matter. The flavour, however, is not such as to make it very popular. In Iceland it grows abundantly on tracts otherwise desert, and in the summer months parties come from a great distance and encamp in the districts where it is to be found on purpose to collect it as an article of commerce. A variety of the species, which is also found in Iceland, is called Mary's grass by the Icelanders, and is much used for food.

Iceland Spar. (*See* CALCAREOUS SPAR.)

Ices are composed of cream or sweetened water mixed with liqueurs, fruit juice, and other flavouring ingredients, and congealed by means of ice or freezing mixtures. They are specially adapted for dessert, and for evening parties, and in hot weather are regarded almost as a necessity. Although exceedingly refreshing, ices are not particularly wholesome even for the strong and robust, and aged persons and children would do well to abstain from them altogether. If taken during the process of digestion they are very liable to cause indisposition, and the safest time for their enjoyment is either some hours after a meal, or just when it is concluded. They are particularly dangerous when taken immediately after violent exercise, or when the body is in a state of great heat. It is said that we owe the introduction of ices to Catherine de Medici.

Icing is a preparation of concreted sugar, used for covering superior cakes, especially wedding-cakes, and for general ornamentation. It is made of the finest possible sifted loaf sugar worked into a soft paste with white of egg and lemon-juice. It may be flavoured with various essences, or it may be lightly tinged with various shades by the addition of the proper stains, or if preferred it may be left plain. Cakes that are to be covered with it should be quite cold, and should be dusted lightly over with flour, which must be gently rubbed off before the icing is laid on. This may be done with the flat side of a knife, and should be about half an inch in thickness, the ornaments being stuck on while the icing is still wet, and the cake must be put into a gentle oven for a few minutes till the icing is hard, but not discoloured. Icing needs to be beaten a long time in order to make it tough.

Confectioners frequently turn a cake upside down before icing it, in order that they may have a perfectly smooth surface to work upon.

Idiocy.—Properly speaking, an idiot is one whose mind has never been perfectly developed. This condition, where there is little mental or moral power, if any, is often distinguished from imbecility, in which these faculties are to a greater degree possessed. The brain of an idiot is usually small, his speech and bearing are peculiar; he is often liable to outbursts of passion, and is sometimes dangerous. The difference between idiocy and insanity is this—that the latter is an affection peculiar to persons who have previously been sane, while the former is a constitutional defect. The condition of many idiots may be improved by proper treatment, and has sometimes improved after injury to the head. An idiot is sometimes the subject of physical defects. (*See* INSANITY; LUNATICS AND IDIOTS, LAW CONCERNING.)

Idiom.—As the derivation of the word implies (Greek *idios*, peculiar), an idiom is an expression or phrase peculiar to some individual language, and contrary to the general rules of universal grammar and the laws of speech. An idiom may be constituted by (1) a particular inflection of a word, (2) a special arrangement of words or phrases, (3) a peculiar contraction of speech. Idioms are classified according to the respective languages in which they occur; thus we speak of Greek idioms or Greecisms, of Latin idioms or Latinisms, of French idioms or Gallicisms, &c.

Idiosyncracy.—A peculiarity of the mental or bodily constitution, otherwise known as antipathy. Persons so constituted show it in various ways. Some are strangely affected by sights, smells, or sounds which produce no perceptible effect upon others. Some are unable to bear particular drugs; others cannot partake of certain common articles of diet without distressing symptoms. The unpleasant results in these cases may be unconnected with any like or dislike, and the subject may not even be aware of the cause. It is said that in some instances of idiosyncracy particular medicines may be inoperative, and even certain poisons harmless. The affection may be permanent or only transitory, and is either mental or physical.

Idiots. (*See* IDIOCY.)

Idiots and Lunatics, Law concerning. (*See* LUNATICS AND IDIOTS, LAW CONCERNING.)

Iliac Passion, or Ileus.—A distressing ailment, in which, owing to an obstruction of the bowels, the food returns to the stomach, and is afterwards vomited. It is oftener a symptom of disease than a disease itself; but whatever the cause, its treatment should at once be referred to a professional man. The concomitants are griping pains in the bowels, spasms of the abdominal muscles, and costiveness, as well as vomiting. In the absence of a doctor, carminatives and [illegible]ients, warm bath, and fomentations may [illegible]es. The[illegible]emporary relief.

Illegitimacy.—This term is usually applicable to the case of a child which is not born in wedlock. In England such a child is not rendered legitimate by the subsequent marriage of its parents, but in Scotland it is. Upon an order of affiliation the putative father becomes liable, to a limited extent, to support his child, but otherwise the mother must support it. The custody of the child belongs of right to the mother, although the father may be willing and better able to maintain it. The wishes of the child, however, will be consulted.

Illuminating.—The art of adorning paper, parchment, and vellum with colours or metals has been greatly revived during the last twenty years. The following directions will be of service to those who pursue this branch of decorative art:—The outlines should be marked out, and the colours, with their positions, should be determined before the real work is commenced. Depth of colour and richness of effect should be more sought than gaudiness and great variety, which soon weary the eye. Certain colours are not permanent: among the number are chromes of all kinds, Prussian blue, gamboge, and orange vermilion. Chinese white should be used in preference to flake-white when reducing the tone of any colour. Aluminium will be found superior to silver, because it does not tarnish. Bronze powder mixed with gum-water is an economical substitute for gold: when the latter is used, that in the shell is the best for the purpose. Indelible brown is more satisfactory than lamp-black. Repetition of touch is liable to damage rather than to improve the effect. The brushes used should be of red sable, those being of a stronger description. Gum should not be used to glaze the surface, because it cracks.

Imbecility.—A milder form of idiocy is so termed; but the word is often used of the mental torpor or inactivity which sometimes overtakes persons advanced in years, or may be due to other causes. (*See* IDIOCY.)

Impeachment is the accusation and prosecution of a person in Parliament for treason or other crime, and misdemeanours. An impeachment before the Lords by the Commons of Great Britain is a presentment to the most high and supreme Court of criminal jurisdiction by the most solemn grand inquest of the whole kingdom. A commoner cannot be impeached before the Lords for any capital offence, but only for high misdemeanours; but a peer may be impeached for any crime. The articles of impeachment form a kind of bill of indictment, found by the House of Commons, and afterwards tried by the Lords, who are, in cases of misdemeanours, considered not only as their own peers, but as the peers of the whole nation. In modern times this species of persecution has been rarely resorted to, but in earlier periods of our history there are frequent instances.

Imperial Weights and Measures. (*See* WEIGHTS AND MEASURES.)

Imprisonment is the restraint of a man's liberty under the custody of another, and ex-

tends not only to a gaol, but a house, stocks, or where a man is held in the street, or any other place; for in all these cases the party so restrained is said to be a prisoner so long as he has not his liberty freely to go about his business as at other times. Imprisonment for debt has now been abolished, except in certain cases; and in these cases imprisonment is not to exceed one year (32 & 33 Vict. c. 62).

Imprisonment, False.—To constitute the injury of false imprisonment, two points are necessary—the confinement or detention of the person (*see* IMPRISONMENT), and the unlawfulness of such confinement or detention. Unlawful or false imprisonment consists in such confinement or detention without sufficient authority, which authority may arise either from some process from the courts of justice, or from some warrant from a legal power to commit, under his hand and seal, and expressing the cause of such commitment, or from some other special cause warranted for the necessity of the thing, either by common law or Act of Parliament, such as the arresting of a felon by a private person without warrant, the impressing of mariners for the public service, or the apprehending of waggoners for misbehaviour in the public highways. False imprisonment may also arise by executing a lawful warrant, or process, at an unlawful time, as on a Sunday, or in a place privileged from arrests. This is the injury; the remedy is of two sorts—the one in obtaining release from prison, the other by way of compensation. In an action for false imprisonment, it is necessary to show malice on the part of the defendant, and the absence of all reasonable or probable cause.

Incapacity, Legal, is inability, want of natural power, want of power of body, want of comprehensiveness of mind, inability from infancy, marriage (in the case of a woman), or other circumstances, to enter into contracts, &c.

Incisors.—These are the front teeth, eight in number, four above and four below in each jaw. They are called incisors because they are provided with sharp cutting edges, adapted for cutting the food. They have only one fang, and those in the upper jaw are larger and stronger than those in the lower jaw. (*See* TEETH.)

Incognito.—An Italian word signifying "unknown," now naturalised in the English language. It, and its commonly abbreviated form *incog.*, signify living or travelling in such a way as to avoid recognition. Thus people who live under an assumed name, in any retired spot where they are unknown, are said to be living *incog.*; similarly travellers, especially those of high rank, who journey under an assumed name, or without their usual retinue, &c., are said to be travelling *incognito*.

Income-tax.—A tax of so much in the pound imposed upon all persons with incomes above a certain limit, the amount of the tax and the limit varying from time to time, according to the financial necessities of the Imperial Government. The calculation of income, for the purpose of assessment of income-tax, should be regulated either by the actual income for the past year; or, if the income be fluctuating, as in business, or when derived from uncertain sources of revenue, by an average of the incomes of the previous three years.

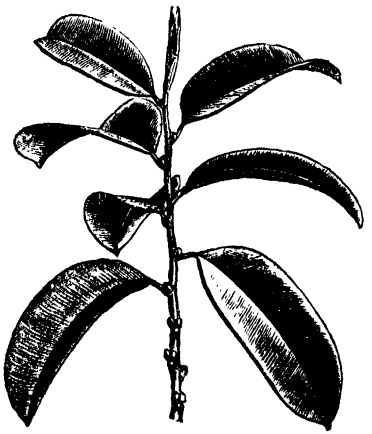
Incomes.—The profits which accrue to any one from property, office, or employment. The word income, therefore, includes earnings, wages, salaries, gains from trade, property, &c. Strictly speaking, a man's income is not coincident with receipts, but is really what remains after deductions for stock and conducting business arrangements; in other words, income is profit.

Incrustation of Boilers, Kettles, &c.—In the case of boilers where the water is not intended for drinking, various remedies are available. Sal ammoniac is said to prevent incrustation, so is chloride of tin. Carbonate of soda is also used. Common tar, bitumen and pitch, coarse sawdust, and oven potatoes, have been recommended. The crust which forms in tea-kettles may be removed by boiling in them sixty grains of sal ammoniac for one hour: this will dissolve the lime of which the crust is formed, and it can be easily removed. A better plan, however, is to send the kettle to a tinman, who will remove the incrustation for a trifle. To prevent the evil is best of all, and many say that an oyster-shell will be sufficient if constantly kept in the kettles when used. But this is a doubtful preservative; and probably the only effectual plan is always to clean the inside of a kettle after it has been used. The incrustation keeps away rust, and makes a kettle last longer; but more fire is needed with it than without it.

Indenture is a writing containing a conveyance or other legal instrument between two or more persons, indented or cut evenly, or in and out on the top or side, answerable to another writing which likewise comprehends the same words. Formerly, when deeds were more concise than at present, it was usual to write both parts on the same piece of parchment, with some words or letters written between them, through which the parchment was cut either in a straight or indented line, in such a manner as to leave half the word on one part and half on the other; and this custom was formerly in use for making out the indentures of a fine. But at last indenting only has come into use without cutting through any letters at all, and serves for little other purpose than to give name to the species of the deed, as an apprentice's indenture, &c. By Statute 8 & 9 Vict. c. 106, s. 5, it is provided that a deed purporting to be an indenture shall have the effect of an indenture, though not actually indented. (*See* DEED.)

India-rubber, or Caoutchouc.—This most useful substance is principally obtained from the *Ficus elastica*, a species of fig-tree belonging to the natural order *Moraceæ*, and a native of the East Indies; the *Siphonia elastica*, a tropical tree growing in South America; and the *Urceola elastica*, flourishing in the Malay Peninsula, Java, and Sumatra. From all these trees the india-rubber is obtained by "tapping," *i.e.*, by making incisions in the trunk of the tree, at some little distance from the ground. The juice which exudes from these incisions is

then caught in vessels placed beneath. When the supply of india-rubber—the milk or sap—is completely exhausted from any one tree, it is left to recover itself, which it usually does in about two years, when it is again ready to yield



INDIA-RUBBER (*Ficus elastica*).

its supplies. Its special qualities of elasticity and imperviousness to water make india-rubber exceedingly valuable in a variety of ways. When first brought over, the chief obstacles to its general use were its tendency to soften with heat, to stiffen with cold, together with a peculiar clammy adhesiveness. These natural disadvantages have been now overcome by the method in which it is prepared; and at the present time it is used for the immense variety of waterproof articles, for surgical bandages, and, when made solid, for hair-combs. Its chief rival is gutta-percha (*which see*), which is also brought into requisition for things of this description.

Indian Berry.—A name by which the *Cocculus indicus* (*which see*) is known.

Indian Civil Service.—Under this title are included those who are engaged in the service of the Crown in our Indian Empire, whether employed as clerks, collectors of revenue, magistrates, superintendents of districts, judges, commissioners, or governors of provinces. As with the Home, so with the Indian, Civil Service, entrance now depends entirely on the results of yearly competitive examinations. Of the lucrative nature of the appointments in this service, it is only necessary to say that the average salary at starting is about £480 per annum, and that this may rise to from £3,000 to £4,000. Beyond this, again, are many high positions, such as those held by lieutenant-governors of provinces, with a salary of £10,000 a year; but these are, of course, to a great extent exceptional. The pensions attached to the service are also exceedingly liberal, while each Indian civil servant is entitled to "furlough"—leave of absence—to the amount of one-fourth of his active service. The entrance examinations for admission to the service are held in London, and all male natural-born subjects of her Majesty of from 17 to 19 years of age, of good health and good moral character, are eligible to compete. As might be expected from the lucrative nature of the appointments to be obtained, these competitive examinations are by no means easy, and success can only be attained as the result of real and hard study. A large number of subjects are included in the examination, but no particular one is obligatory, and it is not, of course, expected that any candidate will take up all or nearly all of them. Those, however, who show a competent knowledge in the largest number of subjects, and obtain the highest aggregate of marks, will take the first places in the competition; and the number of successful candidates is in all cases limited to the number of vacant appointments. After competing successfully in this examination, a period of probation ensues, extending over two years, during which the candidate is periodically examined in further subjects, including Oriental languages—*i.e.*, Sanscrit, Arabic, Persian, and the vernacular languages of India; the history and geography of India; law and political economy. An allowance of £150 a year is given during each of the two years of their probation to all candidates who pass their probation at some university, to be approved beforehand by the Secretary of State, provided such candidates pass the required examinations to the satisfaction of the Civil Service Commissioners, and comply with such rules as may be laid down for the guidance of selected candidates. Full particulars of the regulations and dates of examinations for the Indian Civil Service may be obtained on application to the Secretary of the Civil Service Commission, Cannon Row, Westminster. (*See* CIVIL SERVICE.)

Indian Corn. (*See* MAIZE.)

Indian Hemp.—The plant from which this is obtained grows in various parts of Hindustan, where it is known as *sunn*; it belongs to quite a different order of plants from that known as hemp in this country. The fluid extracted is used for medicinal purposes, and forms an excellent cure for whooping-cough. Its properties are very powerful, and therefore it is highly dangerous to administer it to the sufferer except by a medical prescription made for that particular patient.

Indian Ink.—This is composed of lamp-black and glue or size. The best quality comes from China; its special brilliancy is attributed to the pigment being prepared with vegetable juices in lieu of glue. The Chinese use this ink for writing as well as painting. In Europe, artists produce great effects of light and shade with Indian ink, by diluting it in different degrees.

Indian Red.—A pigment which is a natural product, and is brought from Eastern Persia. It partakes of a variety of tones, but all of a slightly purple character, and when mixed with white the tints produced are very delicate and pleasing. Not being transparent, it can only be reduced to tints in this way. When genuine it is singularly durable, but it may be imitated or adulterated with a mixture of red ochre and the iron oxide called colcothar, or rouge. The latter is often called Indian red.

Indian Wheat. — A name sometimes applied to Indian corn, or maize. (*See* MAIZE.)

Indictment.—An indictment is a written accusation against one or more persons of a crime or misdemeanour, preferred to and presented upon oath by a grand jury. It lies against all persons (except those under incapacity, as lunatics) who commit or procure and assist in the commission of crimes, or who knowingly harbour an offender; for each in the eye of the law is guilty, and liable to punishment according to his part in the commission of the offence. It consists of three principal parts—the commencement or caption, the statement, and the conclusion. The caption is no part of the indictment; it is only the title of the court in which it is preferred, which is prefixed, by way of preamble, when the record is made up, or when it is returned by a certiorari. The statement must be certain as to the party indicted, and as to the person against whom the offence was committed, and also as to time and place, facts, circumstances, and intent. There is, in general, no time limited for preferring an indictment, but by several Statutes certain limitations for certain offences are fixed. If an indictment be defective, it will be quashed. Previous authorisation of a judge of one of the superior courts, or of the Attorney-General, is required for an indictment for perjury, subornation of perjury, conspiracy, obtaining money or other property on false pretences, keeping a gambling-house or a disorderly house, and any indecent assault (22 & 23 Vict. c. 17). An indictment for felony is against the peace of the Sovereign, her crown and dignity in general, and not against her individual person.

Indictment in the Scotch law is the form of process by which a criminal is brought to trial at the instance of the Lord Advocate; where a private party is a principal prosecutor, he brings his charge in what is termed the form of criminal letters.

Indigestion, or Dyspepsia, is a condition in which the process of digesting and assimilating the food is not carried on with that unconsciousness and freedom from pain and discomfort which are natural to it; but, on the contrary, is characterised by flatulence, pain in the stomach and bowels, heartburn, sick headache, occasional harsh cough, oppression after eating, languor, and either constipation or diarrhœa. The most frequent causes of indigestion are over-eating and drinking, irregularity of meals, sedentary employment, unwholesome air, a worried state of mind, and want of exercise. It may also result from the frequent use of purgatives, and it is often one of the earliest symptoms of consumption (*which see*). The treatment consists in (1) regulating the diet and mode of life, and (2) in administering certain medicines which will act upon the liver and bowels, and give tone to the stomach. 1. *To regulate the diet and mode of life.* To effect this, habits of excess must be abandoned. The food should be plain and nutritive, should be taken at regular intervals (not too long and not too short), and there should not be more than three meals in the day. No entrées or re-cooked food should be eaten, and no pastry; vegetables (and especially potatoes, if they excite flatulence) should also be taken sparingly. Stimulants are, as a rule, injurious, but in the case of weakly persons, a little brandy or whisky and water may be taken with the principal meal. Tea, coffee, and fluids generally must be used sparingly; daily exercise in the open air, but not immediately after a meal, is advisable, as well as keeping early hours in going to bed and getting up. Worry and anxiety must, as far as possible, be resisted. 2. *With regard to medicines.* A brisk purgative of calomel (from three to five grains for an adult) when the liver is out of order will do good. This may be followed by a black draught, or by Hunyadi Janos water. The bowels being well cleansed, soda or potash, with sal volatile and tincture of capsicum, in a bitter infusion, as columba or gentian, will be found efficacious when there are acid eructations, &c. In some cases, nitro-muriatic acid may be substituted for the soda or potash. When there is flatulence and great discomfort after food, the following pill, taken for a few days before dinner, will afford great relief:—Extract of nux vomica half a grain, sulphate of iron one grain, extract of aloes (Barbadoes) one grain. The soda and bitter infusion before mentioned may be taken at the same time twice a day, from one to two hours after meals. If there is severe pain, a few drops of sedative solution of opium may be added to this mixture. In aggravated dyspepsia, nitrate of silver is a valuable remedy.

Indigo.—A blue colouring matter, obtained



INDIGO PLANT.

from the leaves of the *Indigofera tinctoria*, im-

ported to this country from the East Indies. It has to be deoxidised when used for the purpose of dyeing, when it assumes a green hue, becomes soluble in water, and then readily enters the pores of the cloth immersed in it. When the cloth is exposed to the action of the air, the indigo re-absorbs the oxygen, and its natural colour returns. It is exhibited in the lump, in powder, in a state of pulp or minute subdivision, by treatment with strong sulphuric acid; but in this last condition it ceases to be a "fast" dye, as in the preceding cases, when it proves one of the most permanent of colours.

Indorsement. (*See* ENDORSEMENT.)

Industrial Societies.—Societies which are engaged in some trade, the profits of which are for the mutual benefit of the members. In their constitution they much resemble Friendly Societies, and they are governed by the same Acts of Parliament as the latter. (*See* FRIENDLY SOCIETIES.)

Inebriety.—This is drunkenness or intoxication, either as a condition or as a habit. As a condition it is too well known by the phenomena which accompany it, particularly in connection with the free participation of alcohol. But it is not alcohol alone which can produce intoxication, for corresponding results ensue from the use of certain drugs and chemical preparations, and it is the avowed intention of what is called opium eating. It is not necessary for us to enter into detail on the subject in this work; we may add, however, that cases of inebriety may arise from mere accident; that when not accidental they are a violation of moral obligation; and that where the repetition of acts and the craving for stimulants imply the formation of a habit, very grave responsibility is incurred. Inasmuch as inebriety among ourselves is mainly due to the consumption of alcoholic drinks, efforts have been made to dispense with them altogether. (*See* TEETOTALLERS; TEMPERANCE.)

Inertia.—This is a term used by medical men to imply a sluggishness of action of some organ or part. The Latin word *inertia* means inactivity or indolence.

Infant. (*See* INFANTS.)

Infant (in Law).—An infant (from the Latin word *infans*, which means "one who cannot speak for himself") is, in law, a person under the age of twenty-one years whose acts are in most cases void or voidable. For some purposes the age of legal capacity is reached earlier. Thus, in criminal cases, a person of the age of fourteen years is liable to capital punishment; under the age of seven he cannot be made so. The intermediate period is subject to much uncertainty, the presumption being in favour of innocence as regards any one between those years of age. A male at the age of twelve years may take the oath of allegiance; at fourteen years old may enter into a binding contract of marriage; and at twenty-one years old he is at his own disposal—may alien his land, and generally perform all the duties and enjoy all the privileges of a citizen. A female is at maturity at twelve years old, and may then enter into a binding contract of marriage; and at twenty-one she may dispose of all her property.

Formerly a contract entered into with an infant was voidable only on his coming of age; but now, by the Infants' Relief Act, 1874, all contracts, whether by specialty or simple contract, entered into by infants for the repayment of money lent or to be lent, or for goods supplied or to be supplied (other than contracts for necessaries), and all accounts stated with infants, shall be absolutely void, and no action can be brought whereby to charge any person upon any promise made after full age to pay any debt contracted during infancy, or upon any ratification made after full age of any promise or contract made during infancy, whether there shall or shall not be any new consideration for such promise or ratification after full age. All conveyances by an infant are voidable by him or his heirs on attaining full age; in gavelkind lands, however, an infant may make a valid feoffment of lands which he has by descent (by way of sale, but not mortgage) at the age of fifteen years. An infant at any age may present to a living in the church. An infant is liable for torts committed by him, unless the tort has arisen out of contract. An infant cannot prosecute an action either in person or by attorney; he must sue by next friend, who is usually the nearest relation not interested in the matter in question and appointed by the Court. The general superintendence and protective jurisdiction of the Court of Chancery over the persons and property of infants is a delegation of the rights and duties of the Crown, the universal guardian of infants, and is retained for the Chancery Division of the High Court. The full age of twenty-one years is attained on the day preceding the anniversary of a person's birth; and as in the computation of time the law in general allows no fraction of a day, it follows that if an infant is born on the 1st of January, he is of age to do any legal act on the morning of the last day of December, though he may have lived nearly forty-eight hours (or two days) short of the twenty-one years. By the Statute 36 Vict. c. 12, the Court of Chancery is empowered to order that a mother may have access to and custody of infants under sixteen years of age. By the Judicature Act, 1873, it is enacted that in questions relating to the custody and education of infants the rules of equity shall prevail. By the Infants' Marriage Act, 1855, every infant, if a male of twenty, or a female of seventeen years, upon or in contemplation of marriage, may, with the sanction of the Court of Chancery, make a valid settlement or contract for a settlement of property.

Infanticide.—The act of killing a child after its birth. When an infant is found dead, and its death becomes the subject of judicial investigation, the following important questions present themselves: 1. What is the age of the child? 2. Was the child born alive? 3. If born alive, how long had it lived? 4. If

born alive, by what means did it die? If it be shown that the death occurred by violence, and the mother is suspected, the circumstances attending its birth, &c., are important in the investigation.

Infants.—If warmth is necessary to the health and even to the life of adults, still more so is it indispensable for children, and therefore it is most important that appropriate clothing should be provided during the sensitive period of infancy. There is no doubt that cold and scanty clothing work fearful havoc every year among the children of the poor, and not amongst them only, for there are great numbers of people in comfortable circumstances who seem to possess scarcely any idea of what is wanted in the way of clothing for infants. While the costume of children alters with the variations of fashion, that of infants changes little from year to year. The three things which should be especially aimed at in dressing an infant are—an agreeable, equal, and moderate warmth, lightness, and looseness. The bodily temperature of a newly-born baby is below that of an adult, and therefore great care should be taken to protect it from cold; at the same time, due regard must be had to lightness of texture, and ease and freedom of movement. Inexperienced mothers usually make four blunders in preparing their babies' clothes. They do not make them come near enough to the neck to keep the chest and shoulders warm; they press on the baby's arms, and so prevent them being moved freely; they cannot be put on without turning the poor child over and over, and in consequence of this making it fretful; and they are too long, full, and heavy. They ought to be made to cover every part of the body alike; they should rest upon the collar-bones, so that the arms may be quite free; they should be made so that the baby need not be turned more than once; and they should be short and light, so that it can move its arms freely as all other young creatures do. Babies should never wear anything that presses them. Dr. Dio Lewis says:—"The seeds of consumption are planted in thousands by mistakes in dress during infancy and childhood. If you would give a baby's lungs and heart the best chance for development, the dress about the chest and waist should be so loose that, if the child be held up by the shoulders, its entire dress, except as sustained by the shoulders, will fall to the floor. The bones surrounding the small feeble lungs are so soft and pliable that under the slightest pressure they will yield, and the capacity of the chest be reduced." And in addition to all this, a baby's head should be kept cool. From birth it should be kept uncovered night and day when the child is in-doors, and even out of doors nothing but a light pervious cap should be allowed. If perspiration of the scalp be once induced, the baby will become liable to cold in the head, sneezing, and cough; and, moreover, the strength and future growth of the hair may be injured. When children are in good health their heads are warmer than those of adults, while their bodily warmth is lower; besides, there is a tendency in childhood to irritation and congestion of the brain, and therefore it is wrong to increase the heat of the head by unnecessary covering. Babies usually wear next their skin what is called a roller or binder. Great care should be taken that this roller is not too tight, or it may prevent the baby breathing properly, or prevent its stretching and moving its body freely. Some mothers put a cotton binder over the flannel one; but this only does harm. If the baby is strong, the binder should be left off at the end of two or three weeks, although if the baby is weak it may wear the binder a couple of months longer. Some mothers let even strong babies wear the binder till they are five or six months old. This is a mistake. In some countries where children do not wear binders at all they never get crooked, but are very straight and strong, and begin to walk much sooner than they do with us.

The articles of clothing usually provided for infants are shirts, flannel petticoats or blankets, as they are often called, pilches, white petticoats, monthly gowns, flannel shawls, robes, night-gowns, and napkins. The style and material of these things will be regulated by the means of the parents. Whatever they are made of, however, they ought to answer to the requirements of the child mentioned above—that is, they ought to afford warmth, and yet be loose and light in texture. It should be remembered too that clothing simply made is much more easily put on and taken off than elaborately manufactured articles. All the under-clothing should be made to open from and down the front, with tapes to tie at intervals, and so that the long outer robes should consist of one piece only, with a running string at the top to draw it over the shoulder and round the neck. Any trimming that is used will be better to consist of lace than of embroidery, because the former is soft, and the latter may become stiff and hard after it is washed. During the first few months of its life the baby should have a flannel gown or wrapper for night wear. This should fasten loosely round the waist, and be long enough to turn up over the feet. There is no doubt that this wrapper will prevent many a cold. Pins should never be used; even safety-pins should be employed as little as possible, and to prevent this the clothes should be plentifully provided with tapes wherever they are likely to be required. Buttons are to be avoided, because they might cause pain by pressure, therefore tapes are to be preferred in every case. A baby's feet should be kept warm with knitted shoes or boots until it is about ten months old. When it begins to crawl, one or two thicknesses of wash-leather may be sewn upon the sole. Socks and leather shoes are not required until the child begins to run about, and there should be no haste to cramp the little toes with them until they are absolutely required. When they are worn it is most important that warm thick stockings and strong good shoes should be provided. Until an infant is two months old in summer, or three months old in winter, or even more than this if the weather is severe, the outer garments should extend ten or twelve inches below the feet. They should not, however, be longer than this, because long heavy skirts drag down a baby's weak little

feet and legs, and keep it from moving freely. But the proper time having arrived, the baby may be short-coated—that is, the length first of the under-clothes, and afterwards of the outer garments, may be shortened one at a time, day by day, until the feet have unrestricted movement. The time for this short-coating process must, however, be regulated more by the state of the weather than by the age of the child. If it is accomplished in cold cutting weather, diarrhœa or dysentery may ensue. It would be well also if, for some time after the short garments have been adopted, a long outer skirt should be put on before sending the baby out of doors. In preparing clothing for babies, the importance of providing flannel to wear next to the skin can scarcely be too strongly insisted upon. Dr. Hunter's maxim for the rearing of children, "Plenty of milk, plenty of sleep, and plenty of flannel," is an excellent one, and no amount of outer garments will compensate for the absence of this valuable material. Some children, however, cannot wear flannel next to the body; its harshness produces irritation. It is very unfortunate when this is the case, and the fact that it is so should not be accepted until a fair trial has been made. If it is found that things are so, and that the flannel cannot be worn next to the body, a thin garment of linen, silk, or cotton must intervene, but the flannel should be worn above it, and the body must still be protected. Dr. Barker says:—"Warmth is not always secured by the quantity and weight of clothes, which should be so moderated that the child be not unduly heated, relaxed, or oppressed by too many in mild weather, nor chilled by being clad scantily when the air is cold. Exposure of the neck, chest, shoulders, and upper arms is very dangerous. The upper and most delicate part of the lungs is situated just behind and above what are known as the collar-bones, yet too often is this region left exposed in children. Yet the chest must be well protected, and the upper garments, under and outer, should fit closely, yet not tightly, round the shoulders and neck."

In summer-time, if the weather be warm and bright, a baby may be taken out of doors when it is three or four weeks old; in winter it should not be taken out until the second month, and then only in the middle of the day. On cold rainy days, and during easterly winds, it should be kept entirely within doors. After it has reached the age of three months it should go out every day when the weather is at all favourable. In fine bright summer weather it should spend a good deal of time out of doors, yet not too long at once, for fear the light and air should be too strong for it, and cause temporary exhaustion. In very hot weather it should be carefully shielded from the blazing sun by a parasol; exposure to his piercing heat has not unfrequently brought on convulsions and even idiocy in infants. It is important that a baby should not be carried upright until it is at least six months old; it should rather be laid carefully over both the nurse's arms, and lie flat as it does in bed. Care should be taken not to press the baby too closely to the nurse, for its limbs are soft and pliable, and may be easily bent. It should be turned also from one side to another about every quarter of an hour, for it will get cramped if it always lies on one side, besides which, if it always remains with one eye turned from the light, it will be likely to squint. When it is awake it should be allowed to keep moving continually, for its limbs cannot get strong unless they are used. The best plan is to put it down on a large cushion on the floor, and there let it creep and crawl and stretch its limbs to its heart's content. The cushion may be made of cotton, and filled with any soft material, such as grass, or chaff, or cocoa-fibre. On the warm dry days of summer it may be laid on the grass in the garden, and there the baby may roll and stretch in the fresh pure air. It is very important that chairs should not be used too soon, for they support the body imperfectly, and may injure the weak spine. For the same reason great judgment should be exercised in the use of perambulators. A child should never be put into one of these until it is able to sit upright. Then the back of the carriage should be sloped to fit that of the child; the seat should be level, and neither too hard nor too soft, and a footstool should be put under the baby's feet. There should be a movable hood or canopy attached to the vehicle, to afford shade in sunshiny weather, but yet to allow free access of air. The springs of the carriage should be easy, and it should be wheeled only on smooth, level ground, to avoid shaking and injury to the spine; and the child should be taken out and carried at short and regular intervals, to afford an opportunity for change of position. When perambulators are rightly used—that is, when they are employed as aids to open air exercise—they are most valuable. But when, as is too often the case, they are abused by negligent nursemaids, who leave their little charge in the carriage sitting cramped and uncomfortable in the hot sun or cold and wind, with its body half in and half out, and perhaps asleep, while they gossip with their thoughtless companions, perambulators are *most* mischievous.

The greater part of an infant's time should be passed in sleep; and it may be taken as a rule that the more it sleeps, the better it will thrive. In order to promote sleep, the baby should be put to bed at the same hour every day, and it should not be rocked, or patted, or sung, or hushed to sleep. These movements are not only unnecessary, but they often prove injurious, and if they are never begun a great deal of needless trouble may be saved. An infant should not be allowed to sleep much in the arms or on the lap, as the thighs and legs may become curved thereby. It should not be smothered with too many bed-clothes, for too much covering makes it liable to take cold; and if the clothes press heavily on the weak little chest, the baby will not be able to breathe freely. What is wanted is that the child shall be comfortably warm, without perspiration being excited. The cot or crib should be entirely without curtains, in order that the air may have free access to the infant; and for the same reason care must be taken that the bed-clothes do not cover the baby's mouth and nose, as otherwise it will re-breathe its own

breath, and will awaken fretful and unrefreshed. It should lie in a darkened room, remote from noise, and should never be wakened out of sleep by loud, sudden noises; neither should it be snatched suddenly up from sleep. There should always be plenty of fresh pure air in the room where it sleeps. On this point Miss Nightingale says:—"It is all nonsense what some old nurses say, that you cannot give a baby fresh air without giving it a chill; and on the other hand you may give a baby a chill which will kill it (by letting a draught blow upon it when it is being washed, for instance, and chilling its whole body, though only for a moment), without giving it fresh air at all; and depend upon this, the less fresh air you give to its lungs, and the less water you give to its skin, the more liable it will be to colds and chills." Excepting in the very coldest weather, a baby should be trained to sleep, not in the bed with its mother, but in a cot by her side; and if it is sufficiently warm it should not be removed from its crib, excepting to take food. If it is found necessary to take it into the mother's bed to restore warmth, it should be put back as soon as this object is attained, for besides the danger which exists of the child when sleeping with an adult being over-laid or stifled to death by slipping under the bed-clothes, it is much more wholesome that it should sleep alone.

A baby should not sleep in the same clothes which it has worn during the day, for these are moist with the perspiration from its skin. They should be shaken out separately, and aired for a few minutes before the fire, then hung where the fresh air can get to them, to make them ready for the morning. As soon as a baby is taken out of bed, the bed-clothes should be stripped off, and shaken, and hung over a chair; and the window should be thrown open, so that plenty of fresh pure air may get into the room, to sweeten it, the bed, and the bed-clothes. As an infant's bed is very liable to be wetted, it is better that it should be made of some material that can be easily replenished. A bag filled with chaff, cocoa-fibre, Indian corn leaves, or dried moss makes an excellent bed and pillow for children. Chaff and dried moss are so cheap that with very little expense a bed can be filled afresh as soon as it begins to smell badly. The green soft long moss which is to be found on hill-sides and shady banks is the right sort for beds. It should be gathered when dry, and should be washed, dried in the sun, and pulled into small pieces before being used. A bed made of this is much better than feathers for an infant. In providing for a baby's comfort during sleep, one important point should not be forgotten, and that is, that an infant should never be allowed to go to bed with cold feet. Watchfulness is called for with regard to this, especially with delicate children, and it may easily be prevented by rubbing the child's feet and legs with the mother's warm hand for a few minutes before it is laid in its crib. For the best food for infants, *see* CHILDREN, REARING AND FOOD OF.

Infants, Ailments of.—Of these the most common are thrush, teething, flatulence, diarrhœa, catarrh, convulsions, and the exanthematous fevers, as measles, scarlatina, small-pox, &c., all of which will be found described under their respective headings. Moreover, there are very few diseases, indeed, to which adults are liable which may not also attack infants; and it is to this cause, as well as to neglect and unhealthy surroundings, that the fearful mortality which prevails at this period of life may be attributed.

Infants, Exposure of. (*See* EXPOSURE OF INFANTS.)

Infection.—This is the term popularly used to signify that certain diseases are capable of being communicated through the medium of air, water, clothing, &c., and that they may be so communicated without actual contact with the infected person. The term is used in contradistinction to contagion, which means actual contact; but as the poison must, no matter what the vehicle, come into contact with the person to be infected, it follows that infection implies contagion, and consequently the terms may be, and are, used synonymously. (*See* CONTAGION.)

Infirmary.—An infirmary is, as the name implies, a place for the relief of the infirm; but in common practice it is identified with a hospital for the sick. (*See* HOSPITALS.)

Inflammation.—This is a condition characterised by pain, heat, redness, and swelling of the part affected. There are many varieties of inflammation, depending on the cause from which it arises and the constitution of the sufferer. Thus it may be sthenic (*i.e.*, active inflammation), or it may be asthenic (*i.e.*, weak or low inflammation). Again, it may be common, as from ordinary causes; or it may be specific, as from gout, syphilis, glanders, diphtheria, &c. It may also be diffused, as in erysipelas; or it may be circumscribed, as in abscess. Lastly, it may be either acute, sub-acute, or chronic. The treatment of inflammation will depend upon the cause and character of the disease, some forms requiring the abstraction of blood, a cooling regimen, and the application of ice-cold lotions, &c.; other forms necessitating the use of stimulating poultices and dressings, with the administration of tonics, combined with a generous diet. Inflammation is too serious a disorder to be tampered with, and the best available advice should be at once procured.

Influenza.—This is a disease which has at various times been epidemic in this country. It exhibits most of the characteristics of common catarrh of a severe type—as, for example, running at the eyes and nose, frontal headache, feverishness, and cough. Like catarrh, it may also affect the respiratory passages, producing bronchitis, difficulty of breathing, and even pneumonia. Influenza has, however, one striking peculiarity which distinguishes it from catarrh, and that is, that it is always accompanied by a most marked prostration of strength. This is frequently so excessive that the patient can scarcely sit up in bed—a condition which may continue for a considerable time after the other symptoms have disappeared. Influenza appears to be endemic, or permanently located

in Northern Europe, from which quarter the waves of the disease have at times spread over both the rest of Europe and the American continent. The treatment of influenza consists in the use of such remedies as are found serviceable in catarrh, bronchitis, &c. (*which see*), supplemented by full doses of quinine, and when the prostration is great, by wine, brandy, &c. Change of air will prove most beneficial during the period of convalescence.

Infusions are mostly obtained by soaking the various ingredients in hot water, and allowing them to get gradually cold, till the different properties are extracted. Vegetable infusions, as a rule, require the addition of a little spirits of wine to prevent their turning mouldy, as without this they will not keep for any length of time. The following are some of the infusions most in use:—*Infusion of senna.* Three ounces senna-leaves steeped in a quart of boiling water for a couple of hours. *Infusion of hops.* Soak twelve ounces of hops in a quart of boiling water for four hours. *Infusion of hellebore.* Take one ounce of the dried leaves of *Helleborus fœtidus*, and pour a pint of boiling water on them, and let the whole stand for an hour. *Infusion of quassia.* Steep four scruples of quassia wood-chips in a quart of boiling water for two hours, and then strain them off. This is an excellent and very bitter tonic. *Infusion of hemlock.* Four ounces of coriander-seed, with the same quantity of dried leaves of hemlock; put into a pint of water (boiling), and let the whole remain for a couple of hours.

Ingot.—A mass or bar of gold, silver, or other metal cast in a mould, and intended either for coining or exportation. The gold and silver imported by this country usually arrives in the shape of ingots.

Ingredients.—The materials which enter into the composition of certain mixtures. The word is commonly limited to culinary and chemical preparations, and such-like; it is, therefore, less comprehensive than materials, which is of much wider application; thus we do not say the ingredients, but the materials of a house, a book, a dress, &c. On the other hand, it is usual to say the ingredients, rather than the materials, of a pudding, a medicine, an ink, &c.

Inhalers.—These are vessels or instruments which have been constructed for the purpose of administering the steam of hot water, either alone or combined with some medicinal agent, in the shape of an inhalation. A useful inhaler is one that is made of earthenware, and consisting of an outer chamber, into which boiling water is poured, and an inner chamber, to which a tube and mouth-piece are attached, and where, if desired, the medicinal agent may be placed. A thermometer is so fixed as to show the exact temperature, and when this has fallen to 140°, the inhalation may be commenced by placing the mouth-piece in the mouth, and taking quietly a few deep inspirations. This process may be continued for a quarter of an hour or twenty minutes, the temperature being kept up by a spirit-lamp, which is placed underneath the outer chamber. A steam spray inhaler which has been introduced is also a very valuable instrument. Inhalers are now in great request, owing to the treatment of throat and lung affections by inhalations. A simple form of inhaler, and one which answers the purpose very well, is to pour some hot water into a jug; then add, if necessary, the medicinal agent; cover the head with a thick towel, and hold the mouth over the jug in such a way that the steam escaping can be inhaled. Vapour of pine, turpentine, creasote, conium, &c., are the medicinal agents most used as inhalations; but there is very little doubt that the steam of the hot water is the prime agent in effecting the relief experienced. Special inhalers are used for the inhalations of chloroform, nitrous oxide gas, &c.; but these need not be described here, as they would not interest general readers.

Inheritance, in law, is a perpetuity in lands or tenements to a man and his heirs; and the word inheritance is not only intended where a man has lands or tenements by descent, but also every fee-simple or fee-tail which a person has by purchase may be said to be an inheritance, because his heirs may inherit it. The following are the canons which now, and since the 1st of January, 1834, regulate the descent of lands:—1. The inheritance descends to the lineal descendants of the purchaser *in infinitum.* (*See* PURCHASER.) 2. To the male issue in preference to the female. 3. To the eldest male in exclusion of the others (*see* GAVELKIND for an exception to this); but if there be no male issue, then to the female issue altogether. 4. Lineal descendants *in infinitum* represent their ancestor. 5. Failing lineal descendants of the purchaser, the inheritance goes to the nearest lineal ancestor, the father succeeding before the brother or sister of the purchaser. 6. In the application of the fifth canon, the succession to the inheritance is to be according to the following order:—(*a*) The father and all male paternal ancestors, and their descendants *in infinitum.* (*b*) All the female paternal ancestors and their heirs. (*c*) The mother and all male maternal ancestors, and her and their descendants *in infinitum.* (*d*) All the female maternal ancestors and their heirs. 7. The half-blood of the purchaser shall inherit:—(*a*) Where the common ancestor is a male, next after a kinsman in the same degree of the whole blood and the issue of such kinsman *in infinitum.* (*b*) Where the common ancestor is a female, next after that female. 8. In the application of the sixth canon:—(*a*) In the admission of female paternal ancestors, the mother of the more remote male paternal ancestor, and her heirs, are to be preferred to the mother of the less remote, and her heirs. (*b*) In the admission of female maternal ancestors, the mother of the more remote male maternal ancestor, and her heirs, are to be preferred to the mother of the less remote one, and her heirs. 9. Failing the discovery of an heir after the application of all the first eight canons, the land is to descend to the heir of the person last entitled, although he was not the purchaser thereof, and such heir will, of course, have to be ascertained by the

renewed application of the first eight canons, starting only from a different point of departure or *propositum*.

Initial.—The first letter of a name. (For the common use of many initials in the place of proper names, &c., *see* ABBREVIATIONS.) Though it is usually necessary to write a name in full to constitute a strictly legal and binding signature, there are exceptions to the rule, especially in commerce. Thus in the case of any alteration in the filling up of a cheque, or of any erasure or correction in the wording of an agreement, it is considered sufficiently binding if such alteration, &c., be initialled by the person primarily interested.

Injections.—These are certain remedies which, by means of proper instruments, are injected into various parts of the body, and do good either directly, as local applications, or indirectly, by being absorbed into the system. In this way food or medicine may be passed into the stomach or lower bowel. The bladder and urethra also may be washed out, and encysted tumours excited to adhesive inflammation and dispersion. Subcutaneous injection is the introduction of some medicinal agent, usually a solution of morphia, beneath the skin by means of a sharply-pointed and carefully graduated syringe. The sharp point is made to just penetrate the skin, and the desired quantity of the fluid is then injected. It is found that morphia given in this way, even in less quantity, acts much more quickly and powerfully than when swallowed; and this mode of administration is especially indicated in cases where the patient cannot retain anything on the stomach, and may have lost the power of swallowing, from insensibility or some other cause.

Injunction.—A prohibitory writ—formerly issued out of the Court of Chancery, but now out of the Chancery Division of the High Court of Justice—restraining any one from doing or committing anything which appears to be against equity and conscience, but not amounting to a crime; also for the preservation of property, and the restraining of nuisances.

Ink, Black. (*See* BLACK INKS.)

Ink, Coloured.—Inks are dyes for the most part, and may therefore be made of various colours from a strong decoction of ingredients used for dyeing, mixed with alum or other mordants and gum-arabic. Common water-colour cakes may be mixed in water and used as ink. Cheap and useful coloured inks are made from aniline dyes. *Green ink* can be made from sap-green dissolved in very weak alum-water. *Purple ink* may be made of a strong decoction of logwood, with the addition of a little alum or chloride of tin. For *red ink*, take powdered cochineal one ounce, hot water half a pint; digest, and when cold add spirit of hartshorn quarter of a pint (or liquor of ammonia one ounce, diluted with three or four ounces of water); macerate for a few days, and pour off the clear liquid. For *yellow ink*, take roughly-powdered gamboge one ounce, hot water five ounces; dissolve, and when cold add spirit three-quarters of an ounce. *Brown ink* may be made of a strong decoction of logwood and a very little weak solution of bichromate of potash. For blue and blue-black, *see* WRITING FLUIDS. (*See also* GOLDEN INK.)

Ink, Golden. (*See* GOLDEN INK.)

Ink, Indian. (*See* INDIAN INK.)

Ink, Invisible (also called diplomatic and sympathetic ink).—There are several kinds, the common feature of which is, that writing done with them is invisible until colour is given to it by heat or some chemical agent. Among the examples given by Cooley are the following:—Sulphate of copper and sal ammoniac, equal parts, dissolved in water; writes colourless, but turns yellow when heated. The result with onion-juice is similar. A weak infusion of galls turns black when moistened with weak copperas-water. A weak solution of sulphate of iron becomes blue when moistened with a weak solution of prussiate of potassa, and black when moistened with infusion of galls. Aqua-fortis, spirits of salts, oil of vitriol, common salt, or saltpetre, dissolved in a large quantity of water, turns yellow or brown when heated. Solution of chloride or nitro-muriate of cobalt becomes green when heated, and disappears on cooling: if the salt is pure the marks turn blue. Solution of acetate of cobalt, with a little nitre added, becomes rose-coloured when heated, and disappears on cooling. A weak solution of the mixed chlorides of cobalt and nickel turns green. The use of such preparations is either for secrecy or for amusement.

Ink, Marking. (*See* MARKING INK.)

Ink Powders.—These are chiefly useful to tourists and travellers. The following recipes are from Cooley:—1. Aleppo galls four ounces, sulphate of iron one ounce and a half, gum-arabic one ounce, lump sugar three-quarters of an ounce (all quite dry and in powder); mix, and divide into three packets. A pint of boiling water poured over one of them produces in a few hours a pint of excellent ink. 2. Aleppo galls three pounds, copperas one pound, gum-arabic half a pound, white sugar quarter of a pound (all in powder); mix, and divide into two-ounce packets, to be used as the last. To these we add another:—Take very clean nut-galls five ounces; bruise them, and sift the powder very fine; add white copperas one ounce, Roman vitriol two ounces, gum-arabic half an ounce; pound and sift them very fine; mix the whole. One ounce of the powder will make a pint of very black ink.

Ink-stains.—These can be effaced by salts of lemon, a careful use of which is necessary, otherwise the application will produce holes in the material. The best method is to strain the linen over a vessel of hot water, to brush the salts over the stain with a feather, and then to rinse the injured piece. A substance called ink extractor has been compounded, which is said to take out stains without damaging the material. Stains can be effaced from mahogany by brushing vitriol over the spot.

Inkstand.—A stand designed to hold a bottle containing ink, the better to preserve it from being upset. Inkstands are made of silver, bronze, brass, carved wood, ormolu, papier-

maché, porcelain, pottery, &c.; being respectively carved, moulded, cast, painted, enamelled, and decorated by various methods and in as many styles. Sometimes handsome cut-glass bottles are made so large and heavy as to possess all the advantages to be derived from the use of the stand, in which the smaller inkbottle is inserted. These are called inkstands, though they are only bottles.

Inlaying is the art of excising some portion of the surface of wood, metal, stone, marble, or other material, and inserting in its place something of an ornamental character. When the substance to be inlaid can be made pliable, the method adopted is to press the harder material into the softer. Wood is frequently inlaid with other woods of different colours—a species of workmanship in which the French are particularly proficient, and which they style *marquetrie*. Steel is inlaid with other metals, gold or brass being the most general, and is known as Damascened work—a style of ornamentation brought to great perfection in India, very frequently the gold occupying more space than the groundwork. Bedery-work is another species of similar ornamental work, and is generally used for inlaying hookah bowls. These are made to consist of four parts of pewter to one part of copper, and when the pattern is engraved, pieces of thin silver are hammered into the hollowed out parts. Mosaic work is also a kind of inlaying; by this process pictures or patterns are formed by joining together small pieces of coloured marbles, or artificial stones, on a foundation of a copper, and when fixed they are ground and polished to a level surface.

Innkeepers.—All persons who keep houses where travellers are accommodated or entertained for a remuneration are considered innkeepers. They are bound to accommodate all travellers and wayfaring persons at a reasonable charge, at least while they behave properly. They have a lien upon their guests' goods for board and lodging, but not on their persons or actual wearing apparel. Guests are *bonâ fide* travellers, and not mere neighbours or friends visiting the house occasionally. By the common law, innkeepers are bound to take not merely ordinary care, but uncommon care of the goods and property of their guests, and they are responsible for the acts of their servants and domestics, as well as for the acts of other guests. But the liabilities of innkeepers at the common law having been found to press hardly upon them, the Act of Parliament 26 & 27 Vict. c. 41, has provided that no innkeeper shall be liable to make good to any guest any loss or injury to goods or property brought to his inn, not being a horse or other live animal, or any gear appertaining thereto, or any carriage, to a greater amount than the sum of £30, except in the following cases:—1. Where such goods or property have been stolen, lost, or injured through the wilful act, default, or neglect of such innkeeper or any servant in his employ. 2. Where such goods or property have been deposited for safe custody with the innkeeper.

Inns of Chancery.—So called because anciently inhabited by such clerks as chiefly studied the framing of writs, which regularly belonged to the cursitors, who were officers of the Court of Chancery. There are nine of them, appendages to the Inns of Court—Clement's, Clifford's, and Lyon's Inns belonging to the Inner Temple; Furnival's, Thavie's, and Symond's Inns to Lincoln's Inn; New Inn to the Middle Temple; and Barnard's and Staple's Inns to Gray's Inn. These were formerly preparatory colleges for students, and many entered them before they were admitted into the Inns of Court. Furnival's Inn and Symond's Inn have ceased to exist as law societies. The others consist chiefly of solicitors, and possess corporate property, hall, chapel, chambers, &c., but perform no public functions like the Inns of Court.

Inns of Court are the societies of the Middle Temple, Inner Temple, Lincoln's Inn, and Gray's Inn, and are so called because the students therein study the law to fit them for practising in the Courts at Westminster and elsewhere. These, together with the two Serjeants' Inns, are said to have formed one of the most famous universities in the world for the study of law, and here exercises were performed, lectures read, and degrees conferred in the common law, as they are at the universities in the present day in the Canon and Civil laws. The degrees were those of barristers (first styled apprentices, from *apprendre*, to learn), who answered to our bachelors, as the state and degree of a serjeant did to those of doctor. These studies are now under the control of the Council of Legal Education, who have endeavoured to re-invigorate them by holding out rewards for excellence in the various branches of legal study, and particularly in Roman law and jurisprudence, and by making a certain standard of excellence compulsory upon all students seeking admission to the degree of barrister.

Inoculation.—This is the operation, now discontinued and illegal, of transferring, by puncture or otherwise, the small-pox matter from a person suffering from the disease beneath the skin of a healthy person. The result was generally a mild attack of small-pox. But as it sometimes happened that instead of a mild a severe and occasionally a fatal form of the disease followed the operation, inoculation has been prohibited by law, and is now entirely superseded by vaccination. (*See* VACCINATION.) The term inoculation may also be applied to the introduction of any poisonous matter by the skin, and is frequently used in this way.

Inosite.—A name given to an imitation of red coral. The composition is hard and bright, and is worked up into many pretty forms, but its constituents and their proportions appear to be a trade secret. As a cheap substitute for genuine coral its appearance recommends it.

Inquest.—An inquiry by a jury duly empanelled by the Sovereign's officer, his sheriff, coroner, &c., into any cause or question, civil or criminal. (*See* CORONER.)

Insanity.—This is a mental state in which acts of conception, judgment, or reasoning

betray or persistently express themselves as different from the state of feeling and modes of thought usual to the individual in health. (Coombe.) There is then a deficient, impaired, or perverted power of the will, or an uncontrolled violence of the emotions, with perverted sensations and instincts. Such complex mental states are separately or conjointly produced by disease of the brain, ordinarily of insidious approach, generally without fever, and resulting from specific morbid action of the hemispherical ganglia, and tending to become chronic or persistent. Such conditions render the patient an irresponsible being, and unfit him eventually for the performance of the social and political duties of life. (Esquirol, Winslow, Bucknill, Tuke.) From the foregoing definition it is evident that the term insanity embraces too wide a field to be done justice to here, and therefore we shall only glance at a few of the more important forms of the disease, following the classification given by Drs. Tuke and Bucknill in their manual of psychological medicine, and merely premising that the most frequent cause of insanity is hereditary taint—a fact which must not be forgotten, especially in the matter of marriages. CLASS I. *The intellect.* This is divided into two orders—the one in which there is want of development, as seen in idiocy and imbecility; the other the result of disease, as dementia, monamania, and including delusions, hallucinations, and illusions. CLASS II. *The moral sentiments.* This also is divided into two orders as before—viz., the incomplete development, including moral idiocy and moral imbecility; and the disease after development, including melancholia—the religious, hypochondriacal, and nostalgic (home-sick) form - and exaltation regarding religion, pride, vanity, and ambition. CLASS III. *The propensities.* These may be divided into two orders also—viz., general and partial, and include general mania, homicidal and suicidal mania, kleptomania, erotomania, pyromania, and dipsomania. *Idiocy.* This is an abortive condition of the intellect, from defective development of the brain. The condition is congenital. Cretinism is a form of idiocy. (*See* CRETINISM; IDIOCY.) *Imbecility.* This is a condition marked by utter loss of mental power, want of energy, incapacity for conversation or discussion; and though imbeciles are in some cases capable of taking care of themselves, they are not, as a rule, to be trusted, being prone to incendiarism, theft, and homicide. *Dementia.* (*See* DEMENTIA.) *Monomania.* This includes delusions, illusions, and hallucinations, and may be defined to be an undue intensity and exaltation of the conceptive and perceptive faculties. Examples of this form of insanity are frequently seen. *Melancholia.* This is one of the most common forms of insanity, and usually takes the religious, hypochondriacal, or nostalgic (home-sick) form. The earliest symptoms of the disease are depression of spirits, alterations of the affections, religious dread, delusions, sleeplessness, disturbed dreams, indigestion with constipation, and in women suspension of the uterine functions. Melancholia is frequently remittent, being worse in the early morning, and better in the evening. This should be remembered if, as is frequently the case, there is a tendency to suicide. What is called the nostalgic form of melancholia is a persistent home-sickness, which occurs to soldiers and others resident in foreign countries. They have an inordinate desire to return home, and an apprehension that they may never be able to do so. *Mania.* This is a disorder of the propensities, with exaltation of one or more of the passions. From being sad or gay, active or indolent, indifferent or eager, the maniac becomes impatient, irritable, and choleric; in fact, a complete contrast to what he has hitherto been. He is at one time kind and reasonable, at other times delirious and extravagant in his words and acts; all his natural feelings seem perverted; his mind is in a perfect chaos; and hating everything and everybody, he seems to be desirous only of inflicting injury. The female maniac, from being modest and virtuous, becomes blasphemous and obscene, with murderous propensities. Mania is subdivided for the purpose of description into—1. *Homicidal mania.* This is a propensity to kill. 2. *Suicidal mania.* This is generally combined with the homicidal tendency, the desire being to kill others as well as themselves. 3. *Pyromania.* This is an impulse to set things on fire, in order to enjoy the consequent excitement and confusion. 4. *Kleptomania.* This is an irresistible desire to steal, occasionally exhibited by persons of wealth and position. Some of these so-called class of kleptomaniacs must, however, be regarded with doubt and suspicion.

With regard to the treatment of insanity, it is impossible to say much here. The earliest indications, however, of anything mentally wrong should be at once attended to, as with the removal of the disturbing cause, whether indigestion, worry, or otherwise, reason may re-assert herself. Sleeplessness also may be relieved under medical advice, by full doses of chloral or bromide of potassium, and the secretions, especially those of the liver, should be carefully looked after. Before concluding this brief sketch of insanity, it may be well to give a few hints concerning the mode of procedure to be adopted, in the event of a case occurring in a family or household, in order to remove the sufferer to an asylum. A medical man should be at once summoned, and if he considers the person insane, he will, if there are sufficient means, recommend his or her removal to a private asylum. When the asylum has been selected, a form can be obtained by applying to the superintendent, and this has to be filled up by two medical men, who must examine the case separately. This paper can then be sent to the asylum, the authorities of which, if desired, will send a conveyance and assistance. When there are not sufficient means to pay for a private asylum, the relieving officer of the parish or district, who is the responsible officer in such cases, must be applied to, and he will see that such steps are taken as will place the sufferer under proper care and supervision, without any expense to the family or friends. A certificate from a medical man accompanying the application to the relieving officer will probably expedite the matter. (*See* LUNATICS AND IDIOTS, LAW CONCERNING.)

Insecticides.—Foremost among insecticides, or insect-killers, we must place the Persian insect powder, or *Insecticide Vicat*. This consists of the dried and powdered flower-heads of *Pyrethrum carneum* and *Pyrethrum roseum*, the specific virtue being in the pollen. When good, this will kill fleas, bugs, moths, the insects which afflict domestic pets and poultry, and other pests of the same minute order. On large insects its action is only temporary, and they will recover. The plants which produce this powder can be grown, and will flower in England, and their cultivation might be commercially remunerative. Travellers take it with them, and sprinkle a pinch between the sheets before entering bed—a process which secures them immunity from unseen foes. Gardeners sprinkle the powder upon the leaves and roots of plants affected with insect plagues. There are many special preparations for the destruction of house-flies, black beetles, crickets, &c. The *Eucalyptus* and some other trees are said to drive away mosquitoes, &c.; and the poke-root (*Phytolacca decandra*) is alleged to be fatal to cockroaches who eat it. Oil will kill almost any kind of insect, so does the prussic acid in crushed laurel-leaves.

Insertion (also called crochet insertion and *entre-deux*).—A kind of ornamental work suitable for the dresses of children. It may be made by taking a piece of vandyke braid, and forming a series of crochet rings like a chain, connecting each ring with a point of the braid. A second piece of braid is to be connected in like manner with the opposite sides of the crochet rings. There are other patterns, but the principle is the same. It may be made of silk or cotton, and the effect is heightened by the introduction of pretty velvet or ribbon between the crochet work and the dress to which it is attached. An ornamental edging can be supplied to the lower points of the lower braid, or otherwise, as fancy suggests. (*See* Braiding ; Crochet Work.)

Insignia.—Badges or distinctive marks of office or honour. Of such are the insignia or badges of the various orders of knighthood. Foreign insignia, although bestowed by sovereign princes, cannot be worn by British subjects without the express sanction and authority of their own Sovereign.

Insolvency.—Inability for the payment of one's debts in full. The term was formerly more particularly applicable to non-traders, for whom there was a distinct legislative system of practice. By an Act passed in the reign of George IV. (the 7 Geo. IV. c. 57), a court for the relief of insolvent debtors was established, which continued in existence till the year 1861, several Statutes having been in the meantime passed for regulating its proceedings and jurisdiction, which was ultimately transferred to the Court of Bankruptcy. By the Bankruptcy Repeal and Insolvent Court Act, 1869, all the enactments on this subject then existing were repealed, and provision was made for winding up and terminating all matters pending under the Acts for relief of insolvent debtors. Under this Act any one, whether trader or not, may be adjudicated bankrupt. (*See* Bankruptcy ; Declaration of Insolvency.)

Insomnia. (*See* Sleeplessness.)

Instrumentation.—The art of writing for the orchestra (*which see*).

Insurances.—An insurance is a contract whereby one person or company, in consideration of a stipulated premium or annual payment, engages to pay the losses which another may sustain. The most common sorts are insurance against fire, or fire insurance; the danger of the seas, or marine insurance; and assurance of lives, or life assurance. The person or company who insures is termed the insurer, the person whose property is insured is termed the insured, and the instrument by which he effects such insurance is termed the policy of insurance or assurance (the latter being more usually applicable to life assurance).

1. *In Insurances against Fire*, the insurer, in consideration of a certain premium received by him in a gross sum or by annual payments, undertakes to indemnify against all loss or damage by fire to houses and buildings, stock, goods, and merchandise, during a specified period. Insurances against fire are almost always made by corporations or joint-stock companies, of which there are many throughout the kingdom, the more important of them having chief offices in London. The conditions on which the different offices insure are contained in the proposals printed on the back of the policies, the conditions being that they undertake to pay the loss not exceeding the sum insured "according to the tenor of their printed proposals." Sometimes no office will insure to the amount required, and the insurance is then carried out, if at all, by different offices. To prevent frauds by insuring the full value in various offices, there is in the proposals issued a clause requiring notice of any other insurance upon the same houses or goods, that the same may be specified and allowed by endorsement, so that each office may bear its proportion of loss; and unless such notice be given, the insurance is void. The risk of the office commences from the effecting of the policy, by payment of the premium or a deposit on account. Policies of insurance against fire may be annual, or for a term of years at an annual premium, and the offices usually allow fifteen days' grace after the expiration of each year for the payment of the next year's premium; and if the premium be paid within that time, the insured is considered within the protection of his policy. On sale of the property insured, an endorsement of the fact should be made on the policy of insurance, which should be produced at the insurance office for a memorandum to be made. This is very important, as a policy of fire insurance is not in its nature assignable. Insurances against fire are divided into common, hazardous, and doubly hazardous. The stamp duty formerly payable thereon has been abolished by 32 & 33 Vict. c. 121.

2. *As to Marine Insurance.*—The practice of marine insurance is older than both fire and life insurance. While almost all fire and life insurances are made at the risk of companies, a large proportion of, though not all,

marine insurances are made at the risk of individuals who are called underwriters. The underwriters meet in a subscription room at Lloyd's. The affairs of the subscribers are managed by a committee chosen by them. Agents (who are known as Lloyd's agents) are appointed in all the principal ports of the world, who communicate regularly to Lloyd's accounts of the departures and arrivals of ships at their several ports, also of losses and other casualties, and in general all information of importance to guide the judgment of the underwriters. The principal arrivals and losses are posted in two books placed in conspicuous parts of the room, and also in another book in an adjoining room for the use of the public at large. The rooms are open from 10 a.m. till 5 p.m.; the most considerable part of the business is, however, transacted between the hours of 1 and 4. Assignees of marine policies are now enabled to sue on them in their own names (31 & 32 Vict. c. 86).

3. *Life Assurance.*—There are three classes of Life Insurance Companies. The first are corporations or joint-stock companies, who undertake to pay fixed sums upon the death of the insurers, the profits made by such companies being wholly divided among the proprietors. The second class are also corporations or joint-stock companies with proprietary bodies, which allow the insured to participate to a certain extent in their profits—in different modes however. The third is formed on the basis of mutual insurance, there being no proprietary body, and the whole of the profits being received by the assured. To prevent gambling transactions in life insurance, the 14 Geo. III. c. 48, enacts that no insurance shall be made by any person, bodies politic or corporate, on the life of any person, or any other event, wherein the person for whose use or benefit, or on whose account, such policy or policies shall be made, shall have no interest, or by way of wager; and every insurance made contrary to that Act is null and void. No policy can be made on the life of any person or other event without stating in the policy the name of the persons interested, or for what use, &c., the policy is made. In cases where the insured has an interest in such life or event, no greater sum shall be recovered from the insurer than the amount of the interest of the insured in such life or event. As to abatement of income-tax in respect of insurance on lives, see 16 & 17 Vict. c. 91, continued by 20 & 21 Vict. c. 5. Insurance companies are required by Statute 33 & 34 Vict. c. 61, to prepare a yearly statement of revenue and balance-sheet in prescribed forms, and to cause periodical investigations to be made into their affairs, and to prepare and furnish the shareholders and policy holders from time to time with statements of their business, &c. (See also 34 & 35 Vict. c. 58, and 35 & 36 Vict. c. 41.) Married women are empowered to insure their own lives or their husbands' for their separate use by 33 & 34 Vict. c. 93, s. 10. Assignees of life policies are now enabled to sue in their own names (30 & 31 Vict. c. 144). There is this important distinction between life assurance policies and all other kinds of insurance—viz., that the latter are contracts of indemnity merely, and the moneys secured thereby cease to be payable if no damage arises; but the former or life assurance policies, if duly kept up until the death of the assured, are payable in all events. Thirty days' grace is now usually allowed by all the offices for payment of the premiums.

Intaglios.—Stones engraved for seals, with letters or devices forming a sunk pattern, are intaglios. An intaglio is therefore the opposite of a cameo, where the pattern is raised, and the ground is cut away. Intaglios have been almost always executed in order to give impressions which should resemble cameos, whether in clay, wax, metal, or any other substance. The term therefore includes dies in hard metal for coins, &c., and all stamps and seal-stones engraved on the same principle. The art is of great antiquity, and was practised by the Egyptians, Greeks, Romans, and others—the Greeks and Romans being the most accomplished. Some of the specimens, still in perfect preservation, bear inscriptions and other marks which can scarcely be detected by the naked eye. The stones used were various, such as carnelian, sard, agate, onyx, bloodstone, jasper, and turquoise; sometimes even the hardest gems were operated upon. In modern times the process is extensively carried on, and is in certain cases much facilitated by mechanical appliances; but the ancients produced the best work of the kind.

Intemperance.—In its wider sense this word includes absence of control over self as regards language, passion, behaviour, eating, or drinking. He who exceeds the bounds of moderation in any of these is intemperate Perhaps, unfortunately, but commonly, we simply mean the habit of excessive drinking when we speak of intemperance; whereas temperance, like sobriety, is applicable to every department of self-government. (*See* INEBRIETY.) The vast amount of mischief inflicted upon individuals and society by all sorts of intemperance needs no proof; the great difficulty lies in persuading people to abandon their evil ways, and to avoid temptation.

Interest.—The consideration or premium paid for the loan or use of money, generally estimated at a certain fixed per-centage per annum. The sum originally lent, and for which interest is paid, is called the *principal;* and the *rate* of interest is the sum paid for the use of a certain amount, generally £100, for a certain time, generally one year. The principal added to the interest for any length of time is called the *amount*. Thus the amount of £100, at 4 per cent. per annum, would at the end of one year be £104. Interest is either *simple* or *compound*. Simple interest is that which is reckoned only on the amount of the original principal for the whole time of the loan, and is therefore usually paid quarterly, half-yearly, or yearly, at regular intervals. When, however, at the end of any stated period—usually a year—the interest accruing is not paid over, but added to the original principal, thus forming a new principal, on which interest is then reckoned, it is called compound interest. Thus, for example, £100 lent for three years at simple interest, at 5 per cent. per annum, would amount to

£115, while at compound interest the amount would be £115 15s. 3d.

Intermittents (Fevers, &c).—Some diseases and disorders are said to be intermittent, because they leave the patient for a time only to return again. Of these the best example is ague (*which see*).

Intestate.—The state of dying without making a will, or the person who so dies. An intestate is the opposite of a testator, the latter word signifying a person who has made a will. In Roman law a person could not die partly testate and partly intestate; but in England it is a common thing for one to die testate as to part of his property and intestate as to the residue, unless, indeed, he make a residuary bequest or devise, but even then a partial intestacy is not unfrequent. As to the grant of administration to the widows and children of intestates through the Registrars of County Courts, see 36 & 37 Vict. c. 52, and 38 & 39 Vict. c. 27; and as to similar proceedings in Scotland, see 38 & 39 Vict. c. 41. (*See* ADMINISTRATION.)

Intestines.—These are situated in the cavity of the abdomen, and form that portion of the alimentary canal which begins at the pyloric end of the stomach, and terminates at the anus. The intestines are divided into small and large intestines, and are so arranged as to permit of great freedom of motion and considerable expansion. I. THE SMALL INTESTINES. These receive the chyme from the stomach to be mixed with the bile, pancreatic juice, and other secretions which it meets there, and to be converted into chyle, the nutritive principle of the food, for absorption into the system. The small intestine is a twisted tube about twenty feet in length, gradually diminishing in size, and for anatomical purposes is divided into three portions—viz., the duodenum, the jejunum, and the ileum. 1. *The duodenum.* This measures about eight or ten inches in length, and is described elsewhere. (*See* DUODENUM.) 2. *The jejunum.* This includes the upper two-fifths of the rest of the small intestines. The name is derived from the Latin *jejunus*, empty, and is so called because after death it is usually found empty. 3. *The ileum.* This includes the remaining three-fifths of the small intestines. It derives its name from the Greek verb to twist, owing to its numerous coils or convolutions. II. THE LARGE INTESTINE. This extends from the ileum to the anus. It is about five feet in length, and though considerably shorter than the small intestine, it is much wider, more fixed, and presents a sacculated or pouchy appearance. The large intestine is divided into the cæcum, the colon, and the rectum. 1. *The cæcum.* This is a sort of *cul-de-sac*, or blind pouch—hence its name—situated in the right iliac fossa (lower part of abdomen, right side). It is the most dilated part of the intestine, measuring two inches and a half, both vertically and tranversely, and it is here that accumulations of fæcal matter frequently occur, sometimes resulting in abscess. 2. *The colon.* This is divided into four parts for the purposes of description—viz., the ascending, the transverse, the descending, and the sigmoid flexure. 3. *The rectum.* This is the last portion of the large intestine. It is from six to eight inches in length, and derives its name, not from being quite straight, but because it is less twisted than other parts of the intestines. The rectum is divided anatomically into upper, middle, and lower portions, and terminates in the anus. The intestines are subject to various disorders and diseases, as flatulence, diarrhœa, catarrh, enteritis, ulceration, stricture, strangulated hernia, cancer, hæmorrhage, and typhoid fever, which are referred to under their respective headings.

Intoxication. (*See* INEBRIETY.)

Introductions.—The gentleman should be brought and introduced to the lady, who, if seated, does not rise. It is not usual to shake hands, but only to bow to each other, unless the introduction is made to the lady of the house, who always rises and shakes hands with the stranger. When ladies are introduced to one another it is customary to present the one who is younger, or not so high in station, to the elder. The form is to mention first the name of the one presented, and then that of the person to whom presented: the usual preface is, "Will you allow me to introduce ——;" or, "May I introduce ——." When introductions are made by letter, the envelope should not be fastened when given to those for whose introduction it has been written. The person making use of it should leave the letter with a visiting-card, and should not enter the house on that occasion.

Invalid Cookery.—In cooking for invalids, the object to be aimed at is to secure the largest amount of nourishment with the greatest simplicity of flavour. The digestive powers of an invalid are either already weakened or are easily susceptible of derangement, and a variety of condiments and seasonings is very likely to interfere with their work. When the medical man is in attendance, the diet of the sick is under his supervision, but afterwards the culinary powers as well as the judgment of the nurse are called into exercise, and upon her skill and care in this direction will depend to a great extent the recovery of the patient to health and strength. In many cases the appetite is uncertain and poor, and needs to be tempted and pleased; and it is almost as important that this should be done as that the digestion should be consulted. In the majority of cases the fancy of the sick may safely be followed as to the kind of food to be chosen. Unless it is tolerably certain that harm will result from a particular dish—that it will cause pain or flatulence, or inconvenience of any kind—it may be safely assumed that Nature knows what will suit her powers, and a craving for any particular diet is a sign that it is needed. Miss Nightingale says:—"In diseases produced by bad food, such as scorbutic dysentery and diarrhœa, the patient's stomach often craves for and digests things, some of which certainly would never have been ordered for the sick, and especially not for such sick. These are fruit, pickles, jam, ginger-bread, fat of ham or of bacon, suet, cheese, butter, milk. These cases I have seen, not by ones nor by tens, but

by hundreds. And the patient's stomach was right." Of the various processes of cookery which are employed for invalids, stewing is the one which best assists digestion. In this the nutritive materials are diffused through the solid and the liquid, and both are served together. There is another mode of cooking which is particularly suited to the invalid and the convalescent, and that is to stew meat in its own vapours. An easy way of doing this is to put the chop, or whatever other piece of meat on a small scale is chosen, into a covered jar, and partially immerse this in water contained in a saucepan. This water should be made to simmer or gently boil, and when a sufficient time has elapsed the meat will be found perfectly soft and tender, and surrounded by a liquor derived from the juice which has escaped during the process. Of the other modes of cookery, frying is the one which is least suitable for invalids, and it is so because the fatty matter in which the meat is cooked produces an excess of the volatile acids. These are badly tolerated by the stomach, and form the source of the gastric trouble known as heartburn. Baking renders meat richer or stronger for the stomach than any other process of cooking, and it is therefore ill adapted for consumption where a delicate state of the system exists. Boiled meat is more insipid than food cooked in other ways, but it sits easily on a delicate stomach. Hashed meat is not so wholesome as freshly-cooked meat.

It is most important that every vessel used in the preparation of food for invalids should be scrupulously clean, otherwise an unpleasant flavour may be imparted to the preparation, which may cause the patient to reject or prevent his enjoyment of the food that is set before him. Earthenware-glazed saucepans are better than any others for use in invalid cookery. Liquids and light foods form the staple of sick cookery, and this is because they are easy of digestion. They should make up in delicacy what they lack in flavour, and should always be made to *look* as inviting as possible before they are set before the sick. Beef tea, broth, and preparations of a similar nature should never be presented with the smallest particle of fat on their surface. When time will allow, it is best that the liquid should get perfectly cold, so that the fat may be lifted off in a cake. If when the broth is to be served it is found that greasy particles still float on the top, they may be removed by laying two or three pieces of clean whitey-brown paper on the liquid, as the paper will absorb the grease.

Invalids seldom require large quantities of food, and it is best not to prepare very much of anything at once. One reason for this is that food is best when freshly cooked, and another is that variety is always desirable. At the same time, there should always be something ready to offer the patient. If he has to wait for a thing he may lose his desire for it, and reject it when brought to him. It is scarcely possible to be too careful as to the quality of food set before an invalid. An egg that is bad, milk that is sour, butter that is rancid, meat or broth that is turned, vegetables that are underdone, should never be offered to him. The bad article may destroy altogether for a time the patient's feeble appetite, or if eaten it may do more harm than good. It should be borne in mind that "sick cookery ought to do half the work of the patient's weak digestion."

Invalids.—The diet of invalids must vary with the nature of the disease, and its character must depend upon the directions of the medical man. It is always best to ask a doctor what kind of diet he wishes the patient to take, for if this is not done the food may cause unnecessary suffering, or may neutralise the effect of the medicine. Farinaceous liquid preparations —such as gruel, barley-water, and the like— are generally ordered when the stomach is too weak to digest meat, or when animal food would be too stimulating. Animal food, broths, milk, &c., are ordered when it is desired to afford nourishment to the patient and build up his strength. Whatever the food may be, the way it is given has a great deal to do with the sick person's enjoyment of it. Too much care can scarcely be taken to make the food for the sick-room *look* nice and appetising. Everything about it should be scrupulously clean; the damask of a spotless whiteness, the silver and glass bright and sparkling, and, when the preparation is hot, the dishes, covers, and plates should be hot too. It should be remembered that warm meats are more easily digested than cold ones. A few prettily-arranged flowers placed on the tray will often help to give the repast a bright, inviting appearance. When the meal is concluded, the food should be taken quite out of the room, and out of sight of the patient. If he cannot eat the food when it is brought to him, it should be taken away. The more quiet and alone a patient can be when taking food, the better. Sick persons are generally sensitive, and dislike being watched when eating; and again and again it has happened in the sick-room that food has been sent away untouched which would otherwise have been enjoyed, simply because the invalid did not like to be looked at and congratulated as each mouthful disappeared. Above all, children should never be allowed to be in the sick-chamber when the patient is taking food, and they should be sent away before it comes into the room. Little ones generally appreciate good things, and when bright eyes are fixed longingly upon a plate, the loving father or mother can scarcely resist giving the tit-bit of the repast to the darling at their side, and then what good does the food do to the invalid? A good deal of care and ingenuity is required, to notice and pay attention to little details which may seem to be of minor importance, but which really are far from being so. For instance, experienced nurses tell us that it is very often a good plan to sponge a patient's face and hands, and give him a clean and freshly perfumed handkerchief before offering food to him. This refreshes him, and helps to give him strength to undergo the fatigue of eating. Then, again, very weak patients are often unable to eat much breakfast, and therefore it is useless to bring them the first thing in the morning an egg, or a piece of bacon, or a mutton chop. But if a spoonful of beef tea, or

wine and arrowroot, or egg-flip has been given them every hour, this will have supplied the requisite nourishment, and will keep them from being too much exhausted to take at a later hour the solid food which they require. Or again, supposing a nurse is ordered to give a patient a tea-cupful of something every three hours. The patient's stomach rejects it. Why not try a table-spoonful every hour, or if this will not do, a tea-spoonful every quarter of an hour? "The consulting the hours when a patient can take food, the observation of the times, often varying, when he is most faint, the altering seasons of taking food in order to prevent such times—all this, which requires observation, ingenuity, and perseverance, might save more lives than we wot of."
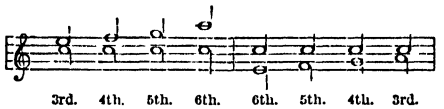
In most cases of illness, and especially at their commencement, cold water, barley-water, raspberry vinegar and water, apple-water, gum-water, toast-water, and lemonade are all the drinks that are necessary. Tea and coffee are very refreshing, but they need to be taken judiciously, and in accordance with medical advice. Occasionally a foolish objection is raised to allowing cold water to a patient; yet it is not only most refreshing, but is an agent of supreme importance, lowering excessive heat, giving vigour to the relaxed capillaries, and accelerating favourable changes. The quantity of water given should be small—one to two table-spoonfuls—and repeated as often as desired.

The furniture of a sick-chamber ought to have very little drapery about it. A window-blind, some light material for window-curtains, and a little green baize, which may be used as a temporary screen against heat or light, are all that is required in this way. The best bedding which can be provided either for sick or well is an iron bedstead and a hair mattress. The old-fashioned four-post bedstead, with its heavy curtains hanging all round, is most objectionable. Fortunately it is seldom seen now. The bed of a sick person should on no account be higher than a sofa, for the fresh pure air always is at the lower part of the room, and the bad air rises to the top. Therefore the head of the sleeper should never be higher than the throat of the chimney, as this will ensure his being in the current of the best air. But apart altogether from considerations of ventilation, high beds are a discomfort both to patient and nurse. The patient can get at or move nothing for himself, and the nurse has little command over him, so that the necessary duties of changing the sheets or moving the invalid become most fatiguing operations. Besides this, when the invalid is able to move, it is a very pleasant change to get out of bed and take a few minutes' exercise, either in the same or another room, and to a weak person the fatigue of getting out of a high bed is considerable. Excepting for very old people, who require warmth, feather-beds are particularly unsuited for sick persons. The patient has not lain in them long before he either sinks into a hole, or, if restless, finds himself lying on knots of feathers. The valance which is sometimes hung round a bed should be entirely discarded during sickness, for no part of the room requires more thorough ventilation than the space under the bed. On this account the practice which prevails in some houses of putting trunks and boxes under the bed is a most reprehensible one. The bed should not have its side against a wall, for the nurse ought to be able to reach easily every part of the patient without stretching, and this cannot be done if the bed is too high, too wide, or is fixed in a corner. In addition to this, the bed should be in the lightest part of the room, and the patient should be able to see out of the window. A good deal of the comfort of an invalid depends upon the way in which the pillows are placed. What is wanted is that they should be soft and yet firm; and it will be found much easier to arrange them when a pillow-rest is at hand. This pillow-rest, which can be made with little difficulty, is of the same width and of twice the length of an ordinary pillow, and stuffed hard with straw, hay, or chaff, the back being about eight inches high, and inclining to a point, like a writing-desk. The soft pillows can be easily arranged on this. In order to prevent slipping down in the bed, a roller bed-seat may be fastened to the pillow-rest by means of a buckle and a strap of webbing, and this can be lengthened or shortened, as preferred, and thus the patient may be spared the fatigue of holding himself up. A pillow in the shape of a roller, about three inches in diameter and from half a yard long, is also useful as a temporary support to the back or sides, or to raise any part that has become cramped from being in one position. Another great comfort is a rest for supporting the legs when raised. This can be made to open and shut at pleasure something like a book, and if it be covered with a blanket, the feet may rest upon it, and thus an agreeable change of position may be secured. In order to assist the patient in raising or turning himself in bed, two pieces of strong webbing may be fastened to the foot of the bed at either side, and left within easy reach, so that if so disposed he may pull himself up by their means, without calling for help. The principles which are to be observed for giving ease to patients in bed apply equally when they are able to sit up. What is wanted is to take the weight of the body off the chest, to allow the shoulders room to fall back, and to support the head without throwing it forward. The invalid-chairs generally found in sick-rooms too often prevent any relief to the chest, by increasing the drag of the limbs upon the waist, and throwing too much of the weight upon the spine. When a patient can sit up a little while, it will be found that an ordinary low, well-stuffed arm-chair, with pillows and a foot-stool, does better than anything else. A sofa, too, should always be found in the invalid's chamber. It can be used to lie down upon when the bed is being made, or in case the patient feels disposed to rest after he is dressed. Cold feet are very common with invalids, and cause so much discomfort, that the appliances for keeping the feet warm should not be omitted when the furniture of a sick-room is in question. The common remedy for cold feet is a hot-water bottle placed near them; but its hardness, and the danger that exists that the cork will come out, make this ob-

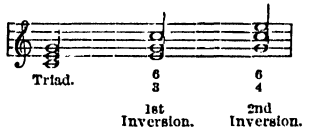
jectionable. An inexpensive and excellent substitute for the bottle is the sand-bag. For this it is necessary only to procure a bag of strong calico, and to half fill it with sand or with salt. When wanted, the bag may be heated on an old dish in the oven, or if it is wanted quickly the sand may be taken out and stirred about over the fire in an old saucepan, then returned to the bag. It is desirable that a clean outer case should be at hand to slip over the bag before it is put into the bed. A sand-bag retains its heat for a very long time, and possesses the advantage of being soft, and of adapting itself to any part of the body.

Inventory, in law, is a catalogue or schedule, containing a true description of goods and chattels, and used on several occasions, as upon a sale of them, or by an executor or administrator, who is bound in due course to exhibit such a statement of his testator's or intestate's effects.

Inversion.—In music, inversion is of two kinds—(1) intervals; (2) chords. In the inversion of intervals the name and character of each (except the octave) are changed; *e.g.*:—



In the inversion of chords the composer has a great source of variety; thus the triad is capable of two inversions:—



In each case, however, c is the root of the chord.

Invisible Colours.—A colour may be called invisible when it can only be seen in a particular light. This is the case with certain fabrics, such as invisible green. The actual colours of some semi-transparent substances are only apparent when they are held between the eye and the light, when what seemed almost black, for example, may be seen to have a beautiful amethystine or other tint. Collections of ancient intaglios sometimes contain exquisite specimens of this description.

Invitations.—For these, when many are issued, printed cards are often used. For written invitations, small-sized note-paper is used. If the entertainment is of a formal character, or on a large scale, the invitations should be written in the third person. Invitations should be answered in the same style as those received, and always without delay. If any formal invitation is sent very shortly before a dinner-party, an apology should be made. An idea as to the nature of the entertainment should be conveyed in the invitation. Dinners should be always mentioned, and dancing should be specified.

Iodine.—This is a non-metallic element prepared from kelp, the vitrified ashes of seaweeds. From the solution of this substance a liquor remains containing different iodides, which, when treated with sulphuric acid, gives off carbonic acid, sulphurous acid, and sulphuretted hydrogen; while sulphate of soda, mixed with free sulphur, crystallises out, peroxide of manganese is then added, the whole heated, and the iodine which sublimes is collected in receivers. Iodine is distinguished from most other bodies by its forming a blue compound with starch. It is extensively used as a remedy in various diseases, and its administration is often attended with marked success. This is especially so in scrofulous affections, indolent tumours, as goitre (Derbyshire neck), and in rheumatism, &c., where iodine has been largely employed, both externally and internally. The preparations of iodine are:—1. *Liquor iodi.* This is a solution of iodine in distilled water, to which iodide of potassium has been added. 2. *Tincture of iodine.* This consists of iodine, iodide of potassium, and rectified spirit. The dose is from five to ten drops in water. 3. *Liniment of iodine.* This is a very powerful skin irritant, and will frequently blister with one application. It is five times stronger than the tincture. 4. *Vapour of iodine.* This is sometimes used as an inhalation, but must be employed with great caution, as it sometimes excites a great deal of irritation, to prevent which a few drops of conium are sometimes added. 5. *Iodine ointment.* This is a useful application in scrofulous skin affections, and swellings of joints; but the tincture is generally preferred. It may be remarked here that, in taking iodine, it is always advisable to begin with very small doses, as it is apt to disorder the stomach.

I.O.U.—A general acknowledgment of a debt in an abbreviated form, as below:—

To Mr. X. Y. Z.
I.O.U. £50 (Fifty Pounds).
M. N.

Such an acknowledgment does not amount to a promissory note; it is merely evidence of the existence of a debt, and no stamp is therefore required. Care must be taken, however, that to the above form no words are added expressing a promise to pay at any specified time; for in such a case the I.O.U. would at once become a promissory note, and would be valueless unless stamped. And it must be borne in mind that a promissory note, to be valid and binding, requires to be stamped when written. (*See* Promissory Note.) It is always better to write on the I.O.U. the name of the person to whom it is addressed, who in such a case can claim and sue for payment. Should the creditor's name not appear on the I.O.U., the document is usually held to afford *primâ facie* evidence of the existence of a debt to the holder and producer, and to avoid payment the defendant must produce evidence to prove true ownership. It is plain, therefore, that an I.O.U. is not a negotiable instrument, seeing that he alone is entitled to sue for payment to whom the document was originally given.

Ipecacuanha.—This is the dried root of the *Cephaëlis Ipecacuanha*, natural order *Cinchonaceæ*. It is imported from Brazil, and appears in brownish or greyish roots, from three to four inches in length, which are twisted and knotted, and are about the thickness of a small quill. Ipecacuanha contains a peculiar alkaloid called emetine, and a peculiar astringent acid (cephaëlic acid). The emetic property of the drug depends upon the emetine, which is principally contained in the cortical portion. The dust of ipecacuanha, if inhaled during its preparation, is extremely irritating to the mucous membrane of the throat and lungs, exciting cough and difficulty of breathing, which, in one recorded case, were so serious as to endanger life. In small doses, ipecacuanha stimulates secretion, especially that of the bronchial membrane; and hence



IPECACUANHA.

it is much used in chest affections, as bronchitis, pneumonia, &c. In large doses it excites nausea; and in larger doses still it acts as an emetic. Ipecacuanha is well adapted as a remedy for children and delicate persons, owing to the mildness of its operation. In the treatment of dysentery it is not equalled by any other drug, and is therefore largely used in that disease. It is often combined with calomel, opium, and other medicines, the efficacy of which it aids. The preparations of ipecacuanha are:—1. *Pill of ipecacuanha with squill.* This is a useful pill in chronic catarrh. The dose is from five to ten grains. 2. *Compound powder of ipecacuanha.* (*See* Powder, Dover's.) 3. *Ipecacuanha wine.* This is a most valuable preparation, and is much used in colds, inflammations, &c. The ordinary dose for an adult is from five to ten drops; but, if nausea or vomiting is desired, this may be increased to a table-spoonful. Children may take, ordinarily, five or six drops. For an emetic, from half a tea-spoonful to a tea-spoonful. 4. *Ipecacuanha lozenges.* These contain ipecacuanha, sugar, acacia, mucilage, and distilled water. The dose is from one to five lozenges. It should be remembered that some persons are very susceptible to the influence of ipecacuanha, a very small dose producing nausea.

Iridescent.—This term is descriptive of the beautiful rainbow-like hues assumed by various substances, such as glass which has been long buried in the earth, coal-tar when diffused upon water, some metallic ores, and many other things. In recent times the manufacturers of new glass have invented a method of iridising glass vessels, which have a striking and elegant effect, and are sold under the name of iridescent glass. (*See* Glass, Iridescent.) The opal is probably the most remarkable and valuable of objects naturally iridescent.

Irish Lace. (*See* Lace.)

Irish Linen.—This linen is considered to be far superior to any kind made elsewhere. It is distinguished for the evenness of its threads, the smoothness of its surface, and the softness of its texture, all of which qualities are owing to the thread being of pure flax which is grown in Ireland. The principal seats of its manufacture are Belfast, Londonderry, and Carrickfergus.

Irish Stew.—Irish stew is a well-known and favourite dish in England. An explanation of its name may be found in the fact that potatoes form the principal ingredient in its composition, and potatoes are highly valued in Ireland; the only other vegetable added being onion, which can be large or small in quantity according to taste. In Devonshire and Cornwall, apples are substituted for potatoes, and squab pie is the name given. In Scotland the same preparation is covered with a crust, and called shepherd's pie. It is said that Irish stew is a dish unknown in Ireland.

Irish Stitch. (*See* Canvas Stitches.)

Iron, Corrugated.—Corrugated iron consists of thin sheet-iron so rolled as to take the form of a series of waves. It is extensively used for roofing, and for the sides of temporary buildings, such as churches, sheds, &c. Large quantities of it are also sent out to the colonies wherewith to erect houses and stores for the early settlers in any new district. As the iron thus exposed would be very subject to rust, it is galvanised, as it is called—more properly, coated with zinc. The surface of the iron is first thoroughly cleansed by exposing it to the action of a weak acid, and then washed, when it is said to be "pickled," after which it is immersed in a bath of melted zinc to which some ammonia is added. On withdrawing the sheets of iron after a time from the bath, a thin layer of zinc will be found adherent to the entire surface, which has so combined with the iron that it cannot be again removed.

Iron-mould and Stains.—To remove iron-mould, wet the spot, lay the article on a hot-water plate, and drop a little essential oil of lemons upon it. Wet again when dry, and renew the process, keeping the plate boiling-hot; and when the stain leaves, wash well, to prevent injury from the acid. If the stains be of long standing, they may be moistened for five minutes with sulphuret of potash or muriate of tin; and after this is washed out, apply citric acid. For removing stains from vegetable substances, rub on a little soda, or

pearlash, or a mixture of ammonia and spirits of wine, and leave them to soak in it for some time. If the stains be slight, they may be removed by wetting, and then exposing to the fumes of a brimstone match. Some stains can be removed with sour buttermilk. There are bleaching-liquids sold, composed of chloride of lime, which are very effectual. One form can be made thus:—Put a few grains of chlorate of potash into a tea-spoonful of salt, and dilute with water.

Iron, Preparations of.—These are—1. *Aromatic mixture of iron.* This is prepared from cinchona bark, calumba-root, cloves, fine iron wire, compound tincture of cardamoms, tincture of orange, and peppermint-water. The dose is from one to three table-spoonfuls. 2. *Wine of iron.* This is commonly called steel wine, and is a highly popular and useful form for children. It is made from iron wire and sherry wine. The dose is from one to two tea-spoonfuls. 3. *Reduced iron* (*ferrum redactum*). This is made by heating the hydrated peroxide of iron in a gun-barrel in a furnace, and passing through it dry hydrogen gas. It appears as a fine greyish-black powder. Reduced iron acts powerfully upon the blood, and, having no astringent action, it is especially valuable in certain cases. As a rule, it sits easily upon the stomach; but sometimes it causes unpleasant eructation. The dose for an adult is from one to five grains, which may be taken during a meal in the form of a lozenge, each lozenge containing one grain of reduced iron. 4. *Saccharated carbonate of iron.* This is prepared by decomposing a solution of the sulphate of iron by means of carbonate of ammonia, collecting the precipitated carbonate on a filter, which is then expressed, rubbed with sugar in a mortar, and dried at a temperature not exceeding 212°. It appears as lumps, of a grey-brown colour and sweetish taste. This preparation enters into the composition of the compound mixture of iron, Griffith's mixture (*which see*), and the pill of carbonate of iron. The dose of the latter is from three to ten grains. 5. *Iodide of iron.* This is made by dissolving iron wire and iodine in water with the aid of heat, and evaporating. Of this preparation there is a syrup and a pill. The dose of the iodide alone is from one to five grains; of the syrup, from ten to thirty drops; and of the pill, from two to six grains. 6. *Sulphate of iron.* This is made by dissolving iron wire in sulphuric acid, and crystallising the solution. It is converted into the dried sulphate by exposing the crystals to a temperature gradually raised to 400°, when the water is driven off. It appears as bluish-green prisms, having an astringent taste. Sulphate of iron is a most useful preparation in passive hæmorrhages and discharges, and in other weak and relaxed conditions of the body. The dose is from one to five grains. 7. *Phosphate of iron.* This is prepared by precipitating phosphate of soda and acetate of soda by a solution of sulphate of iron. The dose is from five to ten grains. Syrup of phosphate of iron is an agreeable form of this preparation, the dose being one tea-spoonful and upwards. 8. *Strong solution of perchloride of iron.* This is prepared by dissolving iron wire in hydrochloric acid, evaporating with nitric acid, and diluting. A weak solution of this preparation is made by adding fifteen ounces of water to five ounces of the strong solution. The dose is from five to twenty drops. 9. *Tincture of perchloride of iron.* This is one of the best preparations of iron. The dose is from ten to twenty drops in cold water. 10. *Citrate of iron and ammonia.* This is a very effectual form when there is delicacy of the stomach. The dose is from five to ten grains. Wine of citrate of iron is prepared from this, the dose being from one to two tea-spoonfuls. 11. *Tartarised iron* (called also potassio-tartrate of iron). This is similar in its action to the ammonia citrate. The dose is from five to ten grains. 12. *Citrate of iron and quinine.* This preparation possesses the combined properties of both iron and quinine. It is a valuable medicine, and may be given in doses of from five to ten grains.

Iron-wood is a small tree about six inches in diameter, with foliage like the birch, and bearing fruit somewhat resembling the hop. It is of remarkable hardness and heaviness. The name iron-wood is also given to the timber of various trees in different countries. Java and Japan both produce several species, much valued on account of their hard and heavy nature, and used for making rudders, anchors, &c. It is imported into England also from the Cape of Good Hope, and utilised in this country for the manufacture of agricultural implements.

Ironing.—Articles to be ironed should be washed and dried, then carefully folded, and all frills pulled out They should then be slightly sprinkled with water all over, and the heat of the iron, and the cleanliness of its surface, ascertained before its application. A blanket should be laid on the table, and the article spread upon it. Pass the iron over some coarse scrap of linen before commencing to iron, that scorching may be avoided by observing its effect. Shirt-collars and similar articles should be covered with a thin towel on first ironing them, and then passed over on both sides with a box-iron. Laces and muslins need a very soft ironing blanket; they should be dried by rolling them up, and unrolled as they are ironed. Silks should be damped with beer or porter, and covered with paper, for if the iron touch them they will receive a gloss. They should be laid with the wrong side upwards. Frills are "puffed" on the Italian iron. Frills are plaited on a crimping machine; but the plaiting of shirt-fronts in small or box-plaiting must be folded in place with the fingers, and then ironed flat, and any portion which has dried should be re-damped. Should the iron stick to the linen, rub the former on a board sprinkled with powdered cuttle-fish bone or brick-dust, and wipe it well. Plaiting and crimping were performed by the early Egyptians. In the time of Queen Elizabeth, "poking-sticks" were used, made of wood or bone, and subsequently of steel, for the ruffs then so carefully plaited.

Irons. (*See* Box Iron; Flat Irons; Italian Iron.)

Irons, Curling. (*See* CURLING-IRONS.)

Isinglass.—Isinglass was formerly obtained from the swimming-bladder of the sturgeon; but although the best and purest varieties are still taken from this source, the necessities of modern commerce have led to the discovery that this gelatinous substance can be obtained from the same part of many other fishes. Instead, therefore, of Russia being the only isinglass-producing country, large quantities are now imported from South America, the East Indies, and the Hudson's Bay Territory, as well as from Canada, where it is likely to prove a source of profitable industry. The quality of isinglass is known by its colour and smell. The best is almost colourless, and is free from fish-odour, taste, and smell; it also dissolves freely in boiling water, and the solution thus formed is scentless, semi-transparent, and nearly white, and jellies when cold. Isinglass is largely used in cookery for giving firmness to liquids, and ornamental jellies of various kinds are made from it. It requires wine and other substances to make it palatable, but when properly prepared it is very agreeable, and is very easy of digestion. It is used also by brewers for refining beer and other liquids. The precise position held by isinglass and gelatine as alimentary principles is involved in some uncertainty. Several years ago the question was made a special subject of inquiry by a committee appointed by the French Academy of Science, and, as a result, great doubt was thrown upon the nutritive capacity of gelatine or isinglass as an individual organic principle. Various experiments were made, and it was proved that gelatine alone could not sustain life. It was therefore rashly assumed that henceforward isinglass and gelatine must be looked upon as a material for ornamentation rather than as an article of nourishment. This was, however, going too far. The experiments proved only that life could not be sustained on *one* food alone, and not that gelatine, when properly mixed with other foods, is not a valuable aid to nutrition. It is a valuable food, and its effect is to increase vital action in the same direction, if not in the same degree, as albumen. The matter should, however, be clearly understood. Dried gelatine or isinglass does contain a considerable portion of nutritive matter in a small compass. But the substance, when made into jelly and prepared for the table, is greatly diluted with water, and a goodly quantity must be eaten in order to supply as much nutritive material as would be found in a hen's egg. Strictly speaking, isinglass is not gelatine, yet the same remarks apply to both, because the substances are identical in composition, and when pure are undistinguishable from each other. The improvements which have of late years been effected in the preparation of gelatine have provided new facilities for the adulteration of isinglass. The two substances may, however, easily be distinguished by their smell. That of dissolving gelatine is like boiling glue, that of dissolving isinglass is fishy. The commercial varieties of isinglass are numerous, and rather confusing. The mode of drying the air-bladder of the fish has given rise to a good many of the names; thus there are staple, book, leaf, pipe, honeycomb, and purse isinglass. The difference between them depends upon whether the sound is opened or unopened before it is dried, and whether, when it is opened, it is folded again, left unfolded, or rolled out. The long twisted rolls called staples are considered the best of any.

Issues.—These are powerful counter-irritants used in combating chronic inflammation of the viscera, joints, and bones, before suppuration has taken place. They are thus made:—A piece of ordinary adhesive plaster about two inches square, with a hole cut in the centre about the size of a shilling, is placed on the skin over the seat of disease. A small piece of potassa fusa is then placed in the hole, and retained there, in contact with the skin, by means of another slip of plaster for two or three hours. It should then be removed, and the part poulticed for two or three days, until the slough comes away, when it should be dressed with savine ointment, or what is called an issue-bead may be kept in the wound. If the latter shows a tendency to heal too soon, the potassa fusa may be re-applied.

Italian Greyhound.—This pretty little pet dog came originally from the south of France, as well as from Italy. It is exceedingly tender and susceptible to cold, from which its thin silky coat affords it but little protection. Italian greyhounds are very affectionate and fond of their owners, and they seldom display any snappishness, or indeed any bad qualities whatever. The great essential in the breeding is to get them small enough. The average weight ought to be about seven pounds. The muzzle is very fine, the eye large and prominent, full and deer-like, not like the large greyhound's, but in shape of body they must resemble the large one in every point. The ribs should be well sprung, and the skin very fine. The colour varies considerably, but the golden fawn-colour is one much admired.

Italian Iron. — The Italian iron is a cylindrical tube of iron closed in at one end, and containing a heater, the articles to be ironed being drawn over it. Crimping machines have groove-rollers, heated like the Italian iron; they stand in a frame, and the articles being placed between the rollers, a handle is turned. Gauffering machines are of much the same character.

Italian Wines.—The wines of Italy, though little exported and not much known in England, are very excellent in quality. The varieties are numerous, containing sparkling wines, as well as the red and white wines. The sparkling wines differ from those of other countries in being less effervescent. Amongst these the red and white Asti, Nebiola, and Passeretta are most esteemed. The white wine known as Vermuth, of which the best comes from Turin, is very expensive. It is made aromatic with wormwood, and is used as a stomachic. The white wine called Malvasia, and the delicious Lachrymæ Christi, are also greatly esteemed. The latter is of a muscatel character, and is both rare and choice. The best red wines are

Lambrusco, Barbera, and Aleatico. Tuscany is deemed better as a wine-district than any other part of Italy. Many of the Italian wines are bottled in flasks very much resembling those in which oil is imported. This mode of bottling is peculiar to Florence, and has given rise to the term "flask of wine."

Itch.—Scabies, or itch, is a contagious affection of the skin, characterised by an eruption of vesicles or pimples, attended with much itching. It is caused by a little animal called the *Acarus scabiei*, which burrows beneath the skin, and deposits her eggs in the channel which she makes for herself. One egg is laid each day, takes fourteen days to hatch, and matters are so arranged that the eggs reach the surface just in time to be hatched. Fresh families are then produced by the young *acari*, the females repeating the process of burrowing just mentioned. Itch attacks by preference the delicate parts of the skin, and is therefore found between the fingers, and on the forearm, abdomen, and back. It is usually recognisable by the excessive itching, and, if the disease has made any progress, by the black specks of coagulated blood which have been produced by scratching. The treatment of itch is very simple and effective, and has for its object the destruction of the parasite. It is as follows:—Rub the body well over with soft-soap, then step into a warm bath, wash, and thoroughly dry. This softens the skin and prepares it for the next step, which is a thorough rubbing with sulphur ointment, or the following—viz., subcarbonate of potash one drachm, sulphur two drachms, prepared lard twelve ounces; mix. This is allowed to remain on all night, and a warm soap and water bath should be taken in the morning. This process should be repeated for three consecutive nights, when the cure will be complete. The clothing worn should be thoroughly disinfected with hot air, or sulphurous acid fumes.

Ivory.—A hard, fine-grained, bony substance of a pure white colour, constituting the tusks of the elephant, walrus, and narwhal, and the teeth of the hippopotamus and other animals. Elephants' tusks afford the principal supply of ivory, the medium weight of a single tusk being about 60 lbs. Large quantities of ivory are derived from Africa, the East Indies, Ceylon, &c. The African ivory is held of most value, on account of its being of a closer texture and less liable to change colour than the Indian. Ivory is easily turned in the lathe, and admits of a high polish. It is largely used in the manufacture of knife-handles, and is also brought into requisition for billiard-balls, chessmen, musical and mathematical instruments, articles of adornment (ear-rings, brooches, &c.), ornaments, and for artificial teeth. Ivory may be stained almost any desired colour.

Ivory-black.—A kind of charcoal in powder—in reality a mixture of charcoal and phosphate of lime—obtained by charring bones or ivory. In nature and properties it resembles other forms of animal charcoal. (*See* ANIMAL CHARCOAL.)

Ivory, Dyes for.—The following dyes are amongst the best in use for colouring ivory:—A weak solution of nitrate of silver in a perfectly neutral condition (neither acid nor alkaline to the test-paper) will give ivory soaked in it a good *black*, of a slightly greenish cast; a dilute solution of sulphate of indigo and potash will give a *blue*; and if the ivory thus dyed is afterwards submitted to the action, first of a solution of nitro-muriate of tin, and secondly a hot decoction of fustic, the blue will become a good *green*. A fine permanent *yellow* may be got by submitting the ivory for about twenty hours to the action of a solution of the neutral chromate of potash, and then plunging it for some time in a boiling solution of acetate of lead. *Red* colours are secured to ivory by using first the nitro-muriate of tin solution, and afterwards submitting it to the action of a bath of Brazil wood or cochineal, according to the particular red desired. For a *scarlet*, substitute the lac dye; and for a *lake-red*, or *cherry* colour, after dyeing it scarlet, place the ivory for a little while in a solution of potash. By first using the tin solution above mentioned for a shorter time, and the log-wood bath, *violets* and *purples* may be secured. (*See* IVORY, TO DYE.)

Ivory, Imitation.—Bone is the most common imitation of ivory, especially when carefully polished and stained. The dust or finely-ground powder of real ivory may be formed into a solid hard mass closely resembling the natural growth. This is said to be often used for making bagatelle and billiard-balls. (*See* IVORY, VEGETABLE.)

Ivory, To Clean and Mend.—When not preserved from the air under glass, innumerable minute cracks appear in ivory. To remove these, wash in warm water and soap, using a brush, and then place the article under glass. Exposure discolours ivory, and produces a yellow tint, which can only be removed by leaving the glass-covered article in the sunshine, which will bleach it white again. If cleaning only be desired, place while wet, after washing, in the full sunshine, repeating the process for two or three days. It may be bleached by immersion for a short time in water containing a little sulphurous acid, chloride of lime, or chlorine. The fumes of burning sulphur are also effectual to the same end. Any strong cement which is suitable for mending wood or china will be equally so for ivory.

Ivory, To Dye.—When a stain is to be given, prepare the ivory by washing it in an alkaline lye, steeping it then in a solution of whatever substances may form the dye required. But ivory-staining is rarely accomplished in a satisfactory manner by amateurs, and the article should be sent for the purpose to an ivory-turner. If desired, an experiment might be tried with a bottle of prepared dye. (*See* IVORY, DYES FOR.)

Ivory, Vegetable.—A close-grained and very hard substance, much resembling ivory, obtained from the nuts of a species of palm (the *Phytelephas macrocarpa*) growing in South America. Vegetable ivory is largely used for the purposes of turnery, &c.

Ivy is a creeping plant, with long, branched stem, usually found climbing on walls or trees,

to which it adheres by means of rootlets, which it throws out along its whole length. It is frequently, but erroneously, stigmatised as a parasite, on account of its attaching itself to the bark of a tree by numberless tiny holdfasts; but it has its roots in the earth below, and from the earth it derives its nourishment. As a proof of this, if the stem be severed it will die, like any other plant, without it can manage to sustain life by absorption from the atmosphere. Ivy, though beautiful wherever it may be seen, is perhaps at its best when overgrowing a blank, ugly wall, which it further benefits by keeping dry. The proper time for trimming this plant is in the month of May. The small wild ivy found on most of our hedges is used for bordering, its colour forming an advantageous element of contrast to the inmates of the flower-beds. The evergreen character of the ivy led to its being used by the ancients as a symbol of eternal life; and a wreath of it constituted the prize of the victor in the Isthmian games.

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Jacconet, or Nainsook.—This description of muslin is made in France. It is rather thicker, closer in texture, and consequently not so clear as that known as book-muslin. It is principally used for collars and children's dresses.

Jacinth, Hyacinth, Jargoon, or Zircon.—A precious stone which varies in colour from red to yellow, brown, green, grey, and white. It is found in different parts of the world, especially in Ceylon, but is not much valued for jewellery at present. Formerly grey or smoky-white stones, under the name of jargoon, were often sold for diamonds, which they most nearly resemble in lustre. Even now they often pass as rose-diamonds. The jacinth is properly cut like a brilliant, with a rounded table. The Ceylon stones were sometimes called Maturan diamonds. Red varieties are occasionally sold as inferior rubies, but always have a yellower tinge than the real stone. Other varieties have been confounded with the essonite, or cinnamon-stone.

Jack. (*See* PIKE.)

Jackdaw.—A well-known English bird, called by naturalists the *Corvus monedula*, and belonging to *Corvidæ* family. It is a bird of the rook kind, about thirteen inches long, with a dark bill and light-coloured eyes, glossy black on the back and wings, rusty black beneath, with black legs, the hind portion of the head and neck being of a greyish colour. It is a bolder and, one might add, more impertinent bird than the rook. Jackdaws seem rather to like to cultivate the society of mankind than otherwise; like sparrows, they are birds of the street, and prefer to build their nests in steeples or belfries, pairing in April, and the female laying four or five eggs very like those of the common rook. Their food consists of insects, seeds, or the offal they may pick up on the street, or what they are able to steal—for they are not the most honest birds in the world, and have the same *penchant* for gold or silver, or anything that shines, which rats are known to possess.



JACKDAW.

Jackdaws are not only natives of this country, but of most parts of Europe, and they are also found in the north of Africa, although unknown in America.

Jackets (from the French *jaquette*).—A short close garment, extending downwards towards the hips like a man's body-coat with the tails cut off. They may be made of almost any material, and are worn of broadcloth by boys before they are old enough to wear coats like men. Soldiers wear them, in uniform, tight-fitting, and sailors loose-fitting. Those worn by the latter have pockets on each side and inside the breast. Those belonging to a soldier's uniform are fastened up to the throat with a number of buttons set closely together, and have no pockets; the collar is upright and very narrow; and it is distinguished from other jackets by the name "shell-jacket."

Jacks.—A jack is a portable machine for raising great weights through a small space, and consists of a rack and pinion enclosed within a strong wooden case, the power being applied by means of a winch or handle fixed upon the axis of the pinion: the upper end of the rack is formed into two horns to take the better hold of the article to be elevated; and from the lower end, two prongs project laterally through a longitudinal groove in the case, which are used upon occasions when there is not room to introduce the rack beneath the load. To prevent the labourers being overpowered, there is a ratchet-wheel and pall on the axis of the pinion. The bottle-jack is a mechanical contrivance for roasting meat, acting by a species of clock-work, and wound up with a key. (*See* COOKING-SCREEN.)

Jacquard Loom.—This was invented by Joseph M. Jacquard, who was born at Lyons in 1752. It is considered to be the most beautiful of the various contrivances which have been brought forward for weaving purposes. The particular object effected by this loom is that of weaving figured patterns in any kind of material. This is contrived by means of a number of pasteboard cards pierced with holes, sometimes as many as five hundred being employed for an elaborate pattern. By the help of these, irregularities are caused in the alternations of the warp and weft threads, which ordinarily cross in a regular manner.

Jade, or Nephrite.—This stone is much used in the East. It is hard, transparent, and tough; and its colour varies from dark green to creamy white. It is found in Corsica, Egypt, North America, New Zealand, and China, and probably elsewhere. In Turkey, India, and China it is carved into a multitude of forms, and sometimes set with gems. The New Zealanders made it into heads for spears and axes. There is a soft variety of soapstone which passes for jade, but is of much less value. Jade is very little worked in Europe for the purposes of jewellery.

Jagger, or Jigger.—A little utensil used for trimming and cutting pastry is known by the name of paste-jagger. The little wheel at the end is made to revolve. This is used for cutting the pastry and crimping it prettily at the edges.

Jalap.—This is obtained from the tubercles of the *Exogonium purga*, or true jalap-plant, belonging to the natural order *Convolvulaceæ*, and growing in Mexico, from a city of which (Xalapa) the plant takes its name. Jalap is largely used as a watery purgative in dropsies, constipation, &c.; and is frequently combined with other drugs, as calomel, scammony, &c., the action of which it assists. The preparations of jalap are:—1. *Resin of jalap.* This is obtained by means of rectified spirits from jalap. It appears as dark-brown fragments, breaking with a resinous fracture. The dose for an adult is from two to four grains. 2. *Extract of jalap.* The dose of this for an adult is from five to ten grains. 3. *Compound powder of jalap.* This contains acid tartrate of potash and ginger, and is a very valuable form of the drug. The dose is from ten to thirty grains. Children may take four or five grains. 4. *Tincture of jalap.* This is not much used. The dose is from half a drachm to a drachm.

Jamb, in architecture, is the name given to a support, such as the side-piece or post of a door or fireplace. A pillar that supports any part of a building is termed a jamb.

James's Powder.—This is a patent medicine which is said to be essentially the same as the antimonial powder of the Pharmacopœia. If so, it is composed of one part of oxide of antimony, and two parts of phosphate of lime. It is a useful medicine as an alterative and diaphoretic in fevers, &c., but is not so much prescribed as formerly. The dose for an adult is from three to twelve grains.

Jams.—This name, which signifies with us a preparation of fruit and sugar, is probably of Oriental origin, and was not chosen, as might easily be imagined, on account of the fruit being jammed together, as generally is the case in the process of preserving. The name is, however, applicable to most of the preserved fruit made in England. The fruits which are most suitable to be preserved whole in syrup are apricots, apples, cherries, greengages, peaches, nectarines, plums, and pears. In making jams it is necessary that the fruit should be gathered on a dry day, and during the heat of the morning sun. It should be perfectly sound, free from dust, and should be boiled as soon as possible after being gathered. Either white or brown sugar may be used in making the jam, only it must be of the best quality. The inferior sugars throw up so much scum in boiling that they waste as much as they save. The quantity of sugar required depends upon the nature of the fruit. Sugar should never be reduced to powder before it is boiled, as it imparts a turbid appearance to the jam; and the scum should be carefully removed as it rises. Jars of jam should be put into a cool dry place, but not in one into which fresh air never enters. Damp has a tendency to make the fruit go mouldy, and heat to make it ferment. Home-made jam is generally superior to that offered for sale, and ought not to cost more than half the price.

Japan Varnish.—The sap of a tree called the *Urushi* in Japan, and in China the *Augia sinensis*. There are two other descriptions of the *Urushi*, but little varnish is obtained from them. The sap is called lac, is of a poisonous nature, and demands caution in the collecting of it. Resembling cream when it exudes from an incision, after passing through certain processes, and mixed with lamp-black, or charcoal, it dries and becomes of a deep black colour. It is then polished, and sometimes, after painting and gilding, is varnished. The process varies with the substance varnished—metal, wood, leather, or papier-maché. When the substance is rough, a ground is laid of strong size and whiting. When of metal, it is painted with linseed oil and lamp-black; and, when nearly dry, it is placed in a stove, to blacken without burning the oil, the heat slowly augmented till the japan be hard. For other substances, it is composed of shellac, dissolved in spirits of wine. Colours are mixed with it, and the painting completed; more coats of shellac are applied, and polished with an oiled rag dipped in tripoli, or rotten-stone finely powdered.

Japanese Ware.—This comprehends an extensive field of manufactures, now imported in large quantities, and perhaps as largely imitated in this country. They consist of japanned and lacquered articles for household and personal use and ornament, such as cabinets, trays, boxes, looking-glasses, parasols, fans, toys, &c.; also of china and pottery-ware; of articles carved in ivory, bronze, jade, and soapstone; vases and other articles in enamel-work, and pictures on silk and paper; small articles of furniture, such as fancy chairs and tables; and so forth. But with the increasing demand for Japanese manufactures, those exported have deteriorated in excellence.

Japanned Goods, To Clean and Restore.—To clean such articles as tea-trays, bread-pans, and candlesticks, hot water should not be employed, as it will crack the varnish; lukewarm water will answer the purpose without doing harm, and will suffice to melt any grease-spots, so as to be easily removed with a soft cloth. Should any smear appear, sprinkle with a little flour, and wipe clean. For the restoration of japanning, it would be best to send the tray to Birmingham; but such articles are now so inexpensive that it would be scarcely worth while to do so.

Jardinière.—An ornamental flower-pot, into which one of common earthenware is usually inserted. It is made of various materials and forms, and some shapes are called *jardinettes*. They are very appropriate for window-plants, for table decoration, &c.

Jargoon. (*See* JACINTH.)

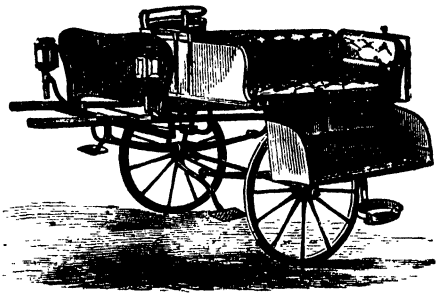
Jars are used for storing purposes. They are made of earth and glass, and in shape are broad and open-mouthed. All acid preparations, such as pickles, and even sound vegetables, should be kept either in glass or in *unglazed* earthen jars. Vinegar is a corrosive substance, capable of dissolving several metals; and, as some of the glazes of earthenware contain lead, great care should be taken in the selection of jars used for keeping pickles, otherwise dangerous consequences may ensue from poisonous matter being introduced into the pickle from the action of the acid upon the vessel containing it.

Jasmine. (*See* JESSAMINE.)

Jasper.—A variety of quartz, very compact, and of different colours. Several countries produce it, and in Greece it was known and used at a remote period. Among the colours are dark green, red, brown, yellow, greyish, and sometimes bluish and black; when striped it is known as ribbon-jasper. It was anciently used for cameos, especially when the colours formed layers. It is very hard, and takes a fine polish, but is not much valued in Europe for ornaments. The seal of the Emperor of China is said to be made of it.

Jaundice.—Simple jaundice, when it does not occur in connection with advanced disease of the liver, is due either to the suppression of the secretion of bile, or to mechanical obstruction preventing this fluid from passing into the duodenum, and thus necessitating its being re-absorbed by the blood. The symptoms of jaundice are, first of all, a marked yellowness of the conjunctiva on white of the eye, then of the roots of the nails, then of the face and neck, and lastly of the trunk and extremities. The urine is very dark-coloured, and stains the linen; the stools are very pale, and there is a bitter taste in the mouth, accompanied with thirst; the pulse is slow and weak, and the spirits markedly depressed. The tendency of the disease is to terminate favourably if properly treated. To effect this, blue pill or Plummer's pill (five grains), or a small dose of podophyllin (half a grain), combined with henbane, should be taken occasionally at bedtime, and the following draught two or three times a day for a few days:—Sulphate of magnesia half a drachm, carbonate of magnesia ten grains, aromatic spirits of ammonia half a drachm, distilled water or peppermint-water one ounce. For jaundice due to obstruction, *see* GALL-STONES.

Jaunting Car.—A light car used in Ireland as cabs are used in England. The driver has his seat in front, whilst the passengers are seated with their sides to the horse, and back to back. The fares for any distance within the municipal boundary of Dublin direct to any other place within the same, without delay, for not more than two persons, 6d. (each article of



JAUNTING CAR.

luggage, 2d. extra). For more than two, and not more than four persons (three articles of luggage allowed), 1s.

Java Sparrows.—The Java sparrow—the rice bird or paddee bird of the East Indies and Eastern Archipelago, and the *Fringilla oryzivora* of naturalists—is an exceedingly pretty little bird, which is much sought after as a pet, on account of its bright plumage and its facility for learning innumerable tricks. Java sparrows are very suitable for an aviary, and may be kept with canaries. Their food is millet and canary-seed. They are grey birds, with black throats and head and rose-coloured beaks; in size and shape they resemble the bullfinch, but do not possess its power of song, for their notes are poor and monotonous.

Jaw, Ailments of.—In addition to the dislocations, fractures, and other ailments to which this, in common with other parts of the body, is subject, there is one special affection of the jaw called lockjaw (tetanus), which may be described under this head. Lockjaw, or tetanus, as it is more scientifically called (the locking of the jaw being only one of the many symptoms present), is essentially a disease of the whole true spinal system. It is characterised by most painful muscular spasms or cramps, which, as a rule, affect first the muscles of the face, jaws, and throat, so that the sufferer cannot open his mouth to swallow or speak; as the disease progresses the countenance assumes a peculiar expression known as the *risus sardonicus*, or sardonic laugh; the muscles of the trunk soon become affected, giving rise to the condition known as opisthotonus, in which the body is bent backwards, so as to form a complete arch. Sometimes it is bent forwards, and the condition is then called emprosthotonus; more rarely it is bent to one side. The breath is usually taken in with a sobbing sound, owing to spasm of the diaphragm, and the intellect remains clear to the last. Death may ensue in the course of a few hours, but the sufferer may linger for some days, and in favourable cases many ultimately recover. Tetanus is usually divided into idiopathic and traumatic tetanus:—1. *Idiopathic tetanus.* This occurs most frequently from long expo-

sure to cold after the body has been heated, from the presence of worms in the alimentary canal, from teething, and from certain conditions of health due to uterine disturbance, &c. 2. *Traumatic tetanus.* This, as its name implies, results from a wound, which may be a mere scratch, or may be severe, as after amputation. Tetanus is naturally very much dreaded by surgeons, as the cause being unknown, no precautions can be taken against it. The only condition which has been discovered after death is a congested or inflamed condition of the nerve leading from the wound; and as tetanus more frequently results after a jagged or punctured wound, there is very little doubt that laceration of the nerve is the primary exciting cause. No further lesion has as yet been discovered. *Treatment.* Tetanus being essentially a disease of debility, the strength must in all cases be supported from the very beginning. Beef tea, eggs, wine, brandy, milk, &c., must be given freely, and when they cannot be swallowed they must be administered in the form of enemata. With regard to medicines, &c., those most used are chloroform inhalation, chloral, injections of turpentine, ice to the spine, and the Calabar bean. The last-mentioned drug physiologically should prove the most successful, as it is well known to have a direct antagonistic influence in the tetanic spasms produced by poisonous doses of strychnine. It may be given by the mouth in the form of extract in half-grain doses, or by subcutaneous injection (*see* INJECTIONS) in doses of one-sixth of a grain, or by the bowel as an enema in grain doses. The local treatment of tetanus varies. Some surgeons recommend amputation; others a Λ-shaped incision above the wound, and extending down to the bone, the object being to completely divide any nerve which may be exciting irritation. If worms or any other known exciting cause be present, they must, if possible, be removed by suitable remedies. It is a popular belief that lockjaw results much more frequently from wounds of the ball of the thumb or great toe than elsewhere, but there is good reason to doubt the correctness of this theory. The probable explanation is that these parts are very liable to scratches and wounds. It may be mentioned, however, that the wounds which result from burns are a frequent cause of tetanus.

Jay.—This bird is called by naturalists the *Garrulus glandarius*, and belongs to the natural family *Corvidæ*. It is a bird of very pretty plumage, and though belonging to the same family as the jackdaw, is much more shy; in fact, the jay likes retirement, and prefers to keep out of sight among hedges or coppices, where it builds a basket-like nest usually at some distance from the ground. Jays' eggs are five in number, of a dirty olive colour, mottled somewhat indistinctly with light brown. Their food is insects, seeds, or carrion, and fruit. They are also partial to the eggs of other birds, and, although smaller than rooks, will often kill and devour young birds, and even mice. They are wonderful mimics, not only of the notes of other birds, but of the different sounds they may hear. The blue jay of North America (*Garrulus cristatus*) is an exceedingly pretty bird, and of somewhat similar habits to our own.



COMMON JAY.

There are also the Canada jay, or carrion bird (*Garrulus Canadensis*), and some other species.

Jean.—This is a species of fine fustian, being made of twilled cotton. It is a strong and thick material, made in white and colours; one kind is striped, and another, called satin jean, is smooth and glossy. This make of goods is used chiefly for stays, waistcoats, and white boots for evening wear.

Jeannett.—This is a fabric which closely resembles jean; it is not quite so close in texture, and the threads are rather coarser.

Jellies.—The term jelly is applied to substances which are liquid when warm, but which become gelatinous when cool. It has for many years been the prevailing idea that jelly, as food, contained a great amount of nourishment. Most doctors now, however, are of opinion that jellies are less digestible than the flesh of animals, and that warm liquid food is better adapted to a weak condition of the digestive organs. Vegetable jelly is a distinct principle, entirely different from the jelly of animal bodies. In its nature it is analogous to gum, while animal jelly is a strong glue. Gelatine is the substance most frequently employed in the manufacture of jellies offered for sale. Isinglass is the purest variety of gelatine, and is made from the air-bag, or swimming-bladder, of the sturgeon and many other fish, though that made from the sturgeon is of the finest quality. Gelatine by itself is tasteless, and possesses little nutritive value. It is useful in the formation of sweet ornamental dishes, but it should be avoided as food for invalids; the home-made calf's-foot jelly is much more nourishing and wholesome. Fruit jelly, which is made by extracting the syrup from different fruits and boiling it with sugar, is very nourishing, cooling, and wholesome.

Jelly Bag.—This is made of flannel or muslin; the former material is the more suitable, because stronger and not liable to tear with the weight of the liquid. The shape is that of a half handkerchief, so arranged that it

is pointed at the bottom, and has a wide mouth at the top. The seam is closely and strongly sewed, the aperture is hemmed round, and loops of tape, three in number, are fastened to the hem as suspenders. The liquid should be allowed to ooze slowly, for if the bag is squeezed the jelly will not be perfectly clear.

Jelly Mould.—The best kind are those of copper, because the lines of pattern are always more sharply defined than in tin, and this excellence is observable in the jelly when turned out. Copper moulds are very expensive, a guinea being the price of a small one. Tin moulds are not nearly so costly: when economy obliges their use, patterns should be chosen which are not elaborate or intricate, or they will look confused on the jelly. Earthenware moulds are used; but to these the jelly is more apt to adhere than to metal: for currant jelly they are advisable, because it remains in its mould for an uncertain length of time.

Jerked Beef.—Beef known by this name is prepared by cutting the beef into thin slices and immersing them in sea-water, and afterwards exposing them to the rays of the sun to dry. This is a West Indian method of curing beef.

Jerkin (from the Dutch word *jurk*, a frock) is a kind of short coat, jacket, or close waistcoat.

Jersey.—1. The finest of wool separated from the rest; combed wool is also thus named, and fine yarn of wool. 2. A kind of jacket of coarse woollen cloth, so called from the island of that name in the English Channel. This article is close-fitting and elastic, and is usually woven in alternate stripes of two colours. They are much worn in boating, and for athletic sports. They are also called "Guernseys."

Jerusalem Artichoke. (*See* ARTICHOKE, JERUSALEM.)

Jessamine, or Jasmine.—A plant or shrub which bears a sweetly-smelling flower,



COMMON JESSAMINE.

formerly employed in medicine for strengthening the nervous system, but now used principally for perfumery purposes. The common jessamine (there are about a hundred different species) is a native of the south of Asia, but is cultivated in the south of Europe, where it grows from six to ten feet high, with evergreen pinnate leaves, the terminal leaflet being the largest. In England it is generally trained up a wall or over trellis-work, and bears either white or yellow flowers.

Jessamine, Preparations of. — To make essence of jessamine, a layer of the flowers is spread over the bottom of a hair-sieve, and upon the flowers is laid a layer of small and detached bits of cotton-wool which have been dipped in oil of ben; over the cotton are laid other flowers, and so on alternately, flowers and cotton, until the sieve is full. When these have lain twenty-four hours, the flowers are taken away, and the cotton is laid in the same way between layers of fresh flowers, and this operation is repeated until the cotton is thoroughly impregnated with the perfume of the jessamine; the cotton is then collected, put into a press, and the oil squeezed out. If kept as oil, it must be in well-stopped bottles; but the usual plan is to add to it at once some very finely-rectified spirits of wine. Another way is to take one pound of sweet almonds (blanched), and add a quarter of a pound of fresh flowers of the white jessamine; pound them well together and express the oil. This is how the Florence oil of jessamine (considered the best) is made. The Leghorn and Genoa oil is made by soaking two ounces of the fresh jessamine flowers in olive oil, so that they are just covered, for three or four days, and then straining them off. Jessamine pomatum consists of a pint of jessamine-water and an ounce of essence of jessamine, mixed with a pound of lard and four ounces of suet. To make jessamine-water, take six pounds of the white sweet almond cakes, from which jessamine oil has been made (as above); beat and sift them to a fine powder, and put to it as much fresh oil of jessamine as will be required to make it into a stiff paste; let this paste be dissolved in about six quarts of spring-water which has previously been well boiled and left until it has become half cold. Stir and mix the whole well together; and when the oil and water have been well combined, let the whole stand until the powder has fallen to the bottom of the vessel. Then pour the liquid off gently, and filter it through cotton, in a large tin funnel, into the glass bottle in which it is to be kept for use.

Jesuits' Bark. (*See* CINCHONA BARK.)

Jet Ornaments.—Trinkets of Whitby jet are composed of lignite (*which see*), found in the upper lias marls; French and Spanish jet, worked in those countries, is found in the irregular veins in the lower marls of the cretaceous series, corresponding with the gault of Sussex. Jet is also found in America and Asia Minor, as well as in various parts of Europe. Hard, brittle, and opaque, it takes a beautiful polish, and every description of ornament in use amongst women—such as necklaces, bracelets, ear-rings, brooches, lockets, crosses, and rosaries—is made of it, some being carved in high relief after the manner of cameos. It

is useful in mourning when gold ornaments have to be laid aside. Jet is cleaned with a thin paste of oil and emery-powder, applied with a soft rag. That found in this country is more expensive than the jet of Asturias.

Jewel Cases.—These are made of leather and lined with velvet; they usually have a tray which is fitted to receive the smaller articles: thus a receptacle is provided for rings, a cushion for brooches, and a division for a watch. The space underneath the tray is more convenient when undivided, wherein bracelets and necklets can lie. This is the ordinary form of small cases. When much and valuable jewellery is possessed, one capable of holding cases which contain separate articles would be required, for gems and delicate workmanship are soon injured if not kept in the cases made for them. Leather cases have in a great measure superseded wooden dressing-boxes, because the former are not so heavy and cumbersome. Small ones may be bought for five shillings. When making the purchase, it is well to remember that leather, if not of a good kind, will soon be rubbed and look shabby, especially if the case is to be often packed and taken about by the owner.

Jewellery.—Strictly speaking, this term applies to ornaments made of precious metals which may or may not be set with precious stones. The fashion of jewellery constantly changes: at one time the colour of the metal itself—pale gold, deep yellow gold, bright or dead gold — varies; at another silver will take precedence. The style is also continually altered—plain and chased, small trinkets with much workmanship, or large ones with but little display of design. In choosing articles of jewellery it is well to avoid extremes of fashion, and then they can be worn for a longer time without singularity. Those without stones are the most useful, because they can be worn at any time and on any occasion.

Jewellery, To Clean.—When of light, old-fashioned gold, the best method is that of washing thoroughly with soap and warm water, drying the articles, and then rubbing them with a clean wash-leather. This process is not fitted for the darker, or for dead gold. For this, a box full of fine dust—such as comes from the turner's lathe—should be obtained, the dust being of course clean, and that from fine kinds of wood, boxwood dust being the best. Into this the jewellery should be put, after having been washed and dried, but not rubbed, and covered over with the dust; when it has remained for a day or two it can be taken out and rubbed with a leather. For cleaning silver a white powder is sold: whiting is too coarse a powder for delicate silver. After the powder has been used, the articles should be rubbed with a leather.

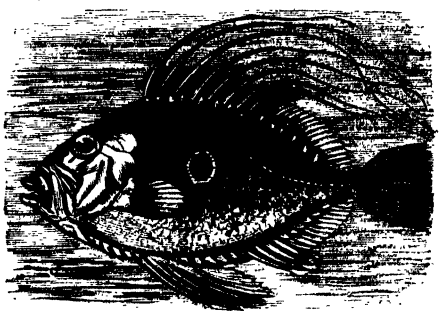
Jewish Calendar.—In the Jewish Calendar about two years out of three—or exactly twelve in every cycle of nineteen years—consisted of twelve lunar months of twenty-nine and thirty days alternately; every third year, however, consisted of thirteen months. (*See* CALENDAR.) The names of these months were as follows:—Abib or Nisan, Iyar or Zif, Sivan, Tammez, Ab, Elul, Tishri or Ethanim, Marchesvan or Bel, Chisleu or Kisleu, Tebeth, Shebat, and Adar; the name of the thirteenth month, occurring every third year, was Ve-Adar. The sacred year began with Abib or Nisan, and the civil year with Tishri or Ethanim; the modern Jews, however, commence the year generally with Tishri. With the modern Jews also the names of the months vary slightly in their orthography from those given. The Jewish week consists of seven days, the last day, however—the Sabbath—being the only one named. The first day of the week is the Sunday of the Christian calendar, the seventh day, or Sabbath, commencing on Friday evening and ending on Saturday evening. Days among the Hebrews always commenced at sunset, or on an average at 6 p.m. (*See also* ERAS.)

Jews' Apple. (*See* EGG-PLANT.)

Jigger. (*See* JAGGER.)

Jigs.—Dances of a lively character in vogue in olden days, but now rarely seen except in some country places. The air and measure are quick and joyful. The former is composed of two parts, with eight bars in each, the shortest notes being quavers. This style of music is sometimes introduced in sonatas and symphonies. The *gigue* was danced in France during the seventeenth and eighteenth centuries.

John Dory is a fish about twelve inches long or more, of an oval shape, not quite flat, but much compressed at the sides. Its name is doubtless a corruption of the French *jaune dorée*, or yellow gilt. The body is scaleless, but armed at both its upper and lower edges with sharp spines. The anterior dorsal fin has projecting spines and filaments, as also two of the ventral fins. The head is large and very ugly, the mouth, which is armed with powerful



JOHN DORY.

teeth, being capable of protrusion to a considerable extent. It has a dark thumb-mark on each side, but the colour of the body is an olive brown, with a tinge of golden hue, and with blue and silver reflections. It is found on several parts of our own southern shores. It is taken in autumn or winter, the bait being mussels, sandworms, &c. The flesh is considered delicate eating. These fish are scraped, dried, dipped in egg and bread-crumbs, and fried.

Joinery.—The art of fitting and joining pieces of timber in the construction of various parts of a building; the framing of woodwork for doors, window-sashes, cupboards, &c. The term *carpentry* is distinguished from joinery in being usually applied to the making of woodwork of a rougher nature.

Joint-stock Banks. (*See* BANKS.)

Joint-stock Companies are associations of a large number of persons united together for the purpose of carrying on a trade or some useful enterprise capable of yielding profit. The common property of the members applicable to the purposes of the company is called its joint stock, and hence the name is derived. A joint-stock company established before the passing of the Acts presently mentioned, and which has not adopted their provisions, is simply a partnership (*which see*), the rights and liabilities of its members being precisely the same as those of any other sort of partners, subject only to the peculiar regulations contained in the deed of settlement. The capital is generally divided into equal shares, each member having a certain number of these, and being entitled to participate in profits according to his number of shares. The management of the concern is confided to a select number of the shareholders called directors, and, except on special occasions, the general body of the shareholders have no power to interfere. It was not unusual for such companies to obtain a private Act of Parliament in aid of their deed of settlement; and at length certain general Acts were passed for their regulation, which were repealed, and the laws on the subject consolidated and amended, by the Companies' Act, 1862 (25 & 26 Vict. c. 89). The fourth section enacts that no company, association, or partnership consisting of more than ten persons shall thereafter be formed for the purpose of carrying on the business of banking, unless registered as a company under the Act, or formed in pursuance of some other Act, or of letters-patent; and no company, association, or partnership consisting of more than twenty persons shall be formed after the commencement of this Act for carrying on any business for the acquisition of gain, unless registered under this Act, or formed in pursuance of some other Act, or of letters-patent, or a company working mines within and subject to the jurisdiction of the Stannaries. The Act is divided into nine parts. (See further the Companies' Act, 1867, 30 & 31 Vict. c. 131.) The Joint-stock Companies' Act, 1870 (33 & 34 Vict. c. 104), facilitates compromises and arrangements between the creditors and shareholders of joint-stock companies in liquidation. By 30 & 31 Vict. c. 29, it is provided that contracts for the sale, &c., of shares shall be void, unless the numbers by which such shares are distinguished are set forth in the contract. By the Judicature Act, 1875, it is enacted that in the winding up of any company, under the Companies' Acts, 1862 and 1867, whose assets may prove to be insufficient for the payment of its debts and liabilities and the costs of winding up, the same rules shall prevail and be observed as to the respective rights of secured and unsecured creditors, and as to debts and liabilities provable, and as to the valuation of annuities and future and contingent liabilities respectively, as may be in force for the time being, under the Law of Bankruptcy, with respect to the estates of persons adjudged bankrupt; and all persons who in any such case would be entitled to prove for and receive dividends out of the assets of any such company may come in under the winding up of such company, and make such claims against the same as they may respectively be entitled to by virtue of the Act.

Joints.—The manner in which an animal is cut up varies in different localities. It is well known that not only has each meat its characteristic flavour, but that different joints of the same animal have different flavours. Thus the flavour of a leg of mutton differs from that of the shoulder. Hence arises the preference for one joint over another. What are called the best joints are more delicate in flavour and agreeable to the palate than the inferior joints, although they may not possess a higher nutritive value. The commercial value is, however, based upon the law of supply and demand, and according to the general preference will be the price demanded. In choosing joints it may be taken as a general rule that those parts of the animal in which the muscles are least called into action are the most tender and succulent. The inferior joints are those which are coarse in texture, or which have much fat or bone. The economical estimate of a joint is regulated by the proportion it contains of bone and fat to lean. In beef, the proportion of bone is the least in the round and thick flank, and it is the greatest in the head, shins, legs, and the aitch-bone. Of the best pieces it is in the most moderate proportion in the loin, and next in the thick ribs. Fat is found most abundantly on the inside of the loin, and this being hard is generally sold separately as suet. It is also on the thin ribs and the brisket. The coarser-grained joints are the neck and brisket, and the most bony parts are the hind-legs, shins, and aitch-bones. The legs and shins are richer in gelatine than any other joint, whilst the largest proportion of oily fat is in the flesh of the face. Both these parts therefore are specially fitted for the preparation of soup. In calves, the sweetbread is in very great request. The feet are largely used in the preparation of jelly. The character of the flesh varies in delicacy, nutritive value, and digestibility with the age of the animal, and the mode of killing adopted. Veal is known to be difficult of digestion, but it is much better when roasted or broiled than when boiled, and the flesh of young and well-fed calves is the best. The joint in a sheep which contains the least proportion of fat and bone to meat is the leg, and it may be regarded as the most solid and the most useful part of the animal, as well as the one which fetches the highest price. The least solid portions are the shoulder and breast. The latter has more fat on it than lean, and the lean is not easily masticated, and possesses little flavour. The shoulder of mutton ranks next to the leg; and the loin, neck, and breast have a large propor-

tion of fat. The neck has a goodly proportion of bone as well as fat, and though it does not command a high price, it is not an economical joint. The lamb is usually cut into quarters. The fry of this animal, including the sweetbread, is somewhat of a luxury. In pork, the smallest proportion of fat is found in the leg, and the largest in the belly and face. So great is the quantity of fat laid up on the outside of the animal that it could not be eaten in its fresh state, but must be cut off and salted, so as to become bacon, or cut up with the lean meat and pickled before it is used.

Joints, Mechanical.—In *mechanism*, joints are points of junction of different parts of the machinery, admitting of free motion of each of the parts. An example of such is afforded by the well-known ball-and-socket joint, founded on the system of joints in the human body, and consisting of a solid working into a hollow sphere. In *carpentry* and *joinery*, joints are places where one board or timber is connected with another, and the various joints are known by different names, according to the method of their juncture. As instances of these may be mentioned mortise-joints, tenons, square, mitre, and dove-tail joints.

Joints, Diseases of. (*See* CARIES; DISLOCATIONS; EVIL, KING'S; GOUT; HIPS, AILMENTS OF; RHEUMATIC FEVER; RHEUMATISM.)

Jointure, in law, is a joint estate limited to husband and wife, or a sole estate limited to the wife. To the latter there are five requisites: 1. The provision for the wife must take effect in possession or profit immediately after her husband's death. 2. It must be for her own life, at least, and not *pour autre vie*, or for any term of years, or for any smaller estate. But the widow will be bound by the acceptance of a precarious interest, if she were adult at the time she agreed to the jointure. 3. It must be made to herself, and no other in trust for her. 4. It must be made in satisfaction of the whole, and not of part of her dower. 5. It must be either expressed or averred to be in satisfaction of dower. It may be made either before or after marriage; if made after marriage she may waive it, and claim her dower, unless it be provided by Act of Parliament. A legal jointure was first authorised by the Statute of Uses (27 Hen. VIII. c. 10), by which Statute, if the jointure is before marriage, the woman shall not have her election between jointure and dower, but if the jointure is after marriage, then she shall have her election.

Joists, in architecture, are those timbers which are framed into the girders or side walls of a building to support the floor, and on which the boards or laths of the ceiling are nailed.

Jonquil.—This is a plant or flower of the *Narcissus* genus, called by botanists the *Narcissus jonquilla*, and belongs to the natural family *Amarylladaceæ*. It is a native of Italy. It is a species of daffodil, and is of the same genus as that to which the snowdrop belongs.

Judgment.—Judicial decision or determination. This term was, until comparatively recently, only applicable to the Common Law Courts, decree being the analogous term for decisions of the Court of Chancery. The expression judgment, however, is now applicable to all branches of the Supreme Court, except the Court for Divorce. Judgments are either (1) *interlocutory* (*i.e.*, given while the action is pending, upon some plea proceeding, or default which is only intermediate, and does not finally determine or complete the action); or (2) *final* (*i.e.*, putting an end to the action by an award of redress to one party, or discharge of the other). All judgments, whether interlocutory or final, are entered of record (*i.e.*, recorded) on the day of the month and year when signed, and have no relation to any other day. The practice in regard to judgments under the Judicature Acts is assimilated to that in use in the Court of Chancery, where a decree was delivered on motion.

Jugs are made of earthenware, porcelain, and glass; and, in France, of tin also. Porcelain jugs are usually sold in sets of three which vary in size. Parian jugs are exceedingly pretty, but they require much brushing with soap and water; for, having no glaze, and having usually a fretted surface, ordinary washing is not sufficient to keep them clean. The shapes of jugs are numberless. In making a choice, it is wise not to take that which has a very narrow neck, for it is troublesome, if not impossible, to wipe dry the inside. A vessel of this description is in Danish called *jugge*, from whence our shorter word has come.

Jugular Vein.—This is the name popularly given to the large external jugular vein, which commences in the substance of the parotid gland, and runs perpendicularly down the neck in the direction of a line drawn from the angle of the jaw to the middle of the collar-bone. It receives the greater part of the blood from the outside of the head and deep parts of the face. This vessel is frequently wounded in attempted suicide or murder by cutting the throat. (*See* BLEEDING, OR BLOOD-LETTING.)

Jujubes.—In France, large quantities of lozenges are made from the juice of a fruit of this name: those made in this country are supposed to resemble them in composition and flavour, but are not veritable jujubes. The shrub jujube is common in Syria and Barbary. Its fruit has an agreeable taste, and is very nutritious. It contains a particular mucilage, which is considered very beneficial for affections of the throat.

Juleps.—Potions which are often administered medicinally to calm the nerves and induce sleep. They are usually composed of distilled water, with syrup of some description, to which a small dose of opium is added. The name julep has arisen from the Persian word *djuleb*, which describes a similar potion. In America, a drink bearing this name is concocted of solution of sugar in aromatic water; when seasoned with mint it is called mint-julep.

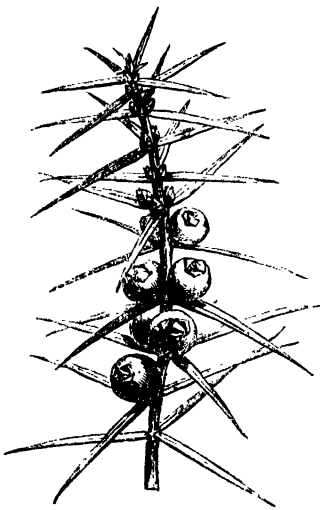
Jumbles.—Small sweet cakes, made of fine flour half a pound, sifted sugar six ounces, butter four ounces, together with an egg. After the compound has been well mixed, miniature ropes are made, rolled in sugar, and coiled round. Care is required when baking them, as they

are quickly burnt. The cakes should be placed on buttered writing-paper when put into the oven, and should be baked a delicate brown colour.

Jumpers. (*See* BABY-JUMPERS.)

Jumpers in Cheese. (*See* CHEESE-HOPPERS.)

Juniper Berries.—These are the fruit of the *Juniperus communis*, or common juniper, growing in Northern Europe and other places, and belonging to the natural order *Coniferæ*. The berries are about the size of black currants, are of a dark-purple colour, and agreeable odour. An oil is distilled from the unripe fruit, and is



JUNIPER.

of a pale greenish-yellow colour. It is used in medicine as a diuretic in different forms of dropsy, but is generally combined with other diuretics: the dose is from two to ten drops. Spirit of juniper is prepared from the oil by adding rectified spirit: the dose is from half a drachm to a drachm. Gin and Hollands are flavoured with juniper-berries.

Junket, or Devonshire Junket.—This word, formerly called juncate, is derived from the Italian *giuncate*, which means curd or cream cheese. Some think that it is taken from the word *juncus*, a rush. The French have a kind of cream cheese called *Jonchée de crème*, which is served in a frail of green rushes. As a verb, the word junket means "to feast in secret." In Southey we find the expression, "Job's children junketed and feasted together often;" and in the *Taming of the Shrew*, Shakespeare says, "You know there wants no junkets at the feast." The Devonshire junket that is known at the present time is a sweet dish made of milk, brandy, sugar, and cream, flavoured with cinnamon, and curdled with rennet.

Jury.—A jury consists of a certain number of persons termed jurors, who are sworn to inquire into and try some matter of fact, and to declare the truth upon such evidence as shall be laid before them. The jury are sworn judges upon all evidence in any matter of fact, and are bound on oath to decide (*i.e.*, give their verdict) according to the evidence laid before them. A jury in civil causes is either a common or a special jury; in criminal causes a grand or *petit* jury. A *common jury* consists of persons between the ages of twenty-one and sixty, having £10 a year in lands and tenements of freehold, copyhold, or customary tenure; or held in ancient demesne, or in rents issuing out of such tenements in fee-simple, fee-tail, or for life; or £20 a year in leaseholds held for twenty-one years or any longer term, or any term determinable on a life or lives; or householders rated to the poor rate, or in Middlesex to the house duty, in a value of not less than £30; or occupiers of houses containing not less than fifteen windows. These qualifications, however, do not extend to jurors of any liberties, franchises, cities, or boroughs possessing civil or criminal jurisdiction. It is called a common jury in contradistinction to a special jury (consisting of persons of the degree of esquire or upward), which usually tries cases of a special and important nature, requiring men of education and intelligence to understand it. By the Juries Act, 1870 (33 & 34 Vict. c. 37), the laws relating to the qualifications, summoning, and attendance of special and common juries have been amended. The persons exempt from serving on juries are—Peers; members of Parliament; judges; clergymen; Roman Catholic priests, ministers of any congregation of Protestant Dissenters, and of Jews whose place of meeting is duly registered, provided they follow no secular occupation except that of a schoolmaster; serjeants, barristers-at-law, certificated conveyancers and special pleaders, if actually practising; doctors of law and advocates, if actually practising; attorneys, solicitors and proctors, if actually practising and having taken out their annual certificates, and their managing clerks and notaries public in actual practice; officers of the courts of law and equity, and very many others. If any man summoned on a jury shall not attend or answer to his name, or if he or any talesman be present but do not appear, or wilfully withdraw himself, he is liable to a fine at the discretion of the Court; if a viewer, of not less than £10, unless some excuse be proved, or, upon such default, at the execution of a writ of inquiry the under-sheriff may fine him a sum not exceeding £5. A *grand jury* is an inquisition composed of not less than twelve, nor more than twenty-three, good and lawful men of a county returned by the sheriff to every session of the peace, and every commission of oyer and terminer and of general gaol delivery, who "inquire, present, do, and execute all these things which on the part of our Lady the Queen shall then and there be commanded them." Grand jurymen at the Assize Courts are freeholders. The grand jury are previously instructed generally in the articles of their inquiry by what is known as a charge from the judge. They then withdraw to sit and receive indictments, which are preferred in the name of the Queen, but at the suit of any private prosecutor,

and they only hear evidence on the part of the prosecution, for the finding of an indictment is only in the nature of an inquiry or accusation, afterwards to be tried; and the grand jury only inquire, upon their oaths, whether there be sufficient cause to call upon the party accused to answer it. When the grand jury have heard the evidence, if they think it a groundless accusation, they endorse upon the bill of indictment, "not a true bill," or "not found;" the bill is then thrown out, and the party accused discharged. But a fresh bill may afterwards be preferred to a subsequent grand jury. If they are satisfied of the truth of the accusation, they endorse a "true bill;" the indictment is then found, and the party stands indicted. A majority of the grand jury of not less than twelve must agree. The trial then takes place before the judge and a petty jury. The institution of trial by jury is very ancient, and seems to have been coeval with the civil government of this nation. Traces of juries may be found in the laws of all those nations which adopted the feudal system, as in Germany, France, and Italy; and in England we find actual mention of them so early as the laws of King Ethelred, and even then not as a new invention. The establishment and use of this mode of trial in our island, though for a time greatly impaired and shaken by the introduction of the Norman trial by battle, were so highly esteemed and valued by the people, that no conquest and no change of government could ever prevail to abolish it. (*See* CHALLENGE.)

Justices are officers commissioned by the Crown to administer justice and do right by way of judgment. The judges of the Supreme Court are termed justices; but the designation is equally applicable to petty magistrates who sit to administer summary justice in minor matters, and who are commonly known as justices of the peace, or magistrates. The Queen's Majesty is, by her office and dignity, the principal conservator of the peace within all her dominions, and may authorise any other to see the peace kept, and to punish those who break it; hence it is called the Queen's peace. Also all the superior judges are conservators of the peace; but justices of the peace properly so called are appointed by the Queen's special commission under the Great Seal, the form of which was settled by all the judges in 1590, and continues with little alteration to this day. This appoints them all jointly and severally to keep the peace in the county or city named, and any two or more of them to inquire into and determine felonies and other misdemeanours in such county or city committed, in which number some particular justices, or one of them, are directed to be always included, and no business done without their presence; whence the justices so named are usually called justices of the quorum. A justice named in the commission is not at liberty to act until he has taken the oath of qualification as to sufficiency of estate, and also the oath of allegiance and judicial oath, in the form respectively prescribed by the Promissory Oaths Act, 1868, and the Promissory Oaths Act, 1871. These justices usually act gratuitously, receiving neither salary nor fees. By the 18 Geo. II. c. 20, every justice for a county must have an estate of freehold, copyhold, or customary tenure, in fee for life or a given term, of the yearly value of £100, or a reversion or remainder expectant upon such lease, as in the Act mentioned, with reserved rents of the clear yearly value of £300 per annum. The disqualification of solicitors from acting as county justices which formerly existed has been removed by the 34 Vict. c. 18. The office subsists during the pleasure of the Crown, and is determinable (1) by demise of the Crown; (2) by express writ under the Great Seal; (3) by writ of *supersedeas;* (4) by a new commission; (5) by accession to the office of sheriff during the year of the shrievalty. The power, office, and duties of justices of the peace are defined by many Statutes.

Jute.—The fibre of annual plants common in Bengal (*Corchorus capsularis* and *Corchorus olitorius*). Jute is much used in India in the manufacture of cordage and coarse cloths; large supplies are now also forwarded to Great Britain, and utilised for the manufacture of paper.

K

Kaisow Tea. (*See* TEA.)

Kale.—Kale is a cultivated variety of the cabbage, from which it differs in having open heads of leaves. These leaves are boiled as a vegetable under the name of greens, and are used also as food for cattle. There are many varieties of the kale plant, most of which have curled, wrinkled leaves, and are very hardy in constitution, which enables them to remain fresh and green during the winter season. Some varieties are green, others are a reddish-brown or purple colour. Kale is, like the cabbage, a biennial plant, though some kinds may be pronounced perennial. The variety most cultivated in England is that called German greens, which are delicate in flavour, and as a winter vegetable are greatly esteemed.

Kaleidoscope. — A philosophical toy, which, by means of certain optical delusions, brought about by a special arrangement of the reflecting surfaces of mirrors, presents to the eye of the observer a series of images alike remarkable for their symmetry and beauty. The word kaleidoscope is derived from three Greek words—*kalos*, pretty; *eidos*, form; and *skopeō*, I view. The ordinary kaleidoscope consists of a tube of tin or pasteboard of from eight to twelve inches in length, and an inch to an inch and a half in diameter. One end of this tube is closed with an opaque screen, with a small circular aperture in the centre, to which the eye of the observer may be applied; at the other end two parallel glasses, at a distance of about an eighth of an inch apart, are fitted, the outer glass being slightly ground, in order that the eye may not be disturbed by objects outside the tube. Between these two plane and parallel glasses, therefore, is a small cell, in which are placed the objects required to

produce the images. The most suitable objects are small pieces of coloured glass, beads, or other coloured diaphanous bodies, of such a size and nature that they may move freely within the cell, and assume new positions when the tube is shaken or turned round. Within the tube, between the object-cell and the eye-glass, are fixed two plane mirrors, from six to ten inches in length, and from an inch to an inch and a half in width. These mirrors are joined together lengthwise, along one of their edges, at an angle which must be some even aliquot part of four right angles—such as one-tenth, one-eighth, one-sixth, &c. The edges of the mirrors should be joined by means of a strip of black silk or cloth glued on their backs, and, if the mirrors be of glass, their posterior surfaces should be coated with black varnish of some description, to prevent reflection therefrom. The two mirrors, being adjusted at the desired angle, are kept in their position in the tube by means of pieces of cork or wood wedged in between them and the tube. Where the kaleidoscope is of home manufacture, and silvered mirrors cannot be obtained, plain strips of glass blackened with smoke on one side may be used. The tube being prepared as described, on applying the eye to the aperture the objects within the cell at the far end of the tube are seen multiplied by repeated reflections from the converging mirrors, and as the tube is turned or shaken an infinite number of symmetrical figures and devices is presented, not one of which will in all probability be afterwards reproduced. Indeed, there is hardly any limit to the number of coloured combinations which may in this way be presented to the eye.

Kali.—Really the same word as alkali, only without the Arabic article *al*, and used in other senses. 1. The *Salsola kali*, or glasswort, a shore plant, from the ashes of which the alkali of commerce was once produced. 2. A preparation sold for making effervescing drinks. It may be made of tartaric acid and sesquicarbonate of soda in equal proportions, mixed with a one-third larger quantity of loaf sugar powdered. The ingredients are first separately dried by gentle heat, and then are mixed, and flavoured with a very little essence of lemon, rubbed through a gauze sieve in a dry place, and bottled and corked at once. A dessert-spoonful put into a glass of water effervesces at once, and is a refreshing and pleasant summer draught.

Kalydor.—Cosmetics bearing this name, and emanating chiefly from America, are said to possess great efficacy in making smooth and beautifying the skin, freeing it from eruptions, and reducing glandular swellings. The principal ingredients of preparations of this kind are said to consist of borax, glycerine, and distilled water; in some instances bichloride of mercury is added. The indiscriminate use of them, however, especially for eruptions, is liable to injure the skin.

Kamptulicon is a species of floor-cloth composed chiefly of india-rubber and cork, the cork being reduced almost to a powder and kneaded up with the india-rubber in its pure state, and then passed through cylinder rollers heated with steam. It is more expensive than the ordinary floor-cloth, but possesses many superior advantages, as from its elastic nature it is particularly agreeable to walk upon, and silent to the tread, consequently invaluable in hospitals or any sick-room. It is also much warmer than oil-cloth, and more durable, being impervious to damp.

Kangaroo Meat.—The kangaroo is found in many parts of Australia and in Van Dieman's Land. By the aborigines the flesh of this animal has long been consumed as food, and it is by them highly esteemed. Now it is also much sought after by the colonists, in consequence of which the kangaroo is becoming rare in regions where it was once very abundant. It is said that soup made from the tail is superior to that made from ox-tails. The flesh of the kangaroo is imported into England in sealed tins with other Australian meats.

Kebobs, or Khubabs.—An Indian dish, usually made of either mutton, fowl, or veal. The peculiarity about it is that the meat is cut into pieces of uniform size, seasoned rather highly, then fastened, roasted, and served upon skewers. Sometimes the slices of meat are placed in alternation with pieces of apple or eschalot, and the kebobbed meat is eaten with rice.

Kedgeree.—This name is given to an Indian dish generally used for breakfast. It is a compound of fish, rice, eggs, and seasoning, and is served hot. The word kedgeree is a corruption of the Indian word *khichri*, a medley or hotchpotch. The name has been confounded with a place so called on the Hooghley river, forty miles south-west of Calcutta.

Keeper. (*See* GAMEKEEPER.)

Keeper.—This is a plain flat gold ring, usually chased or engraved, but without stones of any kind, which is worn next the wedding-ring as a guard or keeper to it. These rings have come into common use during the last twenty years, and now bring the number of rings ordinarily given by the bridegroom to the number of three—these being the engagement-ring, the wedding-ring, and its keeper.

Kelp.—This is obtained from burnt sea-weed which has been previously dried. It was formerly made in large quantities, being a useful ingredient for crown-glass, and also supplying carbonate of soda, which is now obtained from sea-salt.

Kennels, Dog.—These are of two kinds—the large sporting kennel for packs of hounds, harriers, beagles, and other dogs used in hunting; and what may be termed the single or domestic kennel. The latter only we shall content ourselves by describing. The simplest form of kennel for, say, a guard-dog is a dry cask or barrel, lying on its side, and with an open space in the end. The inside of the barrel should be very plentifully littered with either shavings or soft straw; but if the end of the cask is entirely removed, a board about thirteen inches deep should be nailed across the lower part, else the dog's chain, or his body itself,

will bring out with it a portion of the bedding, causing a litter and great discomfort to the dog. People who keep yard-dogs ought to have properly-made square kennels, with sloping roofs to allow the rain to fall off. In all cases the proper accompaniments for an out-door kennel are two dishes (zinc-lined are best), and these should never be empty, the one containing food, the other water. Care should also be taken to see that the kennel is properly sheltered, not only from rain and wind, but from too much sun in summer. The dishes, too, should be kept scrupulously clean. The best kennels for in-door use are made of basket-work, lined with canvas (not flannel), and no cushions ought to be allowed, as they destroy the coat.

Kermes, or Chermes.—The dried bodies of the females of the *Coccus ilicis*, an insect found on various species of oak around the Mediterranean. These insects are round in form, the size of a pea, and contain colouring matter analogous to carmine. They are employed in dyeing. They were formerly used in medicine, and supposed to be of a vegetable nature. *Kermes mineral* is an artificial sulphuret of mercury, in a state of fine powder, and of a brilliant red colour—whence its name.

Kersey (from the German *kirsey*).—A species of coarse woollen cloth, woven from long wool, and usually ribbed.

Kerseymere (from the French *casimir*).—A species of twilled woollen cloth, more pliable than those of a plain texture, one-third of the warp being always above, and two-thirds below each shoot of weft. It is made both single and double milled, the latter being the stouter. Its ordinary width is from thirty-four to thirty-six inches, and is reduced by milling to twenty-seven. Kerseymeres are judged of by feeling them, but an inspection of their quality is more satisfactory, as the texture is not wholly concealed. They are more durable than the plain cloths.

Ketchup.—Ketchup, or catsup, as it is sometimes called, is a most valuable addition to cookery as a flavouring ingredient, and when genuine is one of the most useful store sauces used by cooks. Ketchup is made from mushrooms, walnuts, and oysters, and when well prepared is not only full of flavour in itself, but is the foundation of many other good store sauces. The true Japanese word is said to be *kitjap*.

Kettledrum, or Drum, is a miniature tea-party, now commonly termed a "five o'clock tea." It is very different from the old-fashioned tea-party, where a substantial meal was made, as no one ever thinks of taking anything but a small cup of tea on these occasions, the object being simply a social gathering lasting from five till seven o'clock. When these receptions are on a grand scale, servants are employed to hand the tea; but it is not the custom in gatherings of a less pretentious character.

Kettles.—Tea-kettles are made of iron, copper, and blocked tin. The first-named are most durable, though the water in them is long in boiling. Copper kettles are usually appropriated to use in the dining-room, and, in order to be kept bright, require cleaning every day with vitriol, or with oil and emery-powder. Blocked-tin kettles boil quickly, but do not wear so long as those made of iron. Fish-kettles are of three or four shapes, to suit the shape of different fish, such as the carp-kettle, turbot-kettle, and salmon-kettle.

Keys.—A key is primarily an instrument for fastening and unfastening the locks of doors, &c. From this meaning others have been originated. A bed-key is for turning the screws which hold the framework of a bedstead together. A watch-key winds up a watch, and shifts the hands as required. Whatever solves a mystery, or is fitted to explain a riddle or a lesson, is called a key. Several other uses of the word occur in architecture and building, where the centre stone of an arch, for example, is called a key-stone. In music, the levers for striking the notes of a pianoforte, an organ, &c., are called keys. The fundamental tone of a musical movement is also called the key; hence a key-note. In military language, the key of a position is that which commands or gives control of the rest. In ecclesiastical language, a key is a symbol of authority; hence the power of the keys to denote the authority of the Pope or of the clergy. There are other uses of the word, but these are the most common.

Khoumese. (*See* Koumiss.)

Khubabs. (*See* Kebobs.)

Kid.—Properly, leather made of the skin of a kid or young goat. (*See* Goat's-skin.)

Kid Boots, To Clean.—Remove all dust and mud with a soft brush or damp sponge, and clean with milk.

Kid Gloves. (*See* Gloves.)

Kidderminster Carpets. — These are also known as Scotch carpets, for at the present time this particular kind is manufactured there, and no longer at Kidderminster. They may be recognised by the circumstance of both sides being alike in pattern, with the sole difference that the colours are reversed in it: another distinction is that the patterns are, as a rule, small, and usually of the geometrical order. These carpets are very bright and cheerful, and are well adapted for bedroom use, for not being heavy, they are easily taken up and laid down; for this reason also they are easily fitted and sewed, and this can be managed by any sempstress. The double kind are more serviceable than the single, because, being thicker, they not only wear longer, but also do not let the dust penetrate so readily through them. The better the wool of which the carpet is woven, the longer it remains clean.

Kidnapping is the act of forcibly taking and carrying away a man, woman, or child from their own country, and sending them to another. It is an offence punishable at common law by fine or imprisonment. By the 24 & 25 Vict. c. 100, s. 56, whosoever shall unlawfully, either by force or fraud, lead or take away, or decoy or entice away or detain any child under

fourteen years, with intent to deprive any parent, guardian, or other person having the lawful care or charge of such child, of possession, or with intent to steal any article upon its person, and whoever shall with such intent receive or harbour any child, knowing it to have been so led, &c., is guilty of felony, and may be kept in penal servitude for any term not exceeding seven and not less than three years, or imprisoned for any term not exceeding two years, with or without hard labour, and if a male under the age of sixteen years, with or without whipping. But no person who has claimed a right to the possession of the child, or shall be the mother, or has claimed to be the father of an illegitimate child, shall be liable to be prosecuted on account of getting possession of the child or taking it out of the possession of any having the lawful charge thereof.

Kidney Beans. (*See* BEANS.)

Kidneys.—These are the glands, two in number, which separate from the blood that portion of the waste material of the body which is called the urine. The kidneys are situated in the back part of the abdominal cavity, one on each side of the spine and a little above the crest of the pelvis. They are about four inches in length, two in breadth, and one in thickness, and weigh from four to six ounces each, the left being the heavier. The kidney is composed of two substances called the cortical and the medullary. The cortical substance is external, and occupies about three-fourths of the gland. In this are situated the Malpighian bodies, a network of capillary vessels in which the convoluted urinary tubes begin. The medullary substance is composed mainly of these tubes, which are now, however, no longer convoluted, but are arranged in pyramids called pyramids of Malpighi, varying in number from eight to eighteen, and terminating in a rounded extremity called a papilla. These papillæ are received into larger tubes called calyces, and these again into what are called the infundibula, which are three in number, and are simply the subdivisions of the ureter, or excretory duct of the kidney. The pelvis is the funnel-shaped dilatation of the ureter before it divides into the infundibula. The kidney is subject to certain diseases and disorders, of which the following are the most important:—1. *Acute Bright's disease.* This is a condition characterised by feverishness, partial suppression of urine, which deposits a reddish-brown sediment frequently tinged with blood, and by subsequent dropsy. The disease is usually the result of a severe cold, or it may occur as a sequence of scarlatina and the other eruptive fevers. The treatment consists in keeping the patient in a warm room, in the daily use of warm baths, and in the administration of such watery purgatives as compound powder of jalap and scammony. The diet should be light and nutritious. 2. *Chronic Bright's disease.* This includes (1) the fatty kidney, (2) the waxy kidney, and (3) the contracted kidney. (1) *The fatty kidney.* This is met with in scrofulous and consumptive persons, and in those who drink to excess. The most marked symptoms of this condition are dropsical swellings, usually beginning in the legs, afterwards in the abdomen, and the presence of albumen in the urine. The treatment consists in rest, watery purgatives, generous diet, and relieving the dropsy when practicable by punctures, incisions, or tapping. (2) *The waxy kidney.* This is so called because it presents a waxy appearance when cut. This affection occurs to those who have suffered from diseased bone, scrofula, syphilis, and other wasting diseases. It is not usually accompanied by dropsy, and the quantity of the urine is increased, not diminished, as in fatty kidney, and contains a large amount of albumen. The treatment is the same as that recommended for fatty kidney, except that there being little if any dropsy, purgatives are not so much required. Tonics of iron and quinine will be of service. (3) *Contracted kidney.* This is generally the result of gout and excessive use of stimulants. There is usually no dropsy; the urine contains albumen. Debility, headache, nausea, bleeding at the nose, loss of memory, and giddiness are common symptoms of this form of the disease. The treatment is the same as that recommended for waxy kidney. It may be remarked that dimness of sight, amounting in some cases to blindness, is no uncommon occurrence in Bright's disease, also that the disease is the result of blood poison, the kidneys only playing a secondary part, and that in the chronic form it is of slow progress, frequently lasting for years. 3. *Hæmoturia.* This is bloody urine, and may come on after a blow in the loins. 4. *Cancer.* This may attack the kidneys. (*See* CANCER.) 5. *Calculus.* This is the presence of a piece of gravel in the kidney, characterised by intense pain, sickness, and faintness, with shivering. It is not an uncommon affection. (*See* CALCULUS; GRAVEL; STONE.) 6. *Abscess of the kidney.* This is a rare disease, but may occur. The symptoms are very obscure, unless the abscess makes its way to the surface. If it does, it would most probably point in the loins.

Kilderkin.—A liquid measure containing 2 firkins, or 18 gallons.

Kilt.—This is the name given to the short petticoat worn by Highlanders of both sexes. The verb *to kilt* means to fasten up or truss skirts, hence the designation by which the shortened garment is known.

Kin, in law, is relation, either of consanguinity or affinity. There are two degrees of either kindred—one in the lineal or direct line ascending or descending, and the other in the collateral or indirect line.

Kincob, or Kincaub.—A textile fabric of muslin, gauze, or silk, variously woven or embroidered with silver or gold. Benares and Ahmedabad, and some other places in India, are famed for the production of kincobs, which are not only used for the tunics of gentlemen and for articles of female dress, but are spread upon pillows, are placed upon Mohammedan tombs, and are employed for other purposes. Some of them are most elaborate and costly. There are several varieties, which have different names, but are of the same general character, though in some the gold or silver predomi-

nates, and in others the silk, &c. They are made of moderate lengths, and often cost from ten to twenty-five guineas each, and sometimes much more.

King Charles' Spaniel.—This dog, as it is found at the present day, is almost invariably black and tan only, the beautiful old-fashioned black-tan and white having almost entirely died out. The face and head of the King Charles' are short; the skull round and large; the eyes prominent, lustrous, and loving, and generally they weep at the corners; the nose is very short, with a deep "stop," or pit, between it and the brow; the lower jaw projects beyond the upper—it is, indeed, the shortest-faced dog in England; the ear is very long, both in skin and feather, and should hang close to the cheeks. This spaniel should carry the tail low, not high, and legs and tail and body should all be densely feathered. It is in colour a beautiful black, silky and glossy, with dark-red markings like a Gordon setter. To be fit for show the King Charles' must be very small, say about seven pounds in weight, but certainly not exceeding ten.

King's Evil. (*See* Evil, King's.)

Kingwood, or Kingswood.—A wood from Brazil, also called violet-wood; believed to be derived from a species of *Triptolomia*, but by others to be a variety of the *Brya ebenus*. It is beautifully streaked in violet tints, and is used in turning and small cabinet-work.

Kino.—This is the inspissated juice obtained from incisions made in the trunk of the *Pterocarpus marsupium*, or Indian kino-tree, belonging to the natural order *Leguminosæ*. Kino appears as glistening reddish-black fragments, without smell, but having a highly astringent taste, and, when chewed, imparting to the saliva a blood-red colour. Kino is used as an astringent in diarrhœa, leucorrhœa, &c., when it is usually combined with other medicines. Its action is similar to that of catechu, to which, however, as a medicine it is inferior. The dose is from ten to twenty grains.

Kiosk.—A Turkish or Indian summer-house, the light roof of which is supported by pillars, the sides being unenclosed. The name is applied to any similar erection.

Kippered Fish.—Salmon, cod, herrings, and haddock are preserved by being salted and smoked, and in this condition are known as kippered fish. As soon as the fish are caught they are salted, and dried either in the sun, in prepared kilns, or by the smoke of wood fires. Sometimes they are rubbed over with pyroligneous acid, which preserves them at smaller cost. At the various fisheries large numbers of people are engaged in capturing and curing the different kinds of fish. In the herring fisheries a great many women are employed to gut and pack the fish, which they do with astonishing dexterity. As an article of food, kippered fish does not contain much nourishment, as the necessary curing process to which it is subjected extracts from it most of the nutritive substances.

Kirschwasser. (*See* Liqueurs.)

Kit-cat.—In the last century there existed a well-known club bearing this name, which was frequented by Steele, Addison, and other noted men of that period. This curious designation arose from the circumstance of a man named Christopher Cat serving this club with mutton pies, which were considered to be superexcellent. The name kit-cat is also associated with portraits whose size is not quite half length. This distinction originated in the portraits which were hung in the club-room being that size, the height of the room not admitting larger ones.

Kitchen, Arrangements of.—The arrangements of a kitchen must depend so much upon circumstances, that no universal rule can be laid down upon the subject. The objects to be aimed at in making these arrangements do not vary, however, and they are—(1) That the kitchen should be as large, light, airy, and well ventilated as possible; (2) that it should be easy of access, without passing through the house; (3) that it should be sufficiently remote from the dwelling-rooms of the establishment to prevent the noise of culinary arrangements, and the smell of the cooking, from being carried to the family or the guests; (4) that the scullery, pantry, and store-room should be conveniently near; (5) that there should be plenty of fuel and water provided. It is unfortunately a fact that in what are called well-appointed houses the kitchen is often the part which is most neglected. Yet surely those who realise that the health and comfort of the whole family depend upon the nature of the food prepared in the kitchen will acknowledge that it is most important that such arrangements should be made for the servants as will lead to their comfort and to a satisfactory result of their work.

Kitchen Furniture.—Strictly speaking, the furniture of an ordinary kitchen comprises a deal table, chairs, fender and fire-irons, and canvas for the floor, together with the various utensils and appliances used in cookery and in domestic work. A clock, too, is a very desirable addition to a kitchen. The quality of the furniture, and its quantity, must depend upon the means and requirements of the family; but, at any rate, a kitchen should be made as comfortable as may be, for it is the one room of a house that is more lived in than any other. Neither the careful mistress nor the clever servant will be content that the kitchen should be the one place in the house that is not fit to be looked into, while, at the same time, if the kitchen is thoroughly clean, tidy, and well arranged, it is almost certain that the rest of the house will be the same. The woodwork of a kitchen, such as the table, dresser, &c., should be perfectly clean and sweet and white. In order to secure this end, they should be scoured daily in the grain of the wood with fine sand and lukewarm water, and if they have through neglect become dark and greasy, they may be scrubbed with moist fuller's earth and elbow grease. The kitchen floor is usually covered either with cocoa-nut matting or with canvas. Cocoa-nut matting has a very good appearance, but it is objectionable, because it harbours so much dust. If this matting has become greasy,

it should be scrubbed well with soap and hot water, then put into a tub, rinsed with cold water, and hung in the sun to dry. Very often a square of carpet neatly bound is put on the kitchen floor. This can be taken up and shaken frequently. The walls of a kitchen are generally coloured, and the ceiling whitewashed. This should properly be done over every year. Sometimes the walls are papered and varnished. When this is the case they can easily be kept clean, for they can be washed like paint at regular intervals. There are a few little details that are of more importance than the furniture in securing comfort in a kitchen. One of these is that the chimney should be swept regularly. Another, that the sink should be scoured daily with soft soap and boiling water, and rinsed. A third, that as soon as the day's work is done, the window should be opened at the top, to dispel unpleasant smells; and a fourth is that the floor should be scoured at least twice a week with plenty of water.

Kitchen Gardens. (*See* GARDENS, KITCHEN.)

Kitchen, Linen for.—Kitchen table-cloths, coarse brown towels, glass-cloths, jelly-bags, fish-cloths, pudding-cloths, dusters, and scouring-flannels are all included under this head. Kitchen table-cloths are made of unbleached cotton diaper, but huckaback is cheaper, as it *wears* longer. Glass-cloths are made of linen. They and the coarse towels should be a yard long. Pudding-cloths are best made of Russian sheeting, new and thick. For fruit dumplings the cloths are frequently made of coarse cotton, loosely knitted to the requisite size. Fish-cloths are made of inferior damask, or of crochet or knitted work. Embossed-bordered fish-papers are now extensively used instead of fish-cloths. The very stout flannel called double-mill, which is used for ironing-blankets, is the best material which can be used for jelly-bags. The flannel should be cut like a half-handkerchief, and the bag made in the shape of a fool's cap. It may be of any size, but one that is twelve or fourteen inches deep, and seven or eight across, is best suited for ordinary purposes. The two sides of the bag should be sewn together twice to prevent unequal filtration of the liquid, and the top may be trimmed and have tape loops attached to hang it up by, or, better still, it may be fastened into a hoop the exact size of the mouth of the bag. Scouring-flannels should be strong and coarse, and should be caught round the edges to save them from fraying. Old flannel petticoats, old blankets, and old winter stockings cut open and sewn together, may all be used for this purpose. Dusters are best of cotton. The remains of cotton dresses, old sheets, and old chintz make capital dusters. Whatever they are made of, they should be hemmed. Kitchen linen should be given out in certain quantities at a time, and it should be inspected by the mistress and counted at least once a month. Before fresh linen is provided the old rags should be produced, as it is not an uncommon thing for untrustworthy servants to throw very dirty towels and dusters away rather than wash them, and there is no more usual cause of waste and loss than in the careless and extravagant use of kitchen linen.

Kitchen-maid.—The duty of a kitchen-maid is generally understood to be that of assistant to the cook; indeed, the duties of cook and kitchen-maid are so intimately associated that they can hardly be treated separately. The kitchen-maid's first duty is to light the fire, and sweep and tidy the kitchen, pantries, and apartments adjoining. She is expected to wash and scour those places when necessary, and to keep them in good order, with the shelves, tables, and cupboards they contain. She has also to prepare the fish, vegetables, and poultry, trim joints of meat, and do all she can to enable the cook to be at liberty to attend to other important duties. At the dinner-hour when the dishes are served, the kitchen-maid is expected to look after the vegetables, sauces, and gravies, and see that they are put into their appropriate dishes. Though the position of kitchen-maid is not regarded as very high in rank, it is one that may be turned to very good advantage. An active, intelligent girl may, by attention and observation, soon become very clever in cooking. By watching others she may easily become fitted to enter herself upon the duties of a cook.

Kitchen Requisites.—A kitchen should be well furnished with the utensils and appliances needed for the successful production of the dishes required, and for the proper performance of household work. The number, size, and variety of these must be regulated by the habits and position of the family. In a large, well-appointed kitchen, many things are wanted which would be absolutely useless in a small establishment. As a guide for those who are about to furnish, we subjoin a list of the requisites of the moderately-furnished kitchen of an ordinary household:—

REQUISITES FOR A MODERATELY-FURNISHED KITCHEN.

1 Range, Fender, and Fire-irons.
1 Deal Table.
1 Clock.
4 Wooden Chairs.
Hearth-rug (which should be removed when cooking is going on, a piece of coarse canvas being laid in its place).
A Bowl for making pastry.
A Large Brown Earthenware Pan, with lid, for keeping bread.
A Dresser (or, wanting this, a bracket of deal fastened to the wall, which can be let down when wanted).
Canvas or Carpet for the floor.
A Wooden Tub for washing glass and china.
A Small Zinc Basin for washing the hands.
Plate-rack.
A Wooden Box for keeping flour.
Wooden Soap-box, to hang over the sink.
Large Earthenware Pan, or Zinc Pan, for washing dishes.
1 Set Boot-brushes.
1 Long Broom.
1 Hard Broom.
1 Pail.
1 Cinder-sifter.
1 Knife-board.
1 Meat-screen, with Bottle-jack, Dripping-tin, and Basting-ladle.
1 Large Boiler.
2 Enamelled Stewpans.
1 Preserving-pan and Spoon.
1 Plate-brush.
1 Paste-board and Rolling-pin.
1 Salt-box.
2 Washing-tubs.
A Clothes-line.
6 Dozen Pegs.
A Clothes-horse.
2 Stove-brushes.
1 Blacklead-brush.
2 Scrubbing-brushes.
1 Short-handled Broom.
1 Sieve.
2 Tin Candlesticks, with Snuffers and Extinguishers.
1 Digester.
3 Iron Saucepans.
3 Block-tin Saucepans.
1 Iron Saucepan and Steamer.

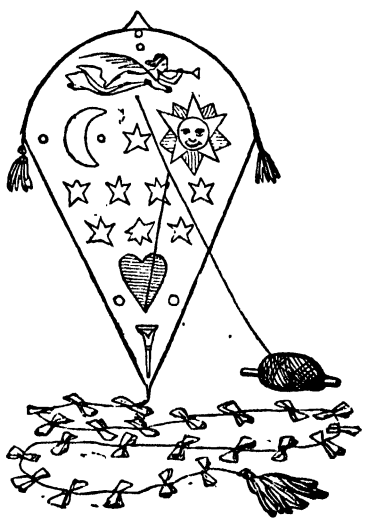
1 Fish-kettle.	1 Tin Funnel.
1 Fish-slice.	1 Gravy-strainer.
12 Patty-pans.	1 Cullender.
2 Tart-pans.	1 Flour-dredger.
1 Paste-jagger.	1 Kettle.
2 Gridirons.	1 Toasting-fork.
2 Frying-pans.	1 Bread-grater.
1 Set of Scales and Weights.	1 Set Skewers.
	1 Meat-chopper.
1 Coffee-mill.	1 Egg-slice.
1 Egg-whisk.	1 Spice-box.
1 Pair Steak-tongs.	1 Jelly-bag.
2 Pudding-moulds.	2 Cooking Knives and Forks.
3 Wooden Spoons.	

When two servants—cook and housemaid—are kept, it will be best for each one to have brushes and leathers for her separate and exclusive use. The cook may have one hair broom, one hard broom, one carpet-broom, one little sweeping-brush, one blacklead-brush, two stove-brushes, one set of shoe-brushes, two scrubbing-brushes, one sweep's brush, three leathers, and one pair of housemaid's gloves. The housemaid may have one hair-broom, one carpet-broom, one banister-broom, one staircase-broom, one Turk's-head broom, one plate-brush, one mattress-brush, two scrubbing-brushes, one blacklead-brush, three stove-brushes, one sweep's brush, three leathers, and one pair of housemaid's gloves.

Kitchen Waste.—The waste that is practised in the majority of English kitchens is absolutely pitiful. Things are not quite so bad as they were, for we have learnt that economy is the soul of good cookery, and that the most skilful cook is the most economical one. In the houses of the poor the waste is often greater than in the mansions of the rich, for the simple reason that the poor are ignorant of the true art of cooking, and do not know how to turn things to the best account. What is wanted for the prevention of waste are enlightenment, care, and forethought, combined with strict ideas of honesty. If these qualities could be intelligently practised, we should find that every particle of food that was brought into our kitchens could in one form or another be consumed. Dripping, crusts of bread, cold vegetables, and scraps would be made to yield their full value to their purchaser, instead of being thrown to swell the dust-heaps. One great cause of waste and dishonesty among servants at the present day arises from the practice of allowing perquisites to cooks. Justifying themselves on the ground of this indulgence, servants have been known to far exceed the limits allowed them, and have exchanged for money not only their own substance, but also very much belonging to their master and mistress. Fortunately most housekeepers are becoming aware of the evil consequences of this custom, and we may hope that very soon the system will be entirely abandoned.

Kitchener.—Kitcheners, as close stoves are called, are so made that the fire is not exposed to view; consequently there is no fear of any annoyance from smoke or dirt. The best kitcheners possess a well-ventilated large wrought-iron roaster, a commodious boiler, and many valuable conveniences in the way of movable shelves, plate-warmer, &c. Large ranges have two ovens, small ranges only one: with this exception, however, the small stoves are equal to the large ones: they are constructed on the same principles, and are admirably adapted for small houses. The superiority of the kitcheners over the open stoves is unquestionable. Almost any number of pans, boiling pots, and cooking vessels may be kept boiling at the same time, and these, instead of becoming smoked and burnt, remain as clear outside as inside. The pans, too, wear much longer than they would if brought into contact with embers. It has been suspected that, owing to the great draught of air in the kitcheners, the fuel necessarily consumed by them must be greater than in the open stoves. This need not be the case. There is no doubt that, when thoughtless, inexperienced persons have the management of the stoves, a good deal of extravagance may exist; but when the stove is under the superintendence of those who understand it, and who desire to economise, there is nothing to be feared on this account, as the kitcheners only require a reasonable amount of fuel. When the cooking is over, the fire may be kept in for a long time by closing the dampers and using only small coal or cinders. The real value of these stoves can only be appreciated by those who possess them.

Kites.—Well-known toys constructed for flying in the air. Kite-flying, a most healthy exercise for the young, is said to have been introduced into Europe from China, but the date of such introduction seems uncertain. Strutt, in his "Sports and Pastimes," gives 1700 as the date of the first appearance of kites in England;



TOY-KITE.

but other authorities trace them back nearly a century earlier. Kites are formed of slender frames of wood, covered with paper or some other light material; attached to the frame, near its centre of gravity, is a long string, one end of which is held by the person flying the kite. In order that the kite may rise easily in the air, it is necessary that its flat surface be presented obliquely to the wind; a *tail*, or

string to which are attached some light substances, is therefore fastened to the lower end of the kite, and by its weight serves to maintain the desired inclination. The most ordinary form of kite is that represented in the illustration. All the requisites for the manufacture of such a kite are a lath, which is to form the back-bone, and must be exactly the desired length of the kite; a stout cane, split through the middle, one piece serving for the bow or top of the kite; some sheets of tissue paper of any desired colour, to form the covering of the framework; and some twine. The face of the kite, when completed, may be adorned at will with various devices, such as we have figured. At each side of the kite it is usual to fasten a tassel of paper, by tying it to the cane which forms the bow; and these tassels are called the kite's wings. The length of the *tail* must in all cases be proportioned to the size of the kite. Cloth and calico are sometimes used as coverings for kites, and are to some extent preferable to paper on account of their durability. Fancy kites, representing birds, &c., are often constructed. The natural form of a kite—the bird of prey from which, on account of its flight, swoop, &c., the name of the toy is said to be derived—is often taken for a model; indeed, kites of this description, made of coloured cotton, are sometimes used by sportsmen to keep partridges and other birds of which they may be in pursuit from flying beyond range of gunshot. Kites must not, however, be regarded solely as toys, for they have often been brought into practical use. By means of a well-known experiment with a kite, Franklin ascertained the identity of lightning with the electric spark. Kites have, too, been used as a motive power for dragging light cars along the road, and kite-carriages were often seen in the early years of the present century; sledges have frequently been drawn along over the ice in the Arctic regions by their means. Kites have also been found of great advantage in carrying ropes, &c., up to the tops of steeples and other inaccessible parts of buildings.

Kleptomania.—A form of insanity, the peculiar feature of which is an uncontrollable propensity to steal. This propensity is sometimes limited to articles of a particular kind—silver spoons or forks, for example. The reality of the affection is now fully recognised, and affords an explanation of otherwise inexplicable actions.

Knapsack.—The bag which bears this name should be made of waterproof material, and should in itself be light in weight and convenient in shape and size. The bag is suspended by straps from the shoulders, and this method is certainly the least burdensome way of carrying personal luggage when the desire or necessity arises for so doing. Those carried by our soldiers are made of canvas painted black; those used by the Swiss are of goat-skin, dressed with the hair on. A material preferable to either is now made similar to that used for sponge-bags: it is waterproof, light in weight, and not so distinctive as American cloth and such-like shining materials.

Kneading.—In making bread it is very necessary that all the ingredients be thoroughly mixed together, and this object is accomplished by the kneading process. This is done by working the flour, yeast, and water into each other until the whole becomes smooth and shiny on the surface, when it is put aside to rise. Much time and strength are required in kneading bread; the larger the quantity, the greater amount of strength has to be expended. Machines are now used in large bread manufactories. These consist of certain stirring blades and stationary arms, and a spiral blade for discharging the homogeneous dough. Kneading machines differ in their construction and plan of working, though all are of great value in thoroughly incorporating the mixture.

Knee-caps.—For horses these are made of leather, padded on the inside as a protection. Several kinds are used for surgical purposes. The simple knitted ones are convenient and comfortable, and are worn by persons whose knees are weak or liable to rheumatic and other affections in which a defence from cold is important.

Knees, Ailments of.—In addition to the ailments to which the knee, in common with other joints, is subject, as dislocations, fractures, rheumatism, gout, &c., there are three special ones which may be described here. These are (1) housemaid's knee, (2) white swelling of the knee, and (3) loose cartilage in or about the joint:—1. *Housemaid's knee.* This is an inflammation of the bursa, situated in front of the patella, or knee-cap, and is a common affection amongst those who have to work much in a kneeling position. The symptoms are a considerable rounded swelling in front of the knee, not usually red or giving pain, except when bent or pressed. If neglected, however, matter may form, and troublesome consequences result. The best treatment is rest (a splint is necessary in some cases), and the daily application of iodine or a small blister may be tried. If these do not succeed in removing the swelling, the fluid must be evacuated by puncture or seton. When there is much inflammation, with suppuration, an incision, followed by fomentations and poultices, is necessary. 2. *White swelling.* This is a scrofulous affection, and partakes of most of the characteristics of that disease as to history, habit of body, &c. It begins slowly, and is not in the first instance attended with much pain. Both the swelling and the pain, however, gradually increase, and the latter is felt more at night. If the disease goes on unchecked, a certain amount of distortion of the joint ensues. The treatment constitutionally is the same as that recommended for scrofula: cod-liver oil, iron, &c., with pure air and good food. The local treatment consists in resting the limb, in the application of iodine and blisters, and, in bad cases, excision of the joint. 3. *Loose cartilage.* These are loose pieces of cartilage of varying size, which are apt at times to get between the bones of the joint, and there, becoming nipped, give rise to sudden and most excruciating pain. They may in this way excite inflammation of

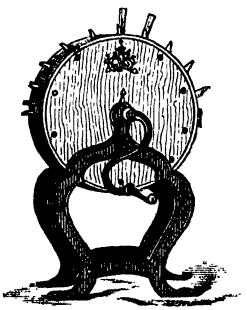
the joint, otherwise they do no mischief. The treatment is, when practicable, to keep these little bodies out of harm's way by means of an elastic or other knee-cap. If this cannot be done, and they become troublesome, they may be removed by surgical operation; but this is not desirable if it can be avoided, owing to the danger of exciting inflammation in the joint. There is a condition of the knees that is known as *knock-knee*, concerning which a few words may be said. This is a projection inwards of the lower ends of the thigh-bones where they terminate in the knee-joint. It occurs to rickety, unhealthy children who have been allowed to walk too soon, and may become a serious deformity. The treatment is rest, wearing splints in bad cases, good food, pure air, with iron and cod-liver oil.

Knickerbockers.—A very loose description of breeches, fastened with a band under the knee. They are much worn by gentlemen when engaged in country sports; and very generally by little boys, from about five years of age till ten—the period varying according to the child's size. The former kind are always of a thick woollen material. The name "knickerbocker" has been applied to a species of linsey manufactured for ladies' wear, having a rough surface on the right side, and variegated in colour—or grey, black, and white, yet without any pattern.

Knife. (*See* KNIVES.)

Knife-baskets and Trays. — Knife-baskets are made of wicker-work, and are lined with zinc. They are also made in oak, either plain or polished, and vary in price according to the size and quality.

Knife-boards and Cleaners. — For many years, until machines were invented, knife-boards were used for cleaning knives, and in many families they are still employed. Knife-boards are made of wood covered with leather, upon which is spread emery or bath-brick, and the knives are rubbed upon this. Knife-cleaning machines, which are now extensively used, are a great saving of time and labour. With their aid knives are effectually cleaned without receiving any injury. Those who possess these machines testify that the knives are worn no more in the machine than by the old-fashioned process of cleaning them on the board.

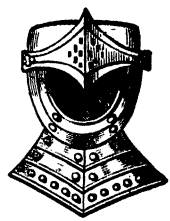


KNIFE-CLEANING MACHINE.

Knife-rests.—Knife-rests are usually made of solid pieces of glass, either white or coloured, and of electro. They are three or four inches in length, and about an inch in diameter. They are placed one on each side of the carver, so that he may rest his knife and fork upon them when not in use.

Knife-sharpeners. — The well-known "steel" is used more than anything else for sharpening knives for table use. Various substitutes have been offered for sale from time to time, but they have not displaced the old favourite in popular favour. A modern invention is a sharpener in the shape of the ordinary steel, and made of a composition of emery. This utensil is said to be particularly effectual in sharpening knives quickly and thoroughly.

Knight, Knighthood. — A knight (Saxon, *cniht*, an attendant) was originally a man-at-arms, attached to the service of his Sovereign or feudal lord, and bound to attend him on horseback in times of war. The institution of knighthood, though existing to some extent among the Anglo-Saxons, was more or less an adjunct of the feudal system, and grew into importance with that system. (*See* FEUDAL SYSTEM.) Knighthood was originally a military distinction, and was usually conferred after certain periods of probation. Thus the embryo knight received his early education in the house of some person of rank, where he held the position of page; when of full age he became an esquire, or attendant on a knight. The order of knighthood usually followed this double period of probation, though not of necessity, for there were many esquires who never attained to higher distinction, as also there were many knights who were so made without having passed through either of the probationary stages. *Knights Banneret* were those who were knighted on the field of battle, usually in recognition of the performance of some heroic act. *Knights Bachelors* were in olden times knights of a lower rank. (*See* KNIGHTS BACHELORS.) The bestowal of the honour of knighthood as a civil as well as a military distinction appears to date from the fifteenth century, Sir William Walworth, Lord Mayor of London at the time of the Wat Tyler riots, being the first civil knight. Knights are entitled to the prefix *Sir* before their Christian names; their wives also are by law entitled to the appellation *Dame*, but this is seldom used except in formal documents, its place being taken by the prefix *Lady*, which has by courtesy been extended to the wives of knights.



KNIGHT'S HELMET.

Orders of Knighthood are of two classes—associations or fraternities holding independent rights, and having more or less of a religious foundation, such as the Knights Templars and Knights Hospitallers; and honorary associations established by sovereigns within their own dominions. Several of these latter orders

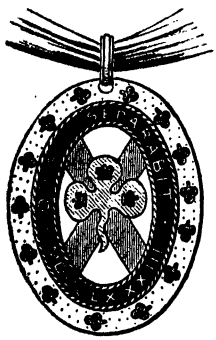
exist in this country, such as the Orders of the Garter, the Thistle, St. Patrick, the Bath, the Star of India, and St. Michael and St. George. Of these the Order of the Garter is separately described. (*See* GARTER, ORDER OF THE.)

The Most Ancient Order of the Thistle, the date of the institution of which is doubtful, was revived in the year 1687 by James II., and re-established in 1703 by Queen Anne. The knights, who are chiefly of the Scottish nobility, are sixteen in number; these, with the Sovereign and princes of the blood royal, constitute the order. The star of the order is a St. Andrew's cross embroidered in silver; the badge or jewel is a figure of St. Andrew in gold enamelled with colours, surrounded by the motto of the order, *Nemo me impune lacessit*. The initials K.T. follow the names of Knights of the Thistle.



BADGE OF THE THISTLE.

The Most Illustrious Order of St. Patrick was instituted in 1783, and was especially intended for the Irish nobility. It consists of the Sovereign, a grand master (the Lord-Lieutenant of Ireland), and twenty-two knights. The star of the order consists of the red cross of St. Patrick on a white ground, bearing a trefoil with a crown on each leaf, surrounded by a sky-blue circle inscribed with motto, *Quis separabit?* and date, 1783; the badge is of gold, surrounded with a trefoil wreath, and having a centre like that of the star. The initials K.P. are added to the names or titles of members of the order.


BADGE OF ST. PATRICK.

The Most Honourable Order of the Bath was first instituted in 1399, revived in 1725, and enlarged in 1815 and 1847. Its members are of three kinds—Knights Grand Cross (G.C.B.), Knights Commanders (K.C.B.), and Knights Companions (C.B.). Foreigners may be attached to the first and second classes of the order as honorary members. The knights of the order in each of the three classes are ranged in two divisions—civil and military, there being a distinctive badge and star for each division. The motto of the order is *Tria juncta in uno*.

The Most Exalted Order of the Star of India was instituted in 1861, and consists of the Sovereign, 205 ordinary members or companions, and honorary members. There are three classes of knights—Grand Commanders (G.C.S.I.), Knights Commanders (K.C.S.I.), and Companions (C.S.I.). The motto of the order is "Heaven's Light our Guide."

The Most Distinguished Order of St. Michael and St. George was instituted in 1818, and is especially a colonial order, granted to those who have held high office or otherwise distinguished themselves in the colonies. It consists of a grand master, Knights Grand Cross (G.C.M.G.), Knights Commanders (K.C.M.G.), and Companions (C.M.G.). The motto of the order is *Auspicium melioris ævi*.

Knight of the Shire.—A designation given to the representatives of counties in the Imperial Parliament, as distinguished from the representatives of cities and towns. Originally knights of the shire were compelled to reside or have a household in the county which they represented, but this qualification was remitted by the 14 Geo. III. c. 58.

Knights Bachelors.—Originally these were knights in the probationary stage of knighthood. Now, however, a knight-bachelor is generally understood to be a knight who does not belong to any order of knighthood. (*See* KNIGHT, KNIGHTHOOD.)

Knitting.—The word has doubtless arisen from the Anglo-Saxon *cnittan*. When and where this manner of weaving was first invented is a matter of dispute, but it is agreed to be of comparatively modern date. Spain and Scotland contend for the honour. Knitting is the peculiar method whereby one thread with the help of two or more needles forms loops, and connects them together. For flat articles two pins are required; for circular knitting four are used. The stitches, two in number, are very simple. In plain knitting the pin is put through the back of the loop; in purling, the thread is brought forward, and the pin is put through the loop in the front. The other varieties formed are made by putting the thread once or more round the pin before making a loop, or by knitting two or more stitches together: by casting off a number and casting them on again. The excellence of knitting is judged according to the evenness and regularity exhibited. The stitches should never be tight on the pin, nor yet very slack. Fancy knitting requires practice and skill, for if stitches are dropped they cannot be recovered without disfiguring the pattern, and mistakes made in the latter are always visible.

Knitting, Framework. (*See* FRAMEWORK KNITTING.)

Knitting Materials, Needles, &c.—Silk, wool, worsted, and cotton can be brought into requisition. Silk requires to be handled by a good knitter, because the needles are liable to pierce and spoil silken threads. With that called Danish silk very nice socks or children's stockings can be knitted. The finest and softest wool is that used in Scotland with which the Shetland shawls are fabricated, but it is not procurable in this country. Pyrenean is fine, but more twisted. Shawls and veils knitted of this in small patterns are very light, and yet warm. The so-called Shetland wool is the next in size, and that is followed by Andalusian. After these come the Berlins and fleecies, of which mention has been made elsewhere. The above are mostly fitted for fancy knitting of fancy goods. Eider yarn is

a very soft material for socks. Scotch yarn and fingering are stronger, but not so smooth. Worsteds are cheaper, and vary in thickness and quality. Strutt's cotton is said to be the best; it is sold cheaper by the pound than in smaller quantities. The needles are of steel; the pins of ivory, bone, or wood, with button at one end. The former are used mostly for plain and circular knitting, the latter for fancy knitting. The degrees of thickness are measured by a gauge.

Knives.—Knives appear to have been in use for the purposes of the table from very early times, and long before forks were invented knives, of a rude shape it may be, but still knives, were in constant use. Stow says that Richard Mathews on the Fleet-bridge was the first Englishman who made *fine* knives; and that he obtained a prohibition of foreign ones in 1563. Sheffield gained a name for its "whittles" as early as the reign of Richard I.; and Chaucer speaks of the "Sheffield thwytel." It is generally acknowledged that England has outstripped all other countries in the excellence and cheapness of its knives. But during the last few years a great improvement has taken place in the French table-knives. Good table-knives are made of steel and iron welded together. The tang, or part which goes into the handle, and the shoulder are of iron, and the blade is of steel. There are three kinds of steel used in cutlery—common steel, shear steel, and cast steel. The two last are generally preferred for table-knives. Two men are employed in the process of manufacture—the fireman or maker, and the striker. According to the ordinary method, the blades are cut out of a sheet of steel, and the backs, shoulders, and tangs, made of wrought iron, are welded to them at the forge, after which the knife is polished and hardened. Common knives are made entirely of iron. Pen-knives are the work of many hands. Besides the blades, there are the delicate hinges and the springs, the manufacture of each piece of which constitutes a distinct trade. These are put together by the finisher, and it is said that a good pen-knife will pass through his hands more than seventy times. Clasp or spring knives became common about 1650. They were brought originally from Flanders. Knives are of various shapes and sizes, adapted to their respective uses: thus there are carving-knives, table-knives, dessert-knives, fish-knives, clasp-knives, &c. The proportionate price of these articles is determined quite as much by the amount of labour bestowed upon them as by the cost of the material.

Knives and Forks, Care of.—Knives should never be put away dirty. The practice of putting aside dirty knives not only causes inconvenience when they are wanted, but also injures the knives. Stains are more easily removed when first made than they are when they have been allowed to become fastened in the steel. The hafts of knives should not be placed into hot water; they should be put into a jug with water in it sufficient to wash the blades without wetting the handles. Charcoal powder is excellent for imparting a good polish to steel knives, as is also powdered rotten-stone made into a smooth paste, and rubbed on the knife, which must afterwards be polished with a clean cloth. Steel forks require the same treatment as knives. (*See also* Knife-baskets and Trays; Knife-boards and Cleaners; Knife-rests; Knife-sharpeners.)

Knots.—1. The speed of a ship is said to be so many knots an hour, the word knots meaning miles, a phraseology based upon a division of the log-line called a knot, and equal to the 120th part of a mile. 2. Ordinarily a knot is a tie or complication of threads, cords, &c. Some of these are very simple, and can be made in a single line; others require more skill, and necessitate two lines, or ends. Some consist of mere loops, which can be made and unmade in a moment, even in the centre of a line or thread; others are designed for permanence, and are more difficult to make and unmake. Of the simpler kinds, what are called hitches are very useful to sailors and others using ropes, the motion of which may need to be suddenly slackened or suspended. Some knots are chiefly used on board ship, while others are more used in connection with certain kinds of work. There are special names to nearly all the varieties, from the "overhand," the mere knot tied in a piece of thread or string, to weaver's knot, or fisherman's knot, carrick-bend, and many more. 3. The term knot is given to the hard portions of a piece of wood, the grain of which is bent by the shooting out of a branch from the tree. The joints of the stems of grasses, corn, canes, &c., are also called knots. 4. A small group or association of people is sometimes described as a knot. 5. The same term is applied to matters difficult of solution or settlement: hence, a knotty question. 6. In heraldry, knots sometimes occur as distinctive badges. We even read of the Order of the Knot, and also of the Knotted Stick. 7. In architecture, a knot is sometimes the same as a boss with a small bunch of foliage and flowers. Other applications of the word will also be met with.

Knotted Lace. (*See* Macramé Lace.)

Kohl-rabi.—By the French this vegetable is called *chou-rave*. It is a cultivated variety of the cabbage, and is distinguished by the swelling in a globular form of that part of the stem which is just above the ground. This protuberance is the part of the plant which is used, its uses being very similar to those of the turnip. For feeding cattle the kohl-rabi is very valuable; it is milder in flavour than the common turnip, consequently no disagreeable taste is imparted to the milk by it. Although in Britain its cultivation so far has been confined to the south of England, it is a very hardy plant, being well fitted to endure frost and cold. In Sweden it is a common field crop.

Koumiss, Khoumese, or Milk-wine.—A beverage, first invented by the Tartars, composed of mares' milk. One-sixth part of water should be added to the milk, which latter should be of the same day's milking; then pour into a wooden vessel; add, as a ferment, one-eighth part of the sourest cows' milk, or a small por-

tion of old koumiss; cover with a thick cloth, and keep at a moderate warmth till it becomes sour and the surface becomes a thick mass—which will take place within twenty-four hours. The whole should then be thoroughly blended into a thick fluid, by means of beating it up with a piece of wood broad at the end. Leave it to rest for as long a period as before, and then repeat the beating, or churn it in an ordinary churn. It is now manufactured into koumiss, and, though fit for use, will be improved when a few days old. There is a pleasant blending of sweet and sour in the taste. It should be agitated before taken, and should be preserved in casks, and if kept in a cool cellar will remain good for three or four months. It will yield nearly a third of its bulk in a weak spirit on distillation, which will bear rectification. This spirituous liquor is called by the Tartars *arke*, or *arike*. The medicinal and nutritive qualities of koumiss are highly spoken of by Dr. Grieve, and have proved wonderfully efficacious in the restoration of debilitated constitutions and in consumption.

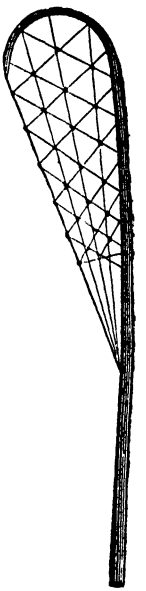
Kousso.—The flowers of this plant, which grows in Abyssinia, are dried, reduced to powder, and used for medicinal purposes, being said to be efficacious in tenioidal complaints. The powder is liable to adulteration, owing to the high price of the flowers; it is, therefore, desirable to buy them before they are crushed. Their taste is rather acrid, and the odour they emit is peculiar, but not unpleasant.

Kromeskies.—Kromeski is a Polish word, meaning no more than the French *croquette*. The two preparations greatly resemble each other, both in appearance and composition. The difference between them is that *croquettes* are dipped in egg and bread-crumbs before they are fried, and kromeskies are wrapped in bacon, then dipped in batter. It is of great importance that the inside of the kromeski should be quite moist and soft; in order to secure this result the dry mince must be allowed to get cold and stiff before it is prepared for frying. The best shape in which kromeskies can be made is the oval biscuit shape, as it is less liable to break than any other. A number of kromeskies placed round a dish with plenty of parsley may be made to look very inviting.

Kyanised Wood is wood that has undergone a process of preservation invented by John Howard Kyan, which consists of a solution of corrosive sublimate, in which the timber is immersed, that neutralises the primary element of fermentation, and renders the timber indestructible. By this process timber that would take from two to six years to season can be seasoned in two or three months, and is also protected from the ravages of insects.

L

La Crosse.—A game of Indian origin, now the national pastime of Canada. It is a ball game, somewhat resembling hockey, and derives its name from the bat or implement used in striking or carrying the ball, which is a long hickory stick, curved at one end like a *crosse*, or bishop's crozier. Across the curve of the stick, and extending about half-way up its entire length, strings, usually of stout gut, are stretched, forming a network. According to the rules of the game, this network may not at any point exceed one foot in width, neither may it be "bagged." The *crosse* may be of any length; those, however, varying from four to five feet will be found most useful. The ball should be of solid india-rubber (or of india-rubber with a wooden core), not more than nine nor less than eight inches in circumference. The goals consist of upright posts, seven feet apart, with a tape or bar across them six feet from the ground. These should be fixed as at football, and at a distance apart varying from 150 to 250 yards; the width of the ground of play should be from 60 to 100 yards. As at football and hockey, the players are divided into two parties, generally equal in number, each having its own goal, and the main object of each party is to drive the ball with the *crosse* through their opponents' goal. The ball may, as a rule, be touched only with the *crosse*, but it may be either struck by or carried upon this implement. The ball may easily be scooped up with the *crosse* and carried upon the network by the player, who then runs with it, taking the most favourable opportunity for flinging it from the *crosse* towards the goal. The ball must not be caught, thrown, or picked up with the hand; should it, however, lodge in any place inaccessible to the *crosse*, it may be taken out by the hand, and immediately placed on the *crosse*. The game is of course decided, as in other games of a similar nature, by the majority of goals obtained in the time specified for play.



LA CROSSE BAT.

Labdanum, or Ladanum.—The resinous juice obtained from the leaves and twigs of the *Cistus ladaniferus*, *Cistus creticus*, and other species of the same plant, found chiefly in Candia and Syria, and around the Mediterranean. Labdanum is mostly used as a mild stimulant in external applications. It is unctuous in character; the genuine sort is comparatively rare, of an agreeable odour, heavy, and of a light-brown colour; while the impure kind is generally of a darker hue.

Labels.—These are of various sorts, according to the purposes for which they are intended. Labels are largely used in horticulture, as a means by which to indicate the names and positions of plants, flowers, &c. For roses, narrow slips of parchment, which may be tied to the stem, and on which may be written the name of the rose, are largely used. Thin slips

of deal, planed smooth and painted white, form unpretentious and useful labels; these may be either tied to the plants or stuck in the ground. Labels of lead, iron, and other metals are also commonly used in gardening. Luggage-labels are usually made of parchment cut in convenient slips. Leather luggage-labels—consisting of a leather case, in which may be slipped a card giving the name and destination of the traveller—will be found very convenient. For ordinary household requirements, such as for wines, preserves, &c., paper labels will generally be found to answer the purpose.

Laboratory, Domestic.—Any one wishing to fit up a chemical laboratory in his own house should see to its being so planned that the fumes escape into the open air, and not into the passages. Acid fumes, which are unavoidable, corrode any metal-work exposed to them; and many gases given off in the course of experiment are both disagreeable and injurious to the human system. The room should be lofty, and, if possible, ventilated through the roof. Adjoining it should be another room, to contain the balance and other delicate instruments. The laboratory should be fitted with a counter to work at, provided with shelves and drawers; a sink with water laid on; a small furnace with boiler and sand-bath; a closet, furnished with a ventilating shaft for carrying off the fumes; and gas must be laid on, with connections for several burners. The balance is an indispensable requisite for every laboratory, and it is essential that it be very true and very sensitive; but the other apparatus and the supply of reagents will vary considerably, according to the kind of investigations intended to be made. Of the minor articles, such as test-tubes, flasks, crucibles, &c., which are sure to be required, the Science and Art Department publish a useful list in their Directory, a whole set of which can be purchased for £2. It is a great mistake to suppose that elaborate apparatus is necessary for real work; a good experimenter will adapt the most unlikely materials for the purpose immediately in view, and produce with the apparatus of his own making most trustworthy results. Take as an instance Michael Faraday, who, as scientific adviser to the Trinity Corporation, made his photometers of a lady's ordinary black shawl-pin, or of beads of black glass threaded on a string; and these, as Sir Frederick Arrow testified, "acted admirably."

Labradorite, or Labrador Felspar.—A stone sometimes used in jewellery, and one which in some degree displays the brilliant flash of the opal. It bears a fine polish, and specimens which have a *chatoyant* reflection are often beautiful. The colour is grey, brown, or greenish, and in the play of colours, blue and green predominate. It is translucent, and occurs in various parts of the world, chiefly in Labrador, whence its name. Sometimes it occurs in large masses; but its value varies with its quality, and much depends upon the mode of cutting it.

Laburnum.—This beautiful tree is the *Cytisus laburnum* of botanists, and belongs to the natural order *Leguminosæ*. It was originally a native of the mountainous regions of Switzerland and Savoy, but is now common in our gardens and plantations, which their tassels of bright yellow flowers greatly adorn in early summer. The seeds of this tree are very poisonous, being acrid and narcotic. They are, however, sometimes sown in plantations where hares and rabbits greatly abound. These creatures eat the young plants in preference to any others, and thus other trees are spared. The wood of this tree is greatly prized for its beauty and durability. In many parts of Scotland this tree is called "obroom saugh," under the mistaken notion that it is the common willow grafted with broom.

Lac is a resinous or waxy substance deposited by an insect (*Chermes lacca*) on the bihar and other trees in the East, as a defence for its eggs. *Stick-lac* is the material in its original condition before it is separated from the twigs which it encrusts, being gathered before the insects have left their cells. *Seed-lac* is the stick-lac separated from the twigs, appearing in a granulated form, and deprived of part of its colouring matter by boiling; it is seldom imported, being almost all manufactured into shell-lac in India. *Shell-lac* is the substance liquefied, strained, and formed into thin plates, and it is that form in which *lac* is most used in England. Its value depends upon its transparency and lightness of colour; the best is of a bright orange, the next best is liver-coloured, and the least valuable is that which is very thick, dark, and speckled. It is used as the basis of the best sealing-wax, to form ink and varnishes, and it is also employed considerably in hat-making.

In India a *lac* signifies 100,000 rupees, a sum representing in English money about £10,000, more or less, according to the rate of exchange.

Lace.—This beautiful fabrication is made by the interweaving of threads, more or less fine, into patterns, which until this century was done entirely by the hand of the fabricator. The general term for lace in its earliest stage was that of *passement*, for at that period its appearance resembled that of a white braid. In process of time its threads were more closely interlaced, were of a finer texture, patterns were introduced on its surface, its edges were indented, and finally its general appearance became such as it is at present. At first gold or silver threads were those employed in all the countries where lace was made; then silk and flax were used for the purpose. There are two classes of hand-made lace—the one called *point*, and the other called by the various names of *pillow*, *cushion*, *bobbin*, and *bone* lace. Point laces (*which see*) are those made entirely by the aid of the needle and single thread, such as Brussels, Alençon, and Maltese. Pillow laces (*which see*) are those made by the help of cushion and bobbins, or pins, for the arrangement of the various threads employed; among this class are those of Honiton, Buckingham, Mechlin, Valenciennes, and others. Guipure is a term which was once employed to designate laces which had raised designs. The method was to cover thin strips of parchment, or vellum,

with gold, silver, or silk thread, and this was called guipure; thus the name became attached to that lace on which raised patterns were formed: laces of this description were also from the same circumstance called parchment lace. Among the strongest laces may be reckoned Maltese, Buckingham, Valenciennes, Limerick; and among the frailer and more delicate kinds are those of Brussels, Alençon, Mechlin, and Honiton. The last-named lace can be mended and transferred more easily than any of the other kinds, which is a great advantage. Lace made by machinery never equals in beauty, in softness, delicacy, or durability, lace hand-worked, however close the imitations; but for many purposes it is useful, and its cheapness brings it within the reach of many. It is chiefly made of cotton threads, and owing to this its appearance when washed sadly deteriorates, for cotton threads shrink and thicken. That called patent lace is the best of the kind, being made of flax thread. Nottingham is the seat of this manufacture, and excellent imitations of the best laces are there woven. The machines which produce lace are of a complex and very ingenious character, and they are necessarily very expensive, the cost of one being about £1,000.

Of the various kinds of lace—some only of which can be here enumerated—that made in England has many of the characteristics of the old Flemish lace; these it exhibits in its firmness of ground and its wavy patterns. *Honiton* ranks the highest in the present day; it is a pillow lace. The sprigs of which it is formed are made separately, like those of Brussels (*which see*). Butterflies and acorns often appear in the designs, and of late years ferns and flowers have been successfully copied from nature. The wedding-dresses worn by the English princesses of this generation have been of Honiton point. This lace is fine, and requires much skill and labour; it is the most expensive kind of English lace. *Bedford lace* may be classed in the same category as that of *Buckingham* (*which see*) and *Northampton*; these are sometimes spoken of as English Lille. *Trolly* is a peculiar kind of lace made in the West; it has a double ground similar to Flanders lace, and fabricated with English thread, which is of a much coarser quality than that which comes from abroad. *Flanders lace*, also known as *Flemish lace*, is esteemed very highly for its beauty of design, excellence of fabrication, and its general delicacy of appearance. Descriptions of *Antwerp*, *Brussels*, and *Mechlin* will be found under their respective headings. *Escalier lace*, or Escalier stitch, consists of rows of squares alternately close and open, producing a chequered appearance. The pattern when finished looks somewhat like a chessboard. The work is done as in Antwerp lace, of which it may be regarded as a variety. *Ypres lace* is similar to *Valenciennes* (*which see*). Lace of every description, both of point and pillow, is now extensively made throughout Belgium, and *Belgian lace* is a term now frequently applied to these laces. *Fan lace* is a fine kind of Belgian lace, though a cheap narrow lace of a similar pattern, and sometimes called *Fanny lace*, was made in Bedfordshire and the midland counties of England about fifty years ago. The latter was principally made by children. *French lace*. This is principally of a light and delicate character. Alençon and Argentan (*which see*) are placed in the highest rank. *Chantilly lace* is a fine *blonde lace* (*which see*); it is very exquisite and costly. Shawls and dresses are fabricated in this lace. *Lille lace* is light, and fitted for summer wear; it is much appreciated in England. It is a single grounded lace, of simple fabrication, having its patterns run in coarse thread. *Poussin* is a narrow pillow lace made in Normandy; in appearance it resembles Valenciennes. Its chief use is for edgings and trimmings. *Point de Dieppe* is similar to the last-named. *Italian lace*. This as a whole is a heavier class of lace. *Venetian point* (*which see*) ranks first. *Genoese* was formerly of gold or silver; now that lace is black blonde in imitation of Chantilly. *Macramé lace* (*which see*) is more especially made at Genoa. *Milanese lace* is made of gold, silver, and silk threads. Of *Florentine lace* little is known except that it was a raised point lace, and was held in great esteem in the sixteenth century. *Neapolitan lace* is distinguished by its patterns being embroidered on square netted ground. *Spanish lace* is a handsome and heavy kind of lace, chiefly used for the decoration of churches and for mantillas. *Point d'Espagne* is made of gold or silver threads embroidered in colours: this style of lace is still made at Seville and Barcelona. *Blonde lace* is made in Catalonia, but it does not equal in regularity of pattern that made in France. A coarse lace is also made in Spain from the fibres of the aloe. *Portuguese lace* is a point lace similar to that of Spain. *Maltese lace* (*which see*) is very strong and serviceable. *Irish lace*. Most of this is made in imitation of other laces, such as Brussels. That known as Irish point is an application of flowers. *Limerick lace* is a species of tambour-work on Nottingham net: its fabrication was begun early in this century, but has already declined; it is a useful kind of lace. *Dutch lace* is very strong, being particularly close and thick. The thread of which it is made, that of Haarlem, is renowned for its excellence, but the designs and execution of this lace fit it more for useful than for ornamental purposes. Of *German lace*, Saxon point holds the chief place; it is a costly lace which resembles that originally made at Brussels. *Greek lace* is a very strong thick lace more particularly suitable for the ornamentation of church linen. It is worked on linen on which the pattern is traced; the perpendicular and horizontal lines of threads are left (where marked), and the intervening spaces are cut away; the threads are fastened down, and then woven into strong bars with needle and thread; when the main lines are complete the cross-bars are then entirely fabricated with needle and thread. *Turkish lace* is a very handsome Oriental lace; it is the only silk guipure made with the needle. The designs represent chiefly fruits and flowers; this lace is made in black, white, and mixed colours. *Russian lace*. This is a handsome lace made with gold and silver threads. *Yak lace* is a strong worsted lace made from the fine wool of that animal.

Lace Stitches.—In the best specimens of old lace two kinds of stitches are most generally seen. These are worked in the following manner:—*Stitch* 1. Take one thread across the space and button-hole along it, working from left to right; then return to the left again with a single thread and button-hole in the same direction as before—*i.e.*, from left to right, this time into each previously-made stitch as well as over the single thread. *Stitch* 2 is rather more complicated. Make a double button-hole: this is done by putting the needle twice through the loop before the stitch is drawn tight. When three of these double stitches have been worked, sufficient space is left for three similar stitches in the next row, and then three more double stitches are worked, and another space is afterwards left. When the end of the row is reached, the worker returns, and follows the same directions. In stitch 1 the action of the needle was always from left to right; in stitch 2 the needle works from left to right, and on returning from right to left. With the latter a great variety of patterns can be worked.

Lace, To Clean.—Procure a small deal board, and cover it with thick white flannel; wrap the lace round it, stitching it at both edges to the flannel as you proceed; prepare a warm lather of white curd soap, and brush the lace with the lather. While doing so, lean one end of the board on a table, and press the brush downward. Probably a second quantity of lather will be required before the lace is clean. Afterwards get clear water to take out the soap; then prepare thin starch, and brush it over the lace when nearly dry; finally, take off the lace and press it between a couple of sheets of white paper. Another method is that of covering a bottle with white linen; the lace is wrapped round it, the bottle is filled with water and corked, put into a cold lather and boiled for an hour. It is then rinsed, reared up to drain and dry, the lace is taken off, starched, and when nearly dry is pulled into form, and the edge arranged with a bodkin and then pressed. If the foregoing processes are deemed too troublesome, lace may be washed in the ordinary way, provided that it receives care, delicate handling, and is not done with heavier things. Lace articles should be soaped with curd soap, put into a basin, covered with warm water, and left thus until the following day; then they should be pressed again, soaped, and have warm water poured on them. The next day they are to be rinsed in clear spring water, starched with very thin starch, and carefully ironed on the wrong side. All rubbing and rough treatment of any kind should be avoided, and for this reason lace should never be sent to laundresses, who have not time to bestow the special attention which it requires. Gold and silver lace can be cleaned in the following manner:—Crumble some stale bread, mix with it a small quantity of powder blue, lay it plentifully on the gold or silver, and rub it with the hand; then dust the crumbs off with a piece of flannel, and finally rub it gently with a velvet brush.

Lace, To Dye.—The lace which is used by carriage-builders, upholsterers, &c., can be readily dyed in the same way as other fabrics of the same materials. The various kinds of lace worn by ladies, whether for shawls, or for collars, or for the ornamenting of dress, may also be dyed. The mode of dyeing partly depends on the material, as cotton, thread, &c., and is precisely the same as that for dyeing any delicate texture of the same material. But as it requires very careful management and some dexterity, it is best not to trust the dyeing of valuable lace to unskilled hands. It may be dyed of any colour, but if not originally black it is most undesirable to have it dyed black, as it is apt to ruin it. Old point lace, and such-like, may be tinted of a buff colour by the use of the starch sold for the purpose, or by steeping it in an infusion of coffee, and carefully drying it afterwards.

Lace, To Mend.—This should be done with fine smooth linen thread which is sold for the special purpose. Where stitches are broken, others of the same kind should be put in their place. Lace which is very much torn may be restored in two ways. Those flowers and sprigs which are perfect, or but little injured, should be carefully cut out. One method is that of placing these on net, and sewing them down by means of a fine button-hole round their edges. The second plan is to cut out in coloured linen the shape of the article to be made, to sew the sprigs on it, and then to connect them together with bars of button-hole, after which the sprigs are taken off the linen. For this plan many more sprays are required, but the work looks handsomer than when done by the former method. Lace-mending is a tedious process. Those workers who undertake it as a trade charge high prices for the restorations.

Laces for Shoes, &c.—Silk laces are the most pliant, but they do not remain tied so well as those of mohair. Round laces are more quickly pulled through the holes than flat ones. Silk, worsted, and cotton are the three kinds used for stays. The first-named are soon worn out, unless they are good of their kind. Those of round cotton cord find the most general favour. For dresses, thin narrow silk laces, matching in colour, are used.

Lachrymæ Christi, or Lacryma Christi.—This is a wine which is the produce of the loose volcanic soil of Mount Vesuvius. It is exceedingly luscious and refreshing, and mostly of a rich red colour, but sometimes white or sparkling. Other wines are sold under the same curious name, which signifies the "Tears of Christ;" and similar wines are grown in some of the Greek islands.

Lachrymal Ducts and Glands.—These are the organs which secrete and carry off the tears. (*See* EYE.)

Lacquer.—A kind of varnish which is applied to leather, metals, and wood, to produce the appearance of gilding, and, in the case of metals, also to prevent them from tarnishing. It may be prepared in several ways:—1. For brass, take turmeric one ounce, annatto two drachms, saffron two drachms; put these into one pint of alcohol, shake the mixture occa-

sionally during a week, and then filter into a bottle; add clean seed-lac three ounces, and shake the bottle now and then for a fortnight. To apply it, just warm the metal, and then lay on the lacquer with a soft brush. Small articles may be dipped into it. 2. For tin, or articles coated with silver leaf, melt separately amber eight ounces, and gum-lac two ounces; mix these well, and add drying linseed oil half a pound. Next digest in a pint bottle a little saffron and half a pint of oil of turpentine; strain, and add some annatto and gum-tragacanth in fine powder; mix the last compound with the first, and shake it well. If leather is covered with silver leaf, this will make it look as if gilded. 3. Take Spanish annatto twelve ounces, dragon's blood four ounces, gum-sandarach thirteen ounces, rectified spirit two quarts, turpentine varnish half a pint. Dissolve and strain, and the mixture will have a reddish tint. 4. Gamboge (cut small) one ounce, Cape aloes (cut small) three ounces, pale shell-lac one pound, rectified spirit two gallons. Dissolve, strain, and add turpentine varnish one pint. The colour of this will be pale brass. As lacquers are wanted of different shades and degrees of colour, a concentrated solution of each ingredient may be kept ready, in order to produce the desired tint at any time. To clean lacquered articles, brush them with soap and warm water, wipe them, and set them before the fire to dry, and finish with a soft cloth. Care is needed in brushing the dirt from fine work, and it must be finished quite dry. Anything stronger than soap—as acid, pearlash, or soda—will be likely to destroy the lacquer.

Lactic Acid.—If a solution of cane or milk sugar be mixed with putrefying cheese or milk, and a little chalk, and be kept for some days at a temperature of about 90° Fahr., the sugar will be gradually converted into lactic acid. The use of the chalk is to neutralise the acid as it is formed, which would otherwise stop the process of fermentation. Lactic acid is contained in the animal fluids.



LACTOMETER.

Lactometer. — An instrument for ascertaining the proportion of cream in any given sample of milk. It consists of a glass tube of about half an inch in diameter, marked with a graduated scale. The milk fresh drawn from the cow is left to stand in the glass tube until the cream separates, and the relative proportion the latter bears to the milk is calculated from the readings of the scale.

Lactose, or Sugar of Milk.—This is prepared by evaporating clarified whey till it will crystallise on cooling. The crystals are afterwards purified. It is chiefly brought from Switzerland, and used mostly as a vehicle for active medicines, especially in homœopathy.

Ladders.—In the most general sense, ladders are frames of wood by means of which persons may ascend to heights above the ground. Ladders usually consist of two wooden side-pieces—often the two halves of a young tree split down the middle—joined together at a distance of about a foot apart by *rounds*, or steps, which afford the foot-hold. The rope ladders used on ships and for military purposes consist of two side-ropes, with connecting bars of wood or rope. Ladders of wire rope are also common on shipboard.

Ladles.—These utensils, in shape something like a cup with a long handle, are used to convey liquor from one vessel to another. Ladles are made of silver-plated metal, and also of china, and their size depends upon the use for which they are to be applied; thus there are soup-ladles, sauce-ladles, punch-ladles, &c.

Lady.—A title belonging of right to the wives of barons and baronets, and to the daughters of all peers above the rank of a viscount; it is also extended by courtesy to the wives of knights of every description. (*See* KNIGHT, KNIGHTHOOD.)

Lady-day.—The day of the annunciation of the Virgin Mary—the 25th day of March in the calendar. Lady-day is one of the four quarter-days of the year, when house-rents and other items paid quarterly fall due.

Lady-helps.—The difficulty which exists to so great an extent of meeting with skilful, capable women of the labouring class to perform the duties of domestic service has of late years led to a scheme for the employment of what are called lady-helps. Owing to various causes, one of which is the opening of new channels for women's energy and activity, the number of women who undertake household work is decreasing yearly; these women preferring to gain their livelihood in some way which will leave them more at liberty to use their leisure as they like, than is compatible with ordinary domestic arrangements. At the same time there are thousands of needy gentlewomen who are suffering from poverty, and who though they would be only too glad to earn their living in any honourable way, yet shrink from taking a step that would cause them to forfeit their social position so entirely as they must do if they became ordinary household servants. It is such as these who are invited to become lady-helps—that is, to undertake the performance of the lighter portion of household work, and to bring to their duties that refinement, taste, and judgment which are supposed to belong exclusively to the educated classes. In return for their services they are to receive, in addition to the remuneration agreed upon, the honour and consideration to which their position entitles them. The idea of employing lady-helps is a most excellent one, but it is a little difficult to carry out. It might answer in very large establishments, where there would be no difficulty in providing separate rooms and conveniences for the lady-helps, who are not wanted in the drawing-room, and who decline to take their places in the

kitchen. In ordinary households, however, it is to be feared that the difficulty of arranging details would prevent an extensive adoption of the scheme.

Lady's Footman.—His general duties are those of an ordinary footman, but, as his name implies, he has special work to do. He carries out messages for the lady, prepares breakfast, waits behind her at breakfast and dinner, and must be ready at all times to accompany her either behind the carriage or on foot. A genteel appearance and manner, and a good figure, are prime qualifications, with great neatness of dress, and cleanliness of person. He assists the other servants at table, and receives instructions through the lady's maid, whose out-door affairs he must attend to if required. Wages vary; and two liveries and a working-dress are allowed. (*See* FOOTMAN.)

Lady's Maid.—The duties of a lady's maid are numerous, but not particularly laborious. Their successful performance calls for the exercise of good taste, skill, tact, perfect integrity, propriety of demeanour, and refined and kindly feelings, rather than for great strength and activity. A knowledge of dressmaking, and also of the arts of millinery and hair-dressing, are generally regarded as indispensable to the lady's maid. Lessons may be obtained in the last of these accomplishments at a moderate charge, and the maid will find it useful to take one or two of these lessons occasionally, as the mode of wearing the hair is continually changing. Novelties in the arts of dressmaking and millinery may also be learnt from persons who make it their business to impart instruction of this kind. When taking such lessons, the lady's maid should try to find out what style of dress will best suit her mistress; for it is evident that the same fashion is not adapted to every person equally, but that the dress and the way in which the hair is worn should be regulated by the figure, height, and complexion of the individual. The care of her mistress's wearing apparel devolves exclusively upon the lady's maid. It is therefore necessary that she should understand the various details as to the preservation and restoration of clothes, and these can only be acquired by experience and observation. The best way of folding, putting away, brushing, dusting, and repairing dresses—the getting up of fine muslins and laces, and the modes of scouring, cleaning, and dyeing various articles, should all be known to her. If in addition to knowledge of this kind she possesses the skill which will enable her to suggest and to carry out economical ideas as to the alteration and turning of dresses, in order to adapt them to the prevailing mode, she will prove much more useful to her mistress, and will certainly command a higher remuneration for her services.

The position of the lady's maid is in some respects particularly open to temptation. The custom which prevails in many families of regarding the cast-off dresses of the mistress as the perquisites of the lady's maid; the presents which are frequently offered to the maid by tradesmen who wish to palm off upon the lady inferior articles of merchandise; the opportunities which are enjoyed by the lady's maid of influencing the mistress with respect to the other servants and to household arrangements—these are all points in which confidence may be abused, and disgrace and dislike may be incurred, and they call for the exercise of discretion, common sense, and unimpeachable integrity.

The dress of a lady's maid should be tasteful and lady-like, but studiously neat. She should be scrupulously cleanly in person, dress, and habits; and she should avoid wearing anything which will spoil quickly, or which will hinder her in the performance of her duties. As a rule, ladies do not like to see their maids in the dresses they themselves have worn.

Lake (Italian, *lacca*).—A pigment prepared from infusions of vegetable dyes, or of cochineal, by causing the colouring matter to unite and form a precipitate with some metallic or earthy oxide. Alumina is generally employed, but the oxides of zinc and tin occasionally serve as a basis. A solution of alum, with the addition of potash, is commonly used to supply the alumina, and always if the infusions be acid. If made with alkaline liquors, the alum solution may be added alone. An orange lake can be procured by a decoction of turmeric; a brilliant red lake from Brazil wood. An excess of potash will give a violet, and cream of tartar a brownish hue. Madder will give a red lake. Persian or French berries produce yellow lakes; and a greenish hue from these mixed with blue pigments.

Lama, or Llama.—This animal, also called the guanaco, is found in Peru, where it has long been domesticated. It is about four feet and a half high, and resembles a large goat, with a



LAMA.

certain similarity to a camel. The fleece of the lama consists of a valuable hair, which in the wild animal is less smooth and close than in the domesticated one. This fleece is greatly valued for the manufacture of various woven fabrics of a delicate texture. The skin is made into leather.

Lamb. (*See* MUTTON.)

Lamb's-wool.—An old-fashioned drink made of the pulp of roasted apples mixed with ale. According to another account, it consisted of the juice of roasted apples and spiced ale. Toone, who gives the first explanation, quotes

NAWAB SALAR JUNG BAHADUR

from a play by Coffey (1731) the expression, "Here's sixpence for you; get ale and apples, stretch and puff thyself up with lamb's-wool."

Lamb's Wool and Skins.—The wool of the lamb is finer and softer than that of the full-grown animal, and is very valuable for the manufacture of fabrics where softness and warmth are desired. When properly made, articles of this material are durable. Lambs' skins are very much used, when prepared with the wool upon them, for a multitude of purposes, especially for small mats, and for making and lining certain articles of dress. As leather, the skin is soft, but unless prepared by a particular process is not lasting.

Lammas Day.—The first day of August in the calendar. Much doubt exists as to the origin of the term. By some it is said to be a corruption of *lattermath*, a Saxon word signifying a second mowing of grass. Others derive it from an old Saxon term signifying *loaf-mass*, because on that day our forefathers gave a thank-offering of bread made from new wheat. Others, again, consider the term to be a corruption of *lamb-mass*, an old custom of bringing a live lamb into church on this day at high mass having prevailed at one time in some parts of England.

Lamp-black.—This pigment is the soot produced in the manufacture of turpentine from certain kinds of fir-wood, calcined and washed. It is very opaque, forms a good solid body of colour, and is used both in water and oil. In the latter medium it dries very slowly. The purest and most expensive lamp-black is procured from the combustion of oils. Its quality depends upon its lightness and depth of colour. Lamp-black is largely used in the manufacture of printers' ink.

Lamp Oils.—All the fatty substances obtained from organic bodies, whether animal or vegetable in their origin, possess the same ultimate constituents, viz., carbon, hydrogen, and usually oxygen, in very nearly the same proportions. Amongst the chief varieties in use for lamps are colza oil, crystal oil, olive oil, sperm oil, oil of rapeseed, walnut oil, sesame oil, paraffin and petroleum oils, &c. There is a very common prejudice against the two last-named oils, arising from a dread of their explosive properties—properties common not only to these, but to all mineral oils. This dread is perfectly justifiable when the oils are such as explode at low temperatures; but the better samples are so far from being dangerous that a lighted match may be placed in contact with their surfaces and not cause ignition. Refined petroleum having a specific gravity of 0·695, and a boiling-point about 340° Fahr., is said by an authority, who has tested scientifically every kind of hydrocarbon oil used for lamps, to be the best. It is almost inodorous, and does not give off the unpleasant greasy kind of vapour which paraffin oils are apt under certain conditions to generate. Oil burns with smoke and an unpleasant smell from imperfect combustion or insufficient air—defects which may arise from various causes. (*See* LAMPS.) The fixed or fat oils are liquid, or become so at a slightly elevated temperature, and are very combustible; but the volatile or essential oils are much more so, but require for their combustion a greater quantity of oxygen. It is wise to purchase the best oils for lamps, as those of inferior quality are not free from unpleasant odours, and have a tendency to rapidly clog up the interior passages of the lamp, thus lowering the brilliancy of the light.

Lampreys.—The lamprey is called by the naturalist the *Petromyzon marinus*, and belongs to the family *Petromyzidæ*. The fish derives its name from two Greek words signifying "stone-sucker," for, singularly enough, it has no swimming-bladder, and therefore it is generally found at the bottom of the water, where it attaches itself by its circular mouth or tongue to a stone to prevent being carried along with the current. It is a round fish, scaled, about two feet long, and flattened towards the tail. The bronchial openings are seven on each side, and it likewise has a small opening placed nearly between the eyes, and connected with the *bronchus*. The lamprey is found in some of our English rivers in spring-time, having quitted the sea for the purpose of spawning. Those from the Severn are greatly esteemed, but the fish is, and has long been considered, most delicate eating. It is in season in March, April, and May, and is probably best cooked by the stewing process, but it may also be procured potted ready for the table. In Scotland the fish is often called the lamprey eel, owing to its appearance, but the mouth is quite different from that of an eel.

Lamps.—The lamps in use vary in form and principle very widely, and of late years have been constructed in a variety of materials. The best-known form of lamps is the Argand (*which see*), used for either oil or gas. Lamps with wicks may be classified as acting upon two main principles—suction and pressure. The suction species depend either upon the capillary action of the wick in raising the oil from its reservoir, or upon a more complicated hydrostatic arrangement. In pressure lamps the oil is forced upward by a pump, which is put in action either by a rack and coiled spring, as in the moderator form of lamp, or by clockwork. These prevent the wick from too rapidly burning away, by keeping the oil in constant contact with the flame, and in quantity so great that a portion of it continues to overflow and run down into the reservoir. In lighthouse lamps the intensity of the light and the body of the flame are increased by double concentric wicks. Hydrocarbon lamps are used for magic-lanterns and various scientific purposes. Safety-lamps are used for mines. (*See* DAVY-LAMP.) Submarine lamps are employed for diving operations, to attract fish, &c. For these the lime-light is usually employed, in consequence of its superior brilliancy, purity, and penetrative power. The magnesium lamp is one constructed for the combustion of magnesium wire; it is chiefly used by photographers. Badly constructed lamps, in which there are not the conditions essential to perfect combustion, cause the oil to smoke while burning, and smell unpleasantly.

Lamps, Care of.—To clean lamps, the parts should be soaked in hot water and soda, and, while hot, rubbed clean with a piece of soft rag; after this has been thoroughly done, they may be polished with the leather used for cleaning plate. A lamp in regular use should undergo this process once a week, to be kept in its best condition for burning. The charred portion of the wick is best removed by pinching it off, and not by cutting it away with the lamp-scissors—a process which is less effective and more wasteful. Argand lamps should be cleaned almost daily. Moderator lamps require their wicks to be trimmed with great care, as when the wick is not perfectly even the lamp will smoke. For cleaning the lacquered portions, a small soft brush should be used. Brass lamps may be cleaned with oil and rotten-stone. To clean the ornamental bronze-work of lamps, use oil only, applied with a piece of soft flannel. The glass chimneys used with lamps should not be washed if they can be kept clean enough with a dry rag and wash-leather, as after washing they show a tendency to crack when they become heated by the flame. To clean these, sticks covered with wash-leather are best. When candle-lamps are used, they will require the springs which force the candle up to be kept free from grease. The lamp-glasses in ordinary use, being often badly blown and imperfectly annealed, frequently break. It is, therefore, a good plan to complete the annealing process at home. All that is necessary is to place the glasses into cold water, and put it on the fire to boil. After the water has boiled, take it off to get cold, and then remove the glasses and dry them for use. The best chimney-glasses are those which are oval below. In lighting lamps, care should be observed in not turning the wick too low, or the result will be imperfect combustion, attended with smoke and an unpleasant smell.

Lamps, Gas.—These are fittings for gas attached to india-rubber or gutta-percha tubes, so that they can be moved about within certain limits.

Lamps, Glasses for. (*See* LAMPS, CARE OF.)

Lamps, Oils for. (*See* LAMP OILS.)

Lamps, Shades for.—Lamp-shades are of various forms and kinds. Some are in the form of globes of partially, or wholly, ground glass; some are dome-shaped, for the purpose of throwing the light down, and concentrating it; some are vase-shaped, others oval. They are constructed of china, glass, metal, paper, and other materials. To wash glass lamp-shades, a little warm water and soda are all that will be required in a general way; but if they have been allowed to grow very dirty and discoloured, a tea-spoonful of oil of vitriol may be added to the soda and water, and the glass placed in it to soak for an hour or more. Wipe with a soft rag, and finish polishing the glass with a glass-cloth.

Lamps, Stands for.—Stands for lamps are usually of an ornamental character, and constructed of a large variety of materials.

Lancets.—The word lancet strictly signifies a little lance, but has other applications: 1. In architecture, a narrow pointed arch is called a lancet-arch, and a window of like form is called a lancet-window, or simply a lancet. Two, three, and even five of these lancets are sometimes associated, and with one larger arch enclosing the entire group. 2 In surgery, the name is given to a well-known instrument, of which there are various forms: (1) The common lancet, which resembles a small penknife when closed. The blade has a sharp angular point, the use of which is for making incisions in the veins when blood-letting takes place, or in tumours, blisters, &c. The operator holds its point between the tips of his forefinger and thumb, so that the handle falls back at nearly a right angle between the same digits and the hand. (2) A lancet for vaccination, or inoculation, which has a grooved blade. (3) A gum lancet, the point of which is curved, its use being to make incisions in the gums, or to lance them, especially in cases connected with the teething of infants. All lancets must be kept scrupulously clean and in good condition.

Lancewood.—The English name for the wood of the plant *Guatteria virgata*, which grows principally in the West Indies. Lancewood is especially valuable on account of its strength and elasticity, and is much used by coach and carriage builders, for shafts and carriage-poles.

Land Cress. (*See* CRESS, LAND.)

Land Measures.—The principal land measure is Gunter's chain—a chain consisting of 100 links, each of which is joined to the adjacent one by three rings; the length of each link, including the connecting rings, is 7·92 inches. The whole chain therefore is 792 inches, or 66 feet, or 22 yards, or 4 poles in length. Thus:—

100 links or 4 poles = 1 chain.
10 chains . . . = 1 furlong.
8 furlongs . . . = 1 mile.

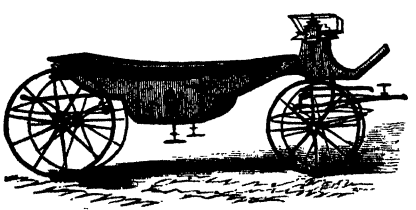
The advantage of the chain for land measurements lies in the facility which it affords for numerical calculations. A chain being 22 yards in length, a square chain contains 484 square yards, or the tenth part of an acre (4,840 square yards). An acre therefore contains 10 square chains, or 100,000 square links. (*See also* WEIGHTS AND MEASURES.)

Land-steward. (*See* STEWARD.)

Land-tax.— One of the annual taxes raised upon real property, which has superseded all the former methods of rating either property, or persons in respect of their property, whether by tenths or fifteenths, subsidies on land, hydages, scutages, or talliages. In the year 1798 the current value of the public funds having become unusually depressed, and apprehensions being entertained that the further increase of the public debt would be attended with peculiar inconvenience, unless some mode were discovered of counteracting its effects, a project was adopted of offering the land-tax for redemption or sale. With this view an Act of Parliament was passed, making the land-tax,

which had before been annual, a perpetual tax from 25th March, 1799; and being thus converted into a permanent annuity, it was offered for sale to the proprietors of the lands upon which it was charged, or, if they declined it, to any other person who chose to become a purchaser. In the first case it was considered as a redemption of the tax, the estate becoming in future wholly freed from it; in the latter case the purchaser became entitled to receive the land-tax regularly from the receiver-general half-yearly, on the 16th March and 20th September in every year. The consideration given in either case was not to be in money, but stock, either in consols or 3 per cent. reduced, to be transferred to the Commissioners for the reduction of the National Debt. The quantity of stock to be transferred for redemption of the tax by persons interested in the land on which it was charged was so much capital as yielded an annuity or dividend exceeding the amount of the tax to be redeemed by one-tenth part thereof, and the stock to be transferred for purchase of the tax by persons not interested in the land was so much capital as yielded an annuity or dividend exceeding the tax to be purchased by one-fifth part thereof. Thus the amount of 3 per cent. stock to be transferred for £10 per annum tax was £366 13s. 4d. for redemption, or £400 for purchase. This scheme was adopted with the view of facilitating the raising of money on loan, by absorbing a large quantity of floating stock, and thus raising the current price, while at the same time it was expected to bring about an increase of revenue. The advantages offered were, however, insufficient to induce a general approval of the scheme; many persons subject to the tax declined to redeem, and very few became purchasers. The period first limited was several times extended, but the plan succeeded very indifferently. The assessment for land-tax is in the first instance sometimes paid by the tenant, who may deduct the amount from his rent.

Landau.—This is a kind of coach, so constructed that the roof and the upper portion of the sides can be removed, and the vehicle thus converted into an open or close carriage at will. A landaulet is a small landau, opening at the top. (*See* CARRIAGES.)



LANDAU.

Landing.—In modern houses the first part of a floor at the end of a flight of steps, or a resting-place in a series of steps, is termed a landing. When a landing is of a moderate size it may, if tastefully furnished, be made to add considerably to the appearance of the house. Ferns or flowers prettily disposed in a recess, statuary in a convenient niche, stained glass windows above, or, failing everything else, a coloured blind, through which the rays of the sun may shine upon the landing, may, with a little skill and good taste, be made exceedingly effective.

Landlord and Tenant.—The relationship which exists between the owner of land or houses and the party by whom the same is held as tenant, whether by lease or agreement, the rights, duties, and liabilities arising out of this relationship, are far too numerous and complicated to be more than briefly noticed in this work. It is constituted by a letting, or agreement to let. (*See* LEASES.) The landlord is entitled to be paid a certain rent, and may enforce payment thereof either by action, distress, or entry. The tenant is entitled to the possession and quiet enjoyment of the premises, so long as he pays his rent and duly observes and performs the other stipulations contained in his contract. (*See* COVENANT.) A failure in the performance of any covenant works a forfeiture, unless the landlord chooses to waive the breach. The tenant is also bound to keep and leave the premises in good repair, and will be liable for dilapidations. (*See* DILAPIDATIONS.) But he is permitted during the term of his lease, but not afterwards, to unfasten and remove all tenants' fixtures, so called, which have been affixed to the premises by himself. (*See* FIXTURES.) He is estopped from disputing his landlord's title (*see* ESTOPPEL), but he may show that that title has determined.

Landrail.—This bird is often called the corn-crake, from the peculiar notes of its song, or rather cry. It is called by naturalists *Crex pratensis*, and belongs to the family *Rallidæ*; it is sometimes in England also termed the bean hen and the daker hen. The throat and belly of this bird are white, the breast ash colour, the feathers on the upper parts are a brownish-black in the centre, bounded by ash and terminating with reddish-brown; the sides also are reddish with white stripes, the covert of the wings are reddish, and the feet and eyebrows flesh colour. It is plentifully found all over Europe, and, being a migratory bird, appears in this country about the beginning of May. The corn-crake is an exceedingly shy bird, and is better known to sound than sight, and is supposed to be gifted with ventriloquism. Although it can run quicker probably than a dog, still its flight is very short, and it is easily shot on the wing. It builds on the ground, generally in hay-fields or fields of green corn. The eggs average ten, and are of a dirty white colour, spotted with rusty red. The young run soon after they are hatched. For table purposes it is considered a bird of great delicacy of flavour, especially if cooked with the trail in.

Language of Flowers. — From time immemorial sentiments of various kinds have been associated with particular flowers, and flowers have been held to denote certain human attributes, or expressions of feeling. In the list given below, those flowers only are given which are either the most common, or whose language is best known; the *language* is in

all cases that which has been established by popular acceptance :—

Acacia	Friendship, chaste love.
Acacia, Yellow	Secret love.
Anemone, Garden	Forsaken.
Apple Blossom	Preference.
Arbor Vitæ	Unchanging friendship, Live for me.
Azalea	Temperance.
Bay-leaf	I change but in death.
Bay-tree	Glory.
Bluebell	Constancy.
Bridal Rose	Happy love.
Broom	Humility, neatness.
Buttercup (Kingcup)	Ingratitude, childishness.
Calceolaria	I offer you pecuniary assistance; or, I offer you my fortune.
Camellia, Red	Unpretending excellence.
Camellia, White	Perfected loveliness.
Candytuft	Indifference.
Carnation	Women's love.
Carnation, Striped	Refusal.
Carnation, Yellow	Disdain.
China Aster	Variety.
Chrysanthemum, Red	I love.
Chrysanthemum, White	Truth.
Chrysanthemum, Yellow	Slighted love.
Clematis	Mental beauty.
Clover, Four-leaved	Be mine.
Clover, Red	Industry.
Clover, White	Think of me.
Cowslip	Pensiveness, winning grace.
Cyclamen	Diffidence.
Daffodil	Chivalry.
Daffodil, Great Yellow	Regard.
Daisy, Garden	I share your sentiments.
Daisy, White	Innocence.
Everlasting Flowers	Never ceasing remembrance.
Fern	Sincerity.
Forget-me-not	True love.
Foxglove	Insincerity.
Geranium, Dark	Melancholy.
Geranium, Horseshoe-leaved	Stupidity.
Geranium, Oak-leaved	True friendship.
Geranium, Red or Pink	Preference.
Geranium, Scarlet	Comforting.
Geranium, Silver-leaved	Recall.
Guelder Rose	Winter of age.
Harebell	Submission, grief.
Heartsease or Pansy	You occupy my thoughts.
Heath	Solitude.
Heliotrope	Devotion, faithfulness.
Honeysuckle, Wild	Generous and devoted affection.
Hyacinth	Sport, jealousy.
Hyacinth, Purple	Sorrow.
Hyacinth, White	Unobtrusive loveliness.
Iris	A message.
Ivy	Friendship, fidelity, marriage.
Jasmine, Cape	Transport of joy.
Jasmine, White	Amiability.
Jasmine, Yellow	Grace and elegance.
Jonquil	I desire a return of affection.
Larkspur	Lightness, levity.
Lavender	Distrust.
Lilac, Purple	First emotions of love.
Lilac, White	Youthful innocence.
Lily of the Valley	Return of happiness, unconscious sweetness.
Lily, White	Purity, sweetness.
Lobelia	Malevolence.
London Pride	Frivolity.
Marigold	Grief.
Mignonette	Your qualities surpass your charms.
Mistletoe	I surmount all difficulties.
Myrtle	Love in absence.
Orange Blossoms	Your purity equals your loveliness.
Passion Flower	Religious superstition, when the flower is reversed; or faith, if erect.
Peach Blossom	I am your captive.
Periwinkle	Early friendship.
Pink	Boldness.
Pink, Carnation	Woman's love.
Pink, Indian Double	Always lovely.
Pink, Indian Single	Aversion.
Pink, Variegated	Refusal.
Poppy, Red	Consolation.
Poppy, Scarlet	Extravagance of conduct.
Primrose, Early	Youth and sadness.
Primrose, Evening	Inconstancy.
Rose, Cabbage	Ambassador of love.
Rose, China	Grace, beauty always new.
Rose, Damask	Freshness.
Rose, Deep Red	Bashful shame.
Rose, Dog	Pleasure and pain.
Rose, Musk	Capricious beauty.
Rose, Single	Simplicity.
Rose, White	I *am* worthy of you.
Rose, Yellow	Decrease of love, jealousy.
Rose, White and Red together	Unity.
Rosebud, Moss	Confession of love.
Rosebud, Red	Pure and lovely.
Rosebud, White	Girlhood.
Snowdrop	Hope, consolation.
Sweet Briar	Simplicity.
Sweet Pea	Departure.
Tulip, Red	Declaration of love.
Tulip, Variegated	Beautiful eyes.
Tulip, Yellow	Hopeless love.
Verbena, Pink	Family union.
Verbena, Scarlet	Unite against evil, or church unity.
Verbena, White	Pray for me.
Violet, Blue	Faithfulness, love.
Violet, White	Modesty, innocence.
Wallflower	Fidelity in adversity.
Water-lily	Purity of heart.

Lansquenet.—A game at cards, which may be played by almost any number of people. The game is one depending entirely upon chance, the players staking on the probability of certain cards being turned up; it has therefore at times been much used as a medium for speculation and gambling.

Lantern, in architecture, is the term applied to a small turret or drum-shaped structure elevated upon the top of a dome or roof, where it serves to admit light, or assist in securing ventilation, or is merely added by way of finish, and as a decorative feature. In Gothic architecture it takes the form of a tower having a considerable portion open. It is largely used in Tudor architecture.

Lantern-wheel.—In mechanics, this is a kind of pinion, having cylindrical teeth or bars, called trundles or spindles, on which the teeth of the main-wheel act.

Lanterns.—The invention of lanterns, or lanthorns, in England is generally attributed to Alfred the Great. Endeavouring to measure the progress of time by the regular burning of candles of a given length, each calculated to burn so many hours, he found that irregular draughts of air materially interfered with the practicability of his plan. He therefore hit upon the idea of protecting them with some material sufficiently opaque to afford the necessary protection, and yet transparent enough to enable him to note their gradual consumption. For this purpose he used cow-horn, flattened and cut into thin plates. Lanterns of this kind remained in common use until the introduction of glass, when they gradually disappeared, although in country places horn lanterns are still in common use. Lanterns are largely used on ships, where they are severally known as poop-lanterns, top-lanterns, powder-room lanterns, &c. They are of extreme antiquity, and have

been discovered in various forms amongst the ruins of Pompeii and Herculaneum. In the Middle Ages they were often made circular, with small oval openings set with crystals. (*See* LANTERNS, CHINESE; MAGIC LANTERNS.)

Lanterns, Chinese, are usually made of net washed over with a preparation of the Ceylon moss, which makes a beautifully transparent and colourless coating. They are also constructed of horn, perfectly transparent in every part, without a flaw or opaque spot, and without a seam. The lanterns—varying in material, size, shape, and decoration—are made at all prices up to 2,000 crowns, and are adorned with gilding, sculpture, painting, japanning, &c. They vary in form as well as in dimensions. Some are made from twenty-five to thirty feet in diameter, representing halls and chambers; and thus two or three of them would be sufficient to make a handsome house. In these gigantic specimens the Chinese will lodge, receive visits, give balls, act plays,



CHINESE LANTERNS.

and feast, on the recurrence of the yearly Feast of Lanterns, which is held from the 13th to the 16th of the first month—so called from the immense multitude of lanterns hung out of the houses and in the streets. They are illuminated by means of an almost incredible number of torches, or lamps, which produce a beautiful effect through the transparent coloured sides. Shows are likewise exhibited in those of large dimensions. There are innumerable lanterns of a smaller size, of about four feet high and one foot and a half broad. A cheap description of paper lanterns is imported to England; these are coarsely painted, and serve to hold candles, and are of a great variety of forms. Others, and expensive ones, are beautifully carved in ivory.

Lanterns, Magic. (*See* MAGIC LANTERNS.)

Lanthorns. (*See* LANTERNS.)

Lanyard, or Laniard.—This is a marine term for a short piece of rope or line or cord, used to secure certain articles to their places, or facilitate the management of portions of the ship's machinery. The chief lanyards are those employed in the extension of the shrouds and the stays of the masts.

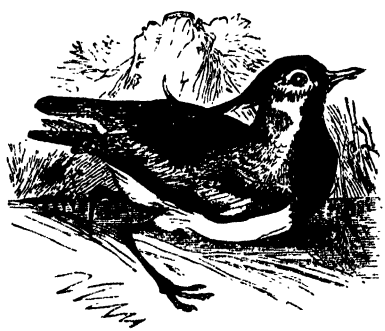
Lap-dogs.—The term lap-dog is used to designate those tiny breeds of dogs that are capable of being nursed in the lap. They include Maltese terriers, Blenheim spaniels, King Charles' spaniels, Italian greyhounds, Pomeranians, pugs, and some other toy breeds. The great desideratum is to have them small enough. They are essentially ladies' dogs, and therefore ought not to be over seven or eight pounds in weight, else they are too heavy to pick up in the street on occasions and carry some distance, as when meeting a fierce dog, or in a crowd, or in crossing the street. When allowed to run they are generally led by a string. The best lap-dogs are the first three mentioned.

Lapis Lazuli.—A beautiful stone of a rich blue colour, often showing white or golden specks. It is found in Persia, China, &c., and of an inferior quality in Chili. When cut and polished it is used for brooches, rings, and studs, and also for mosaic and costly articles of furniture. Ground to powder it makes the valuable pigment known as ultramarine; for this, however, it is now but little if at all employed, chemistry having provided a far cheaper substitute. It occurs in masses and in small crystals. Mr. Emanuel says that in China and India it is carved into cups, vases, dagger-handles, &c. Fine specimens are found in old Italian and Spanish churches, and in the Russian palace of Zarskoe Selo there is a room, made by order of Catherine II., the walls of which are entirely covered with slabs of lapis lazuli and amber. It is opaque, and not being very hard it loses its polish when worn much.

Lappets.—The lace pendants of a lady's head-dress in the eighteenth century. The same word is now applied to lace cap-ends, as worn by old ladies.

Lapsang Tea. (*See* TEA.)

Lapwing, called also the peewit, and in the north of Scotland the tuechit or peaseweep, and in some parts of England the wype or bastard plover, is the *Vanellus cristatus* of the



LAPWING.

naturalist, and belongs to the family *Charadriadæ*. This bird, with its beautiful form and graceful ways, is too well known to require a description of its appearance. We may say,

however, that its spring or nuptial plumage is much more gay than its winter one, the dark parts being a deeper black, and the reflecting colours more brilliant. It is found all over Europe, and in Asia, but generally seeks the south and sea-side in winter. It is much the same as other plovers in habits, and takes immense pains and uses many wiles to lure either man or dog from its nest. This latter is a cavity scraped on the bare ground, usually on the top of a hillock in corn-fields before the corn is up, or in moors and marshes. Its eggs number four, and are well known in the London market.

Larboard.—The left-hand side of a ship, looking forward from the stern.

Larceny is the act of feloniously taking and carrying away the personal goods of any one from his possession, with intent to convert them to the use of the offender, without the consent of the true owner. Larceny was formerly divided into grand and petty larceny—the former including the stealing of goods above the value of twelvepence, the latter of that value and under. This distinction was abolished by Statute 7 & 8 Geo. IV. c. 29, and now all larcenies are subject to the same incidents as grand larceny. Larceny is sometimes distinguished into simple and compound—the former being larceny of goods only, the latter larceny from the person or habitation of the owner. The law respecting this offence is now consolidated by the Statute 24 & 25 Vict. c. 96, which renders also many things (both animate and inanimate) the subjects of larceny which for various reasons were not so before the passing of that Act. (*See* EMBEZZLEMENT.)

Larch.—The larch-tree belongs to the pine



BOUGH AND CONES OF LARCH.

kind, the resin of which is known as Venice turpentine. The wood is remarkable for its durability, and may be used without seasoning when newly cut. It is largely employed in Germany for wine-casks, and thus used is held to be almost indestructible. Water-pipes are also frequently made of larch-wood. In Switzerland it is considered the best material for vine-props. Being better able to bear the alternations of wet and dry, larch-wood is also extremely useful for boat and ship-building. It is likewise of great value for mill-work, hop-poles, stakes for plants, and of late years for cabinet-work, as it often possesses great richness of colour, and will take a high polish. In the form of planks and boards it is more tough than foreign pines.

Lard, Adulterations of.—Lard should be of a pure white, but not too opaque, and though firm, it should not be hard. When pure, lard is almost without either taste or smell. It is adulterated with flour, starch, water, carbonate of soda, salts, and caustic lime. If its purity is suspected, a portion should be melted, and any opaque bodies that float in it or sink to the bottom will be the admixed substances, and will probably consist of either flour or starch. Chemical tests only will reveal the presence of carbonate of soda or salts. If lard sputters when it is melted, it may be concluded that water was added to it when it was prepared. The presence of an excessive quantity of salt may be proved by washing and subsequently weighing it. Lard is also frequently adulterated with inferior fats, as, for example, mutton fat, which has been cut off fresh joints before they are sold, and which is not half the value of pure lard. When the inferior fat is of greater consistence than the lard, it needs to be sparingly used, or it will be detected by its taste and smell. Adulterated lard is, however, almost always slightly coloured, and, in order to hide this imported colour, starch is not unfrequently added to it.

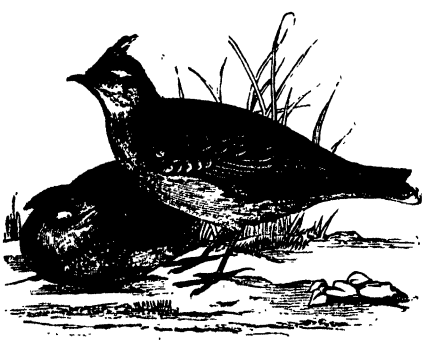
Lard, Hog's, is obtained by very gradually melting the fat of the pig, and afterwards straining it through flannel or a hair sieve. For many years the fat of the hog was used only for cooking purposes, and as the foundation of ointments of all kinds. The great extent, however, to which pork has been raised in America has rendered it necessary to find additional uses for the fat of the animal. A process has been discovered by which the stearine and the oleine in hog's lard may be separated; and now the former is used for candle-making, and the latter, under the name of lard oil, has been found to be a valuable lubricant for machinery.

Larder.—A place where meat and provisions are kept. The name would appear to have been given at a time when swine were the animals chiefly salted and preserved. Larders should be sheltered from the sun and removed from the heat. They should be perfectly dry, and should have a current of dry cool air passing through them. If from its position it is not possible to have opposite windows in the larder, air should be introduced by means of a flue from the outside. The best larders have stone floors, with tables and shelves of stone.

Larding is one of the processes of cookery, and is employed principally to add to the flavour of dry meats, but also to improve their appearance. It is generally regarded as a difficult operation, and one which is rather extravagant and suited only to high-class cookery. This, however, is a mistake. It is really easy, and requires only practice for its successful accomplishment; and it is economical, for lean meat goes much further with it than without it. The process is as follows:—"Cut the bacon (which for white meat should be cured without saltpetre, for fear of reddening the flesh) into narrow strips of equal length and thickness. For poultry and game these should be two inches long, the eighth of an inch thick, and a quarter of an inch broad; but for fillets of beef and loins of veal they should be two inches long and the third of an inch square. Put each strip of bacon, which is called a lardoon, into a larding-pin. On the point of this take up as much of the flesh as will hold the lardoon firmly, draw the pin through a part of the bacon with it, leaving about half an inch at each side. Repeat the process as evenly as possible, and at equal distances, until the meat requiring to be larded is covered with these chequered rows. Generally speaking, the breasts only of pheasants, chickens, turkeys, and partridges are larded, and the backs and thighs of hares, and the whole of the upper surface of a fricandeau. When the flesh is soft, as in the case of poultry, the part to be larded should be dipped for a moment into boiling water, which will give firmness to it."

Larding-pins are used in larding. They are pieces of steel six inches or more in length, pointed at one end, and having four slits at the other to hold the little strips of bacon called lardoons, which by their means are to be introduced into the surface of the meat. Larding-pins are sold separately, or in boxes, each one of which contains twelve pins of different sizes.

Lark.—The field-lark, or sky-lark (*Alauda arvensis*), is one of the best known British



SKY-LARKS.

birds. It is a great favourite, on account of the sweetness of its song, which it pours out as it soars upwards in the air. It seldom sings on the ground. It is highly valued as a cage-bird, and sings when confined, but it flutters its wings as it does so, as if it wished to fly away. It is found in most parts of Europe, and is also a native of Asia. In the winter season it visits the north of Africa, but it is not found in America. It is most frequent in open but cultivated districts. The lark is highly esteemed as a table delicacy. It constitutes a light and nutritious article of diet, and as it feeds on both insects and grain, it is at the same time, when properly cooked, rich and full of flavour. According to Galen, the lark, when it is eaten either roasted or boiled, "helps the colic." Large numbers of larks are yearly sent to London from Cambridge, although the chief supply appears to come from Dunstable. It is said that Dr. Lister, the physician of Queen Anne, laid down the rule, which has ever since been held sound, that twelve larks should weigh thirteen ounces, and that if they are below that weight they are not good.

Larkspur. (*See* DELPHINIUM.)

Laryngitis.—This is inflammation of the larynx, or windpipe. It is generally the result of exposure to cold, but may be caused by erysipelas, diphtheria, tubercular ulceration, intemperate habits, &c. *Acute laryngitis* is a very serious affection. The symptoms are a peculiar barking cough, hoarseness or complete loss of voice, great pain and difficulty in swallowing, a feeling of constriction or choking about the throat, scanty mucous expectoration, difficult and noisy breathing, and general feverishness. If these symptoms are not soon relieved or disappear, others more formidable soon show themselves; the lips become livid, the nostrils expand, there is urgent fear of suffocation, delirium and coma follow, and death may ensue, the immediate cause being usually œdema, or swelling of the glottis. *Chronic laryngitis.* This may be a sequel of the acute, or it may originate in the causes before mentioned. The symptoms are not so violent, and the result, as a rule, more favourable. The treatment of the acute form of the disease consists in the application of leeches and fomentations, in the inhalation of hot water, in sucking ice, and in the administration of a pill—containing calomel one grain, opium half a grain, and tartarised antimony quarter of a grain—every six hours for a day or two. In the chronic form of laryngitis inhalations of medicated vapour, as creasote, turpentine, pine, &c., are useful; and tonics, especially iron and nitro-muriatic acid, will do good. Some surgeons recommend sponging the parts, by means of a probang, with solution of nitrate of silver or bichloride of mercury.

Laryngoscope.—A surgical instrument used for inspecting the larynx of a patient. It may be thus described:—A small reflecting mirror, mounted upon a long stem, is passed to the back of the throat. A second mirror, carried on the forehead or over the right eye of a surgeon, receives and reflects the rays of a strong light, by which means the first is illuminated and shows the parts to be examined. When the operator carries the exterior mirror

over his eye, it has an aperture through which he can see distinctly what is reflected by the other mirror. The instrument is used in a variety of cases, and is known under some modifications of construction. The small mirror may be an inch, and the larger one three inches and a quarter in diameter. The light used is supplied by a lamp specially provided. In its actual form the instrument is a modern invention, but the first attempts were made very long ago.

Larynx.—The upper part of the trachea, or windpipe, comprising as a whole what is called the vocal organ. Its structure is too complicated to be described satisfactorily in this work.

Last.—A mould, or form of wood shaped like a foot, with a long top to it of one uniform size throughout, the whole made in two pieces from the foot upwards, so that one side may be inserted into the boot, or taken out of it, before the other. The entire mould can, by means of a screw, be made to stretch the boot, if required.

Last (Weight).—A load; hence a certain weight or measure, generally estimated at 4,000 lbs. A *last* of codfish, white herrings, meal, and ashes is 12 barrels of the same. A *last* of corn, 10 quarters, or 80 bushels; of gunpowder, 24 barrels; of red herrings, 20 barrels; of leather, 20 dickers; of hides, 12 dozen; of wool, 12 sacks; of flax or feathers, 1,700 lbs.; and of pitch and tar, 14 barrels.

Lasting.—A double warped worsted stuff of either two or three threads. It is made of various patterns, either plain, twilled, or figured, and is known by different names, according to the figures and quality, such as prunella, amens, florentina, and draw-bays. Amens is probably from Amiens, in France; and florentina from Florence, a stuff so termed being manufactured there, and named in English history in the reign of Richard III. The width of lasting is eighteen inches; it is usually black, and is used for shoes.

Latch.—A small piece of iron or wood, used to raise the hinged fastening of a door or window. By this name the old English cross-bow was originally known, in consequence of its trigger resembling the latch of a door or window. The fastening or latchet, and the latch, are now both known by the one name latch.

Latchet.—By the term latchet we now recognise merely what is usually known as a shoe-string.

Lath.—Laths are long narrow thin pieces of wood, chiefly used for nailing to the rafters of a wall or ceiling to receive plaster.

Latitude.—In geography, the distance of a place on the earth's surface from the equator, north or south, expressed in degrees, minutes, and seconds of the great circle constituting the earth's polar circumference. *Parallels of latitude* are small circles parallel to the equator, by means of which the distances of places from the equator are indicated. Every place is, for geographical purposes, supposed to have a parallel of latitude passing through it, although on globes and maps only those parallels marking every 10° are shown. By means of the parallels of latitude and lines of longitude (*see* LONGITUDE) the position of every place on the earth's surface may be ascertained. The determination of the latitude of places forms an important application of astronomy, and various methods for so determining, depending upon observations of the different celestial bodies, are in general use.

Latten.—1. A fine description of brass or bronze, used for crosses and candlesticks in the Middle Ages. 2. Sheet-tin, or an iron plate covered with it. 3. Milled brass, reduced to various thicknesses, likewise called *latten brass*. *Black latten* is brass milled in sheets composed of zinc and copper, used by braziers, and for drawing into wire. *Shaven latten* is a thinner kind of the black latten. *Roll latten* is the latter polished on both sides, and ready for use.

Lattice.—That kind of wood or metal work which consists of bars crossing each other at angles, so as to form diamond-shaped apertures, is known by this name. Windows with diamond-shaped panes of glass set in lead are therefore called lattice-windows; and summer-houses, or screens for training plants in gardens, made with laths fastened together diagonally are also called by this name.

Laudanum.—This is the tincture of opium of the Pharmacopœia. It is a valuable preparation, and one much used. The dose for an adult is from ten to twenty drops. It should not be given to children except under medical advice. (*See* OPIUM.)

Laughing Gas.—Nitrous oxide, or the protoxide of nitrogen, has received the name of laughing gas from its exhilarating effect upon the human constitution. This effect will be produced if a mixture of this gas and atmospheric air be inhaled for a few minutes; paroxysms of uncontrollable laughter generally ensue, and often a great tendency to pugnacity. The effect soon passes away, usually leaving no distressing symptoms behind, unless a sense of lassitude, or a slight headache. If inhaled in its pure state it produces utter insensibility for a time, and is on that account administered by some dentists and surgeons to take away the sense of pain during short operations. A prolonged exposure to it would be fatal, as it is incapable of supporting life. The gas was first discovered by Priestley in 1776. It can easily be prepared by heating pure nitrate of ammonium, which will then separate into nitrous oxide and water.

Laughter.—The principal physical feature of laughter is a convulsive action of the diaphragm, which is attended by tension of the larynx, and various muscular movements, especially of the face. The breath is drawn deeply and emitted interruptedly, with well-known vocal accompaniments. Laughter may be the result of sights, sounds, or ideas, which are ludicrous or entertaining, and the proneness to it in some persons is much less than in others. Certain sensations may lead to it, with or without any pleasurable associations.

The sudden application of cold, as in the form of a cold bath, may cause it, and it is a familiar concomitant of hysterical affections, and even of grief. On ordinary occasions, when laughter arises from mental perceptions of an amusing or pleasing character, it is certainly neither injurious nor improper, but good taste and right feeling will often have to decide whether it is to be indulged or suppressed. The silly laugh of the ignorant and of the worthless is always contemptible.

Launce.—There are two species of launce-fish, called by naturalists the *Ammodytes tobianus* and the *Ammodytes lancea*, both belonging to the natural family *Anguillidæ*. They have long bodies, lanceolated heads, and a dorsal fin running almost the entire length of the fish. The first species named is the larger, being from twelve to eighteen inches long. It is well known under the name of the sand-eel, and is found on sandy sea-beaches, where, as soon as the tide recedes, it quickly buries itself in the sand, from which, however, the fisher people make a point of digging it as speedily as may be; they use it not only as bait, but as an article of diet. More common, however, is the smaller species, or sand-launce, and this fish is reddish about the head, the larger being grey—this fact gaining for them in some parts the names of grey gibbon and red gibbon.

Laundress.—A woman who employs her time and gains her livelihood by washing and getting up linen is named a laundress. The laundress is distinguished from the laundry-maid in that the former takes the clothes away to be washed, and the latter washes them on the premises. (*See* LAUNDRY-MAID.)

Laundry.—A laundry consists of a wash-house and a drying and ironing room. The wash-house is sometimes attached to the kitchen, but it is better when it is quite separated from it. It should be of one storey high, and should have a funnel or shaft in the roof to carry off the steam. The floor should be of stone or asphalt, and should slope gently towards a gutter that the water may run off and keep the floor dry. A copper boiler and a furnace of good size should always be fixed in the wash-house, and tubs, either round or oblong, and narrower at the bottom than the top, should be fixed where the light will fall upon them. Attention should be paid to the height of the tubs, that they may be low enough for convenience, and yet not so low that the women who use them have to stoop over them too much, as this is very likely to make the back ache. It is a great advantage when there can be a tap of hot and cold water over each tub, and a pipe which communicates with the drain at the bottom of each, with a plug, fastened by a chain, to lift in and out, so that the water can be drawn off without having to be poured backwards and forwards. Care should be taken also that a little piece of wood is placed in the corner of the tub to hold the soap. This may appear a trifling detail, but it is not so, because unless the little shelf is thus provided, a great deal of soap will be wasted, for it will in all probability be kept in the water, where it will melt away. The second room of a laundry is used for drying, mangling, and ironing. Clothes are always better for being dried out of doors, but when the weather is not favourable, then other plans have to be adopted. Sometimes the clothes have to be dried before the fire; sometimes a hot-air flue is carried round the room. The best arrangement of all is to have a hot-air closet adjoining the wash-house, and heated either by furnaces or by hot-air pipes, and with a provision for carrying off the steam. When there is a separate closet like this, the laundry can be left free from unwholesome vapours. The ironing-room should be furnished with a strong deal table about three yards long and one yard broad, with drawers for the ironing-blankets. It should have an ironing-board opposite the light, and clothes-horses for airing the clothes. A mangle too should be in one of the corners, and there should be cupboards for holding the irons of various kinds, and the other things used in ironing. Irons are best heated upon a hot plate, built for the purpose, heated from a furnace underneath. So many improvements have been introduced of late years into appliances for washing purposes, that laundry work is quite a different business to what it was a few years ago. The washing, wringing, and mangling machines of various kinds, and other laundry requisites that are now used, save very much manual labour, and some of them cannot be too highly recommended.

Laundry, Machines for the.—Various mechanical contrivances are used for laundry purposes, the chief of which are described under their respective headings in the course of this work. Among them we reckon those for crimping, goffering or gauffering, drying, washing, wringing and starching, and mangling. Some of the machines for wringing are sufficiently powerful and perfect to facilitate the operation of drying to such an extent that articles leave them with very little moisture remaining, in consequence of the great pressure to which they have been subjected. Other wringing machines are at the same time starching machines.

Laundry-maid.—It is the special duty of the laundry-maid to wash and get up the family linen. In large establishments the washing process is performed by washerwomen in a separate apartment, and the occupation of the laundry-maid is confined to the drying, mangling, and ironing of the linen. When washing machines are used, then rubbing of the clothes is to a great extent dispensed with, and the labour of wringing with the hands is saved, and thus time and strength are economised. The details of the process of washing are, however, the same, whether tubs or machines are provided. According to the old proverb, "Those who wash on Monday have all the week to dry;" but of course the day fixed for the wash must be regulated by domestic arrangements. On the day before the wash commences, the dirty linen should be collected, looked over, sorted, and entered in a book, just as it would be if it were going to be

sent out to the professional laundress. The best white linen should be put into a separate tub, and the coarse things in another tub, and both should be just covered with lukewarm water in which a very small quantity of soda has been dissolved. Pocket-handkerchiefs should be rinsed out, and the first water thrown away, before they are put with the white things; muslins and laces should be lightly soaked together, and put by themselves. Very dirty, greasy articles may have a liquor poured over them, made in the proportion of a quarter of a pound of unslaked lime boiled for two hours in three quarts of water, then left to settle, and strained when clear; and it will save a good deal of labour on the washing days if the dirtier portions of the linen, such as the inside of the necks and wristbands, and any spotted place there may be, are soaped before they are soaked. The preservation of the whiteness of linen depends to a great extent upon this sorting process being thoroughly performed, and upon plenty of clean water being used in washing and rinsing. Of course if the washing is to be done on Monday, the sorting and soaking must be performed on Saturday, and the clothes will be all the better for being soaked a little longer. The flannels, woollen materials, and coloured things should not be laid in soak. Flannels and woollens should be washed one by one, in moderately warm but not hot water, and no soda should be used for them. Flannels should be rinsed in clean warm suds, never in plain water, and they, as well as the coloured things, should be hung out at once, and dried as quickly as possible. Coloured muslins and cottons, when not too dirty, should be washed as quickly as possible in cold water, and the common yellow soap should be used for them. Very hot water and soda should be scrupulously avoided. The articles should be washed out one by one, and rinsed in slightly salted water, then wrung with as little twisting as possible, and hung out quickly, for fear the colours should run. Very delicately-coloured articles should be dried in the shade, not in the sun. When all are sorted, the coppers and boilers should be filled, and the fires laid ready for lighting. On the day of the wash the fires should be lighted, and the wash commenced as early as can be. Many laundresses begin the wash with the flannels, because the water in which they have been rinsed can be used for the first washing of the white things. After white things have been taken out of the water in which they are soaked, they need to be washed in two waters; then, in order to make them a good colour, they should be well boiled in the copper with water in which a small nut of soda has been dissolved. When taken out of the copper they should again be rinsed, first in clean hot water, and then in plenty of cold water which has been slightly blued. As soon as they are blued they should be shaken and hung to dry. After the linen and cotton fabrics are washed and dried, it is the laundry-maid's duty to mangle, sprinkle, fold, and then iron them. The mangling is intended chiefly for linen that is without folds or plaits, such as sheets, table-linen, and towels. Ironing is employed to smooth body-linen and made-up articles. It requires both skill and experience for its successful accomplishment. All the ironing utensils should be perfectly clean, and not too hot. The ironing-table should be covered first with a coarse cloth, and afterwards with the ironing-blanket; and when muslin or starch things are to be ironed, the ironing-cloth should have a white sheet laid on it. The iron should be passed quickly backwards and forwards, and the clothes should be pressed, but not rubbed. Starching is intended to impart stiffness to certain articles. Muslin and net material should be first starched. They should be dipped into moderately thick hot starch, squeezed gently, dipped into cold water, and afterwards squeezed dry. They should then be laid straight on a coarse towel, should be rolled tightly, and left for several hours before being ironed. Linen cuffs, collars, and fronts which are wanted very stiff should be starched first with boiled starch, and dried; they should then be starched with raw starch, and ironed after they have lain an hour. It is the special province of the skilled laundry-maid to give to each article the peculiar treatment which is best suited to it. (*See* LAUNDRESS.)

Laurel.—By the term laurel we usually understand the cherry-laurel, or *Cerasus Laurocerasus*, the common evergreen that grows in our gardens and shrubberies, and whose leaves, when chewed, taste somewhat like bitter almonds, from the fact that they both contain hydrocyanic or prussic acid. (*See* CHERRY-LAUREL.) Of the true laurel only one species is known. This is the *Laurus nobilis*, commonly called the sweet bay, a tree, varying considerably in size, which grows wild in the south of Europe, and also in Asia Minor.

Laurel-leaves, Uses of.—The cherry laurel is one of the prettiest evergreens we have, and is very ornamental. In hedges its thick green leaves afford a pleasant shelter, and it may also be made to cover walls. In addition to their uses in medicine—the official preparation known as laurel-water being obtained from them—the leaves are often used to pleasantly flavour puddings, custards, and various other articles of cookery. Many, however, must not be used. It must not be forgotten that they are poisonous. As a medicine it is somewhat uncertain, for this reason: its strength varies, that made from the young and tender spring leaves being very much stronger than the laurel-water distilled from summer or autumn *folia*. This should be borne in mind when they are used for culinary purposes.

Lava.—A composite mineral body which is emitted by volcanoes in a molten state, and which hardens into a rocky mass on cooling. Its composition varies considerably, as it contains many mineral ingredients; and its condition varies according to the circumstances to which it has been exposed on being ejected from the volcanic vent. That which is thrown high up into the air is generally light and scoriaceous, being rough on the surface, and filled within with air-holes; while the great molten streams that pour over the edge of the

crater during an important eruption, or more frequently force a passage through the sides of the mountain, though rough and scoriaceous on the surface, solidify into a compact mass internally. The solid lava is used commonly in volcanic districts as a building stone, and in road-making. Even the same volcano will give forth lavas of very different quality during different eruptions. While some are friable and readily decompose, others are of excessive toughness and durability, showing hardly any signs of weathering even after the lapse of centuries.

Lavender Colour, To Dye.—Lavender being only a cold shade of lilac—rather a greyish-blue—for the dyeing fabrics of this colour, *see* LILAC (COLOUR AND DYE).

Lavender, Preparations of.—Lavender (the *Lavandula* of Linnæus) is a genus of hoary, fragrant, narrow-leaved, sub-shrubby, or perennial, herbaceous plant, of the natural order *Labiatæ*, indigenous to the south of England, North Africa, and the Canary Islands. By distillation with water the flowers yield the fragrant oil of lavender; by distilla-



LAVENDER.

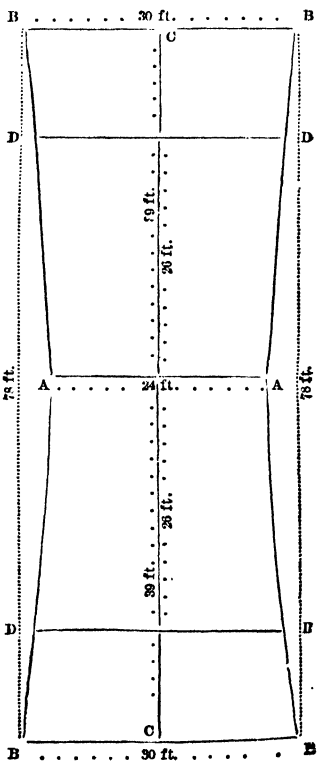
tion with alcohol the officinal spirits of lavender are produced. There is a second kind, sometimes called French lavender, and its oil —called oil of spike—is employed by painters on porcelain, and also in the preparation of varnishes for artists. The compound spirit of lavender is prepared with oil of lavender, oil of rosemary, cinnamon, cloves, nutmegs, and red sanders, with alcohol and water.

Laver.—This consists of the leaves or fronds of a marine plant common enough on the rocks of many parts of the British coast, especially in Scotland; the fronds being soft, broad, and purple or reddish-brown. The plant is called by botanists the *Porphyra vulgaris*. This is the purple laver. There is also the green laver, which is used in some parts of Scotland by the poorer people as an article of diet; it is stewed in a little water, and eaten with butter, pepper, and vinegar. Or it is stewed with leeks and onions. It is, moreover, supposed to possess anodyne qualities.

Lawn Billiards.—This game, which is also often called *Troco*, is an excellent out-door amusement, especially where small lawns only are available. An iron ring having been fixed in the centre of the ground, the principal object of the game is for each player to drive his ball through the ring by means of a long cue, provided at the lower end with a ring, or scoop. The game may be played by two persons, or by any further number forming equal sides. The game may consist of any fixed number of points, usually, however, eleven, fifteen, or twenty-one. The players take it in turn to play, that one commencing who can from any fixed starting-point pitch his ball nearest the ring. The game is scored as follows:—Any player driving his ball through the centre ring scores *one;* any player urging his ball against another ball, and then through the ring, makes a *cannon* and scores *two;* and any player driving his adversary's ball through the ring also scores *one.*

Lawn Cupolette. (*See* CUPOLETTE.)

Lawn Tennis.—This popular pastime is a modification of tennis (*which see*) specially adapted for out-door play. It may be played on any ordinary lawn or grass-plot of moderate dimensions, and the ground is marked out in very much the same way as for Badminton (*which see*), and as shown in the accompanying diagram:—



PLAN OF THE GROUND.

AA Net. CC Central Line.
BB Base Lines. DD Service Lines.

The net, which should be 5 feet high at the posts AA, and 4 feet at the centre, is stretched vertically across the lawn, the upright posts being kept in position by means of guy ropes and pegs. The two posts should be 7 feet in height and 24 feet apart. At a distance of 39 feet from the net, on either side, lines 30 feet in length are marked out parallel to it, called *base* lines, and lines are also marked extending from the posts to the extremities of the base lines, as AB in diagram. The space thus marked out on either side of the net is called a *court*. Each court is also divided lengthways by a line, called the *central* line, into two equal parts, called right and left courts; and lines are also marked out parallel to the net at a distance of 26 feet from it, these being called *service* lines. All these lines may be marked with chalk or white-wash, or by bands of white tape carefully tacked down on the lawn. The dimensions here laid down need not be rigidly adhered to, but the proportions should if possible be kept. It will be seen that the ground as marked out assumes somewhat of the shape of an hour-glass; this is the more approved form, but some players on account of its lesser difficulty prefer to make the lines marked A B quite straight and parallel to the central line. In playing the game ordinary racket bats are used (*see* RACKETS), and hollow india-rubber balls; the balls should be 2¼ inches in diameter, and 1½ ounces in weight. Lawn tennis may be played by two, four, or more persons forming even sides; but it is usually limited to two or four players. The purport of the game may be best explained by giving the following selection from the recognised rules, which are primarily intended for the single game, one player on each side:—

1. The players occupy the courts on each side of the net. He who serves (*i.e.*, delivers the



LAWN TENNIS.

first stroke) is said to be "hand-in," and alone is able to score; if he loses a stroke he becomes "hand-out," and his adversary becomes "hand-in" and serves. 2. The ball is served by the "hand-in," who must stand so that one foot is without the base line of the court. He must serve from the right and left courts alternately, so that the ball drops between the net and the service line of the court diagonally opposed to that from which it was delivered. 3. It is a "fault" if the service drop in the wrong court or beyond the service line. If the "hand-in" serves a fault, he must serve again from the same court. If the "hand-out" takes or attempts to take a fault, the service must be treated as good. 4. The service must not be volleyed by the "hand-out," *i.e.*, taken before it shall have touched the ground. 5. To return a ball is to play it back over the net before it has touched the ground a second time. 6. At the beginning of the first game the players toss for choice of courts and the right to serve. In subsequent games the winner of the last game serves, but courts must be changed at the end of every game. 7. The "hand-in" wins a stroke and scores one point if the "hand-out" fails to return the service or any subsequent stroke, or strikes the ball in play so that it drops out of the court, or volleys the service. 8. The "hand-in" is "hand-out" if he fails to serve the ball over the net, or if he serves it so that it drops out of the court, or if he makes two successive faults, or if he fails to return the ball in play so that it drops in the court. 9. Either player loses a stroke if the ball in play touches his hand, or any other part of his person, or his clothes, or if he strikes the ball more than once. 10. Lawn tennis is played by the game. The player who first scores fifteen aces wins the game. 11. But if both players reach fourteen the score is called "deuce." Another point, called "vantage," is then introduced, and a player, in order to score game, must win two points in succession, viz., "vantage" and game; otherwise, though he may have won "vantage," if he should lose the next stroke the score returns to "deuce." 12. A ball which drops on any line is considered to have dropped into the court which is marked by that line. 13. It is a good service or return, although the ball touch the net or either of the posts.

The above rules apply to the four-handed game also, with the following additions:—At the commencement of the game one partner only of the side that is "hand-in" serves; when he or his partner loses a stroke, the other side is "hand-in." During the remainder of the game when the "hand-in" who first serves shall have been put out, his partner serves, so that before the side is "hand-out," both partners must be put out. If the service be delivered into the wrong court it may be taken by either adversary.

Lawns.—To make a garden lawn, having decided upon its size and situation, first mark it out with the aid of pegs, to which cords are stretched. Then dig out the soil to a depth of about eight inches. Over the bottom of the trench thus made spread gravel, or any similar material, to the depth of about three inches, and let this be well rolled down until it is perfectly level and flat. This will, if properly done, ensure the uniformity of your lawn's appearance. If neglected, the lawn will vary in colour, some patches differing in shade and tone from others. Garden mould is next put

over the gravel to the depth of two or three inches, and this also must be carefully rolled and levelled to ensure its uniform thickness. It is prudent before placing the turf on this soil to water it with lime-water to destroy worms. Turf is usually cut in pieces about a foot in breadth and a yard in length, and these are generally to be purchased at the rate of about ten shillings per hundred. When these have been put down side by side, all neatly joined, they should be beaten down with a heavy block of wood, having a flat surface underneath and a handle attached to the upper surface, after which they should be well rolled. If the lawn is made in warm weather, it should be kept well watered until the grass is growing. If the grass dies off, this indicates the poverty of the soil under your turf, and the remedy lies in a system of enriching it with manure. If mosses appear, the lawn is not properly drained. If the lawn cracks, as it sometimes does, fill in the openings with some light, sandy soil, and roll it in, sprinkling over it a few grass seeds here and there where the openings are wide. For enriching the soil, top-dressings of manure, soot, wood-ashes, or nitrate of soda will be found most serviceable. A little fresh lime is also found very beneficial. Moss is not easily got rid of, but it may sometimes be destroyed by the free use of salt; the objection to which is, that it also injures the grass, and it requires almost as much of it to kill the one as it does the other.

Lawns (Textile).—These closely resemble cambrics, being made also of flax; the distinction is, that lawn is thinner and finer than cambric. The best qualities may be discerned by the regularity with which the threads are woven, by the evenness of the threads themselves, all being of equal size, and by the softness and clearness of the material. French and Irish lawns are the most superior kinds. This fabric was introduced into England in Queen Elizabeth's reign for the ruffles then worn. At that period it was found difficult to stiffen material so thin and fine, the art of starching not being known. A Dutch woman was accordingly brought over for the special purpose of teaching it. The peculiar sleeves worn by bishops are always made of lawn.

Lawsuits.—Legal proceedings, the object of which is the recovery of some alleged right, or the redress of an asserted grievance. Lawsuits are of various kinds, as a civil suit, a criminal suit, a suit in Chancery or in equity. Whatever is actionable furnishes ground for a lawsuit, and at present the legal process is styled an action.

Layette.—A French word properly meaning a drawer or box, but also denoting the outfit, or various articles necessary for a newborn infant. The principal items are enumerated in the article on BABY-LINEN.

Laying.—This style of work, which is also known by the name of couching, was practised by embroiderers several centuries ago. Its chief use is that of making a background for other embroidery, particularly when figures form the design; it is also effective for the drapery of figures. The work is of a very simple character; nevertheless, it requires practice to make it look perfect. Floss and purse-silk are generally employed; the former for flat work, the latter when it is raised. The plan is that of laying threads of silk side by side, and fastening them down at stated intervals by a different coloured sewing-silk; thus a ground of crimson floss can be fastened down by marking diamonds on its surface with gold sewing-silk, each side of the figure being represented by one long stitch. This work can be diversified in various ways: the surface can be ribbed by the use of thicker and twisted silks, the lines can be laid diagonally, and intersected with another colour at greater or less intervals. For a broad border, the device of sewing whip-cord in a pattern on the foundation previous to beginning the couching is very effective. Much of the ornamentation on altar-cloths and alms-bags is done in this style, by taking the silk threads over cardboard patterns fixed on the cloth.

Laying down Wine.—Before laying down wine it is important to ascertain that the wine-cellar is in good condition. As a general rule, from 50° to 60° will be found a very safe temperature for wine-cellars. When it can be done it is a good thing to have gas laid on, and this can be used to regulate both the light and heat. It is best, however, when the cellar can be divided into two parts, because some wines, such as sherry, Madeira, and Malaga, require a higher temperature than others, while sparkling wines should be binned in the coolest part of the cellar. These wines should be placed with their corks downwards; but all other kinds should be laid horizontally, in order that the cork may be kept in a moist condition and the air excluded. Liqueurs may be placed on their ends. Great improvements have been made of late years in the bins manufactured for storing wines. Old-fashioned bins were made of brick or wood, and were close and ill-ventilated. (*See* BINS, WINE.) The bottles were closely packed in this, and surrounded with sawdust; and when in course of time the damp acted on the sawdust and made it rotten, the undue heat thus generated spoiled the wine. At the present time the bins which are most extensively used have the uprights of open ironwork, and are divided horizontally by bars and plates, on which the bottles are stacked, with sawn laths between each layer, and the air is thus allowed to circulate freely round every bottle. The cost of these bins is very reasonable, and they may be made to fit any cellar. In some cellars it is preferred that the bins should be kept locked up, and when this is the case they can be procured with lattice-doors. Whether the wine is locked up or not, it is always best that the bins in a cellar should be numbered and labelled, and that a book should be kept in which the operations of the cellar may be entered. For the sake of ensuring security against mistakes, it may be recommended that a label should be stuck also in the hollow at the bottom of the bottles. This label should be made of parchment rather than paper, as the latter is apt to get damp and soft.

Lead.—A simple metal of a bluish-grey colour, in general use for a variety of purposes from a very remote period. It is very soft and flexible. The ore which supplies the greatest quantity of lead in this country is the sulphide of lead, or galena—a compound which in its pure state consists of about 86½ parts of lead and 13½ of sulphur in every hundred. Galena usually contains a small per-centage of silver, and is sometimes known as argentiferous galena. (*See* GALENA.) The principal compounds of lead are the carbonates (*see* LEAD, WHITE) and the oxides. (*See* LEAD, RED.) Almost all compounds of lead are poisonous. (*See* LEAD-POISONING.)

Lead, Black. (*See* BLACK-LEAD.)

Lead Pencils.—Instruments employed for drawing and writing, composed of black-lead enclosed in the centre of long circular pieces of cedar-wood, formed in two grooved pieces, afterwards glued together. They may be described as—first quality, drawing pencils; second quality, prepared drawing pencils; third quality, composition pencils. The first are made of pure Cumberland lead, from one pound of which eighteen to twenty dozen may be produced. Those of the second quality are composed of the sawings and dust of both pure and inferior lead, alloyed with antimony. This kind of lead produces only fifteen or sixteen pencils to the pound. The third quality is manufactured from a mixture of Mexican or Spanish lead-dust, and antimony; fourteen or fifteen pencils being obtained from the pound of lead. This description will have a firm point, and make a fine stroke, but the latter cannot be obliterated by the use of india-rubber. The test of good lead in a pencil is the more or less easy effacement of the marks by this means.

Lead-poisoning.—The symptoms of lead-poisoning are those of ordinary colic; hence the condition is frequently called *colica pictonum* (painters' colic). The most marked symptoms are twisting, griping pains in the abdomen, especially about the navel, which feels as if it were retracted or drawn back; a blue line also is usually traceable along the margin of the gums at their junction with the teeth, which is conclusive as to the true nature of the attack. (*See* BOWEL COMPLAINTS.)

Lead, Red (Minium).—A deutoxide, extensively employed as a paint, as likewise in the manufacture of flint-glass, being preferred for the latter purpose to litharge, owing to the larger amount of oxygen it contains, which serves to oxidise organic matters or to per-oxidise iron. Minium was known to the ancients. Pliny speaks of its being made by the calcination of white-lead, or ceruse, and of the adulteration of cinnabar with it. It is prepared on a large scale by first oxidising metallic lead to massicot, which is then ground and levigated, and the fine powder thus produced is exposed to an oxidising atmosphere, on the hearth of a furnace, for about forty-eight hours, at a temperature from 300° to 450°, C. The protoxide of lead absorbs about 1·5 to 2 per cent. of the oxygen, and is converted into a beautiful red or orange-hued red powder.

Lead, Sugar of.—The acetate of lead, which is prepared by digesting litharge or other oxides of the metal in pyroligneous acid. It has a very sweet and rather astringent taste. It crystallises in white acicular masses, the condition in which it is sold in commerce. It is used by painters to dry their colours by an admixture of it, in dyeing and calico-printing, and in medicine; a solution of the crystallisations is used for the latter purpose under the name of Goulard's lotion (*which see*).

Lead, White.—The carbonate of lead, a dense white powder, usually employed as a pigment, and was known and employed by the ancients. Its superiority as a pigment is owed to its great "body," or covering power, and its opacity. It is not a simple carbonate, but a compound of hydrate, with carbonate of lead, in proportions varying from two to four of carbonate, to one of hydrate. There are three methods by which it is manufactured on a large scale, known as the French, English, and Dutch, all depending primarily to the formation of the basic acetate of lead, and its conversion into carbonate. White-lead is often adulterated, chiefly with sulphate of baryta. It has been supplanted to a considerable extent, as a pigment, by oxide of zinc.

Leaden Cisterns and Pipes.—In using leaden cisterns or pipes for domestic purposes, it must not be forgotten that lead introduced into the human system is poisonous, and that water which has stood for any length of time in vessels made of this metal becomes impregnated with it. Where leaden pipes are used, the water passing through them should be run off, to carry away any that may have been in the pipes, before the water is used for drinking or cooking. Water in leaden cisterns, or cisterns lined with lead, when open to the air are special elements of danger. The water in this case derives from the atmosphere a gas which, in the absence of certain minerals that are not contained in all waters, partially dissolves the lead. The minerals in question are the phosphate and carbonates of alkalies and alkaline earths, which, combining with the lead, change it into a harmless compound. The newer leaden cisterns are, the more dangerous they will be.

Leaf.—In botany, an expansion of the bark at the base of the leaf-bud. The parts of a plant principally concerned in its nutrition are the root, stem, and leaf, and these three are known as the organs of vegetation. It is in the leaf that most of the crude material, obtained by the roots from the soil and absorbed from the air, is elaborated into substances which nourish and encourage the growth of the plant.

Leaf-metal. (*See* FOIL.)

Leases.—A lease is a grant or disposition of lands or tenements from one person, or several persons, to another person, or several persons, for life, for a term of years, or at will, in consideration of a return of rent, or some other recompense. This tenure is known as *leasehold*. The person who so grants lands or tenements is called the lessor, and the person

to whom they are granted the lessee; and the lessor is said to lease, demise, or let them. Leases were formerly only required to be in writing, but now they are required to be by deed, unless the term granted does not exceed three years from the making, and the rent reserved is at least two-thirds of the full improved value of the demised premises; and leases of this description may be by parol, or verbal contract. By 22 & 23 Vict. c. 35, s. 7, the person entitled to the benefit of a covenant on the part of a lessee or mortgagor to insure against loss or damage by fire shall, on loss or damage by fire happening, have the same advantage from any then subsisting insurance relating to the building covenanted to be insured, effected by the lessee or mortgager in respect of his interest under the lease or in the property, or by any person claiming under him, but not effected in conformity with the covenant, as he would have from an insurance effected in conformity with the covenant. The Courts have power, by 22 & 23 Vict. c. 33, s. 4, to relieve (but only once) against a forfeiture for breach of covenant to insure where no loss by fire has happened, and the breach has been by accident or mistake; but a record of such relief having been granted has to be made by endorsement on the lease or otherwise, as the Court shall direct. By 23 & 24 Vict. c. 38, s. 6, the waiver of the benefit of a covenant or condition in a lease, by a lessor, his heirs, &c., is not to be deemed to extend to any instance, or any breach of covenant or condition, other than that to which such waiver shall specially relate, nor to be a general waiver of the benefit of any such covenant or condition, unless an intention to that effect shall appear. As to the power now given to agricultural tenants in England to recover compensation for improvements made during their tenancy, see the Agricultural Holdings Act, 1875. By the Judicature Act, 1873, s. 34, all causes and matters for the specific performance of contracts for leases are assigned to the Chancery Division of the High Court.

Leasehold. (*See preceding article.*)

Leather.—The differences in leather arises partly from the differences in skins, and partly from the various processes to which the skins have been subjected. Russian leather bears the highest reputation; it is not liable to mould, and insects do not molest it: this freedom is attributed to the fact of the leather being curried with oil of the birch-tree. Morocco leather stands high; it is of goat-skin, tanned with sumach. Roan leather, so much used for the binding of books, is of sheep-skin, tanned with sumach. Danish leather, of which many gloves are made, is the skin of lambs and kids, tanned with willow-bark; it is very soft, but is liable to peel and tear, and therefore is not serviceable. Patent and enamelled leathers are leathers coated with japan; they are always bright; the former is the less expensive, the latter the more superior, because when bent or folded its surface does not crack. Deer-skin leather is very soft and pliant; it is used for riding-gloves and breeches. Dog-skin leather is thick and tough, but soon soils. Chamois leather (*which see*) is soft and pliable. Leathers in ordinary use are tanned with bark of the oak-tree. The hides of horses are used for harness, of hogs for saddles, of calves for book-bindings and boots, of the porpoise for strong boots, and of the walrus and hippopotamus for the straps and belts requisite in the construction of many pieces of machinery.

Leather-cloth.—This is an enamelled cloth which is generally known as American cloth. It bears the appearance of leather, and is used instead for many purposes, such as the coverings of chair-seats, of travelling-baskets, for bags and satchels, &c. On its first introduction it was largely patronised, owing to its appearance and its cheapness; but its tendency to peel and crack is a great drawback to its durability, and the demand for it has rapidly decreased.

Leather, Dyes for.—For colouring leather the following dyes have long been in use, and are still recommended. To obtain a good *blue*, steep the leather for a day in urine and indigo, and afterwards for about an hour in hot alum-water. For *red*, wash the leather, and lay it for two hours in galls; wring it out and dip it in a solution of privet-berries, alum, and verdigris in water; then give it a bath of Brazil wood, boiled with lye. By wetting the skins with a solution of roche alum in warm water, and when dry rubbing them with a decoction of logwood in cold water, a good *purple* is obtained. Sap-green and alum-water, boiled, will give a *green* dye. Aloes and linseed oil, dissolved and strained, will give a *yellow*. Turmeric will give a *deep orange;* fustic-berries boiled in alum-water will give a *light orange;* and *blue*, with indigo steeped in boiling water overnight, and used warm on the following morning. *Black* is obtained with copperas, dissolved in water. The dye will not take well where the leather is greasy, for which reason ox-gall should be used for the removal of the grease—if present—before the leather is dyed.

Leather, To Clean, Dye, &c.—For cleaning white leather gloves, trees or wooden hands are required on which to stretch the gloves. In this condition they are well washed, and then rubbed over with pipe-clay or prepared whiting. A preparation for cleaning leather can be made by mixing a quarter of a pound of yellow ochre with a tea-spoonful of oil; to this mixture must be added a quarter of a pound of pipe-clay and a little starch, the whole mixed together with boiling water. This preparation, when cold, is laid on the leather, left to dry, and then rubbed off with a cloth, after which the leather is brushed. (For another method of cleaning leather, *see* Boot-tops, To Clean.) If a dark shade is desired, leather should be brushed with a hard brush before it is dry, and it will then assume a rich brown tinge. Leather on writing-cases, &c., should be sponged with a solution of oxalic acid in warm water. Leather can be dyed various tints—rosewood, mahogany, &c.—with oil-paints, which are prepared and sold for the purpose. The leather must first have two coats of size put on it; the paints should be laid on with a stiff-pointed brush; after this a

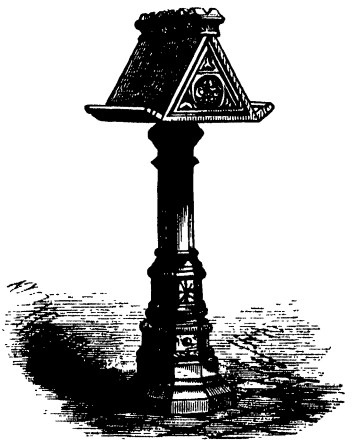
coat of varnish is put on. Stains from leather can be taken by the following means:—Make a paste of mealy potatoes, and mix with it a little vinegar, turpentine, and dry mustard; lay some on the spot, leave it to dry, and then rub it off.

Leather-work.—The necessary materials are some inch deal, a piece of leather, three moulding tools—viz., one chisel-shaped, one rounded, and one sharp-pointed—bottles of oak-stain, prepared stiffening, liquid glue, and copal varnish, several brushes, some fine and thick wire, and a packet of tiny brads. The deal is cut into the required shape, and then stained; the leather is steeped in water, and can then be moulded into any form by the help of the tools. When moulded, the specimens should be left untouched until quite dry, and then be washed over twice, at an interval of a couple of days, with the stiffening fluid. The last act is that of varnishing them. Patterns of the flowers and fruits should be marked and cut out in thin cardboard, and then copied in leather. Leaves of every variety are now sold, as the delicacy of veining can be better attained by machinery than by hand. Stems and tendrils can be formed by strips of leather wound round wire; real acorns and oak-apples, if not too ripe, can be varnished and appended where suitable. The flowers, &c., are fastened to the wood by the glue or the tacks. This work bears the best resemblance to carved work when not much crowded with specimens. Another form of leather-work is that of imitating fret-work. The leather is laid on a board, a geometrical pattern is cut out in thin cardboard and laid upon the leather, and the perforations are made in it by chisels and gouges; the different pieces are varnished, glued together, and placed on a foundation of wood.

Leaven.— A mass of sour dough, or dough in which putrefaction has begun, which quickly communicates its own character to a larger mass of dough with which it has been mixed, thus making it light. Though, however, leaven thus produces fermentation, it is apt to impart a disagreeable taste and odour to bread that is made with it; and it is now very generally superseded by yeast, both substances being used in the same way. The use of leaven in baking dates from a very early period; that of yeast is more modern. It will be remembered that during the seven days of the Passover no leaven was permitted to be in the houses of the Jews.

Leaves, Skeleton.—The art of skeletonising the leaves and other portions of plants consists in removing from them everything but the fibrous portions, and it is accomplished in different ways. The leaves selected should be as perfect as possible, and they may be immersed in rain-water for five or six weeks, care being taken to keep them under the surface. When the steeping has been carried far enough, the leaves are taken out and washed in warm water, after which the decayed portions are removed, if necessary, by means of a brush, when the skeletons are again placed in water for a final washing. They are then taken out and dried, but require subsequent bleaching. For bleaching, take four ounces of chloride of lime and a pint and a half of cold water; mix, and when settled pour off the clear liquor into a bottle and cork it up. Then take a wide-mouthed glass jar, put leaves into it, and add one table-spoonful of the bleaching liquid to half a pint of water. Cover the jar, set it in a warm place, and when the leaves are seen to be white, take them out, wash them in clean water, and then dry them. To keep them in shape, press them between sheets of blotting-paper till quite firm. Seed-vessels and some flowers can be skeletonised by a similar process. Fern-leaves, and those of the chestnut, oak, some evergreens, and others, are more difficult, and require skilful manipulation; but the operator will acquire this by practice. In the case of seed-vessels and flowers it is desirable to retain their shape, and therefore pressure is not resorted to. The objects which have been prepared may be arranged very tastefully into groups, but the mounting of them is not easy. It requires the use of gum, wire, coarse cotton, &c., by the combination of which elegant bouquets are formed suitable for placing under glass shades. By some the specimens are arranged in patterns; but unless protected by glass, they contract dust, are exposed to mishaps, and lose their beauty all too soon.

Lectern, or Lettern.—A desk or stand on which the larger books used in the services of the Roman Catholic and many Protestant



LECTERN.

churches are placed. They are often very ornamental in appearance, and are made usually of wood or brass, but sometimes of stone or marble. They are occasionally fixed, but more often movable.

Ledger. (*See* BOOK-KEEPING.)

Lee-shore.—In nautical phraseology, a lee-shore is that under the lee of a ship, or that upon which the wind strikes.

Leeches.—These are a species of annelide (ringed) or red-blooded worms, ranked by Milne Edwards in the sub-order *Suctoriæ*, class *Annelida*. They are called by naturalists *Hirudines*, and are provided with a sucker at each end of the body. Leeches are entirely

destitute of feet or bristles, or any soft appendages. In the mouth we find three skinny jaws, which enable them to lay hold of the skin, and suck the blood from other animals, and on this they subsist. They are produced from eggs, and take as many as five years to arrive at maturity. The medicinal leeches—namely, the *Sanguisuga*



MEDICINAL LEECHES.

officinalis and the *Sanguisuga medicinalis*—are the most important to us. The former is called the green leech; the latter the German or brown. Formerly the great bulk of our leeches came from Germany; but as these creatures inhabit ponds and marshes, and as the latter have been of late years improved and drained, we now get our supply mostly from the north of Hungary, or from Sweden and Poland. The appearance of the leech is shown in the accompanying illustration. They are caught in many ways, probably by the hand, or by the "fisher" wading into the water and allowing them to fasten on his naked legs, or they are entangled in networks of twigs.

To make a leech bite, the part should be carefully cleansed before applying it. A little patient manipulation is sometimes necessary, as the worm has a will of its own, and does not always care to stick where desired, and that should be on the spot that is most painful. A narrow tube or leech-glass must be used if we apply them inside the mouth. The leech will not bite if there is much bad smell in the room, whether from tobacco, sulphur, or vinegar. Scratching the part with a lance to make it bleed may cause leeches to adhere, or rubbing with a little sweet milk or sugar and water. Children should not have leeches applied about the neck or other soft parts where compression cannot be used to stop the bleeding. Never interfere with a leech when sucking until it drops off, when, if expense is no object, it had better be buried. After the leech comes off, the flow of blood is to be encouraged by fomentations and poultices. If the bleeding continues too long, a bandage and roller should be applied, or the part may be touched with nitrate of silver (caustic), or a lotion of tannic acid. Leeches are best kept alive in unglazed earthen pans, or wooden troughs, half filled with soft pond-water, and a ventilating heavy lid placed on the top thereof. The water should be changed every day if found bloody; if not, in summer change it every two days, and once a week in winter.

Leeks.—The leek is a well-known garden vegetable, called by botanists the *Allium porrum*, belonging to the natural order *Lilliaceæ*, which likewise includes the onion, the Spanish shallot, the chive, garlic, &c. Formerly a wild vegetable, it is now largely cultivated by the market-gardeners, who try to get them as large as possible. The seed is first sown in beds; as soon as the leeks grow up and are somewhat thicker than a quill, they are transplanted, being dibbled into holes, at the bottom of which is some rich manure. They need to be kept well free from weeds, and to have plenty of water, and the earth occasionally loosened around them. Leeks are among the most succulent and health-giving vegetables we possess, and are supposed to be a remedy for some sorts of coughs and colds. They have long been especially popular in Wales, and a national victory, under King Cadwallader, during which the Welsh wore them in their caps as badges, gave rise to the custom of "wearing the leek" on every anniversary of it (St. David's Day).

Leeward.—A nautical term denoting the part which lies in the direction the wind is blowing. Hence the lee, or lee-side, of a ship is that which is not exposed to the wind.

Leg-rest.—This is merely a footstool, having the addition of a cushioned sloping rest for the leg.

Legacy is a bequest of money or any personal effects of a testator, and these are to be paid by his representative, after all the debts of the deceased are discharged, so far as the assets or property liable to payment of debts and legacies will extend. All the goods and chattels of the deceased are by law vested in his personal representative (*i.e.*, the executor), who is bound to see whether there be left a sufficient fund to pay the debts of the testator, when, if it should prove inadequate, the pecuniary legacies must proportionally abate; a specific legacy does not abate, however, unless there be insufficient without it to pay debts. If the legatee die before the testator, it will in general be a lapsed legacy (unless he have been a child of the testator who has left children) and fall into the general fund, as it will also where it is given upon a contingency which does not happen, as to A. B., if he shall attain twenty-one years of age, or in case or provided he shall attain twenty-one. If, however, a legacy be bequeathed to a person to be paid or payable at the age of twenty-one, or any other age or certain determinate term, and the legatee die before that age, this is such an interest vested in the legatee immediately on the testator's death, that it goes to his executor or administrator, it being *debitum in præsenti* though *solvendum in futuro*, the time being annexed to the payment and not to the gift itself; but it is otherwise if the legacy be bequeathed to a person at twenty-one, or if, or when, or in case, or provided he attain twenty-one; for here if he die before that age or period the legacy lapses, these expressions being considered as annexing the time to the substance of the legacy, so that the right of the legatee depends upon his arriving at the age fixed for payment. The giving of interest on a legacy to a legatee, let the interest be ever so small, or a provision for his maintenance until the time for payment of the legacy, provided it be equal in amount to the interest, vests the legacy, but not when the legacy is payable out of land, much less where anything appears on the face of the will to show that the legacy was not

intended to vest. In case of a vested legacy due immediately, and charged on land or money in the funds, which yields an immediate profit, interest shall be payable from the death of the testator; but if it be charged on the personal estate only of the testator, which cannot be collected in, it will carry interest only from the end of the year after the death of the testator. A legacy to an infant ought to be paid to his father. A legacy to a married woman, except it be given for her separate use, can only be paid to her husband. When all the debts and particular legacies are discharged, the residue or surplus must be paid to the residuary legatee, if any be appointed by the will; but if there be none, it will go to the executor or next of kin. When this residue does not go to the executor, it is to be distributed among the next of kin, according to the Statutes of Distribution, except it be otherwise disposable by particular customs, as those of London, York, &c.

Legacy Duty.—Legacies of £20 and upwards are chargeable with duties varying in amount, as follow:—To children, or their descendants or ancestors, 1 per cent.; to brother or sister, or their descendants, 3 per cent.; to uncle or aunt, or their descendants, 5 per cent.; to great uncle or aunt, or their descendants, 6 per cent.; to all other relations, or to strangers, 10 per cent. Husband and wife are exempt from legacy duty. Gifts of annuities are valued according to tables of the Act 16 & 17 Vict. c. 51. A legatee taking two or more legacies under one will is to pay duty on the aggregate amount, though each item separately may be under £20.

Legate.—A cardinal or bishop whom the Pope sends as his ambassador to sovereign princes. (*See* AMBASSADOR.) There are three kinds of legates—(1) Legates *a latere* being those the Pope commissions to represent him in councils, and so called because he never appoints to this office others than his favourites and confidants, who are always *a latere* (i.e., at his side); (2) Legates *de latere*, or *legati dati*, those entrusted with apostolical legation, and acting under a special commission; (3) Legates by office, or *legati nati*, are those who have not any particular legation given them, but who by virtue of their dignity and rank in the Church become legates: such are the Archbishop of Rheims and Arles, and the Archbishop of Canterbury in former times, but the authority of these legates is much inferior to that of the legates *a latere*. The power of a legate is sometimes given without the title. Some of the nuncios are invested with it.

Legatee.—A person to whom a legacy is left. (*See* LEGACY.)

Legend.—An inscription, usually upon coins. That which is written round a coin or medal is usually termed the *legend*, anything written across it being the inscription.

Legerdemain. (*See* CONJURING.)

Leggets, or Leglets.—When the drawers of children were made long, leggets were used to slip over the legs of the drawers if they were soiled or tumbled before it was considered necessary to put on a clean pair. Being often made of a finer material than the drawers themselves, they were also adopted for extra display. They were made of fine cambric muslin and the like, with open-work or tucks, &c. They were attached by button-holes or loops to buttons put on the drawers at the knees. Sometimes they were mere appendages to drawers which only descended to the knees. To make them sit well, six or eight buttons were used for each. They were sometimes made of inferior materials, and put on to protect the drawers of children when playing out of doors, and on other occasions.

Leggings.—A species of gaiter, in which to enclose the leg, which covers its whole length down to the ankle. They are made of American cloth, leather, fustian, corduroy, and cloth, buttoned on the outside, and having straps at the top by which to attach them to others at the waist. Sometimes these buttons are covered by a "fly" or over-lapping hem; at other times, as in tight leather leggings, they are in sight. American cloth leggings reach to the knee only at the back, but above it in front, as the material would be too stiff to bend in walking. These are supplied with a pair of steel busks each, one on either side of the opening, on the outer part of the calf of the leg. Instead of buttons, they are united by means of two or more metal loops and knobs, which are attached to the busks when manufactured.

Leghorn.—A kind of plait prepared from the straw of a variety of bearded wheat, cut when green, and dried. It was made originally at Leghorn, whence its name, and manufactured into hats and bonnets. The plait is very fine and delicate in texture, and the straw of a rich buff colour. Much of this description of manufacture is imported from Florence.

Leguminous Food.—The seeds of leguminous (podded) plants, of which peas, beans, and lentils may be cited as examples, are largely used as food by man. There is no temperate or hot country which does not produce some member of this family, or where the inhabitants do not eat the seeds, although in no case are they made the sole staple article of vegetable food. They possess a high nutritive value, and furnish a food which is more satisfying to the stomach than is vegetable food generally, because it is more closely allied to the alimentary products supplied by the animal kingdom. It is on this account that haricot beans and lentils are more extensively used in Catholic communities than they are in England, simply because they furnish an advantageous substitute for animal food. Legumes are, however, difficult to digest, and many of them possess a strong flavour which is not agreeable to every one. Peas and many other legumes contain a bitter substance, which predominates in some varieties to such an extent as to render them unpalatable, and to produce flatulence and colic in those who partake of them. Leguminous foods are regarded as stimulating and heating to the system, and it is on this account that beans are so serviceable as food for horses during the winter months. The albuminoid which predominates in the seeds of leguminous plants is called

legumine, or vegetable caseine. It occurs both in the green and ripe seeds, although it is more soluble and easy of digestion in the unripe fresh seeds than after they have become ripe and dry. Its resemblance to the animal caseine of milk is so decided, that Liebig and other chemists have declared the two to be identical substances; and in some parts of China, cheeses are made from the seeds of beans and peas. Legumine, or caseine, is, however, considered a less valuable flesh-former than albumen, or fibrine.

Lemon Acid. (*See* CITRIC ACID.)

Lemon Cream.—A sweet culinary preparation made of cream and eggs flavoured with lemon. The English lemon cream is a liquid custard, and is served in glasses. The French lemon cream is stiffened with isinglass or gelatine, and turned out in a shape.

Lemon Drops. — Acidulated drops flavoured with essence of lemon. Lemon drops are frequently coloured with turmeric.

Lemon-juice.—As a rule, the juice of the lemon is very acid, although in a variety called the sweet lemon it is sweet. Its acidity is due to the presence of citric and malic acid. (*See* CITRIC ACID.) The juice is obtained from the fruit by squeezing and straining, and when freshly expressed it is turbid, owing to the presence of mucilage and pulp. These substances prevent it keeping, and various methods are adopted to preserve it. Among these may be mentioned the addition to it of a small proportion of alcohol. It may be preserved also by heating it to 150° Fahr., then filtering it and putting it in small bottles. It is a good plan to pour a little sweet oil into the bottles, then to cork them closely and set them in a cool place. When the juice is wanted, a skewer with cotton wound thickly round it should be introduced into the bottle, and this will absorb the oil, and leave the lemon-juice ready for use. If lemons are not ripe enough for squeezing, they should be kept for a time, when their yield of juice will be very considerably increased. Lemon-juice possesses valuable refrigerant and anti-scorbutic properties, and it is also employed as a cure for rheumatism. Dr. G. O. Rees, who first employed it in this disease, considers the citric acid to undergo changes in the stomach, and to supply oxygen to such elements as tend to produce uric acid, and thereby to induce the formation of urea and carbonic acid instead. In agues, dysentery, heartburn, vomiting, putrid sore throat, and numerous skin diseases, lemon-juice has again and again been of great service. A substitute for true lemon-juice is sometimes made of citric acid, carbonate of potassa, sugar, and cold water.

Lemon-peel.—The rind or peel of lemons separated from the pulp is very largely used in cookery and confectionery for flavouring purposes, and as a stomachic. It is thus employed both in a fresh and dried state. Candied lemon-peel is an important article of merchandise.

Lemon Pickle is made from the fruit, which has been soaked in brine, then mixed with spices and covered with vinegar. When properly made it will keep for years, but it should not be used until it has been stored for from nine to twelve months. The liquid part of the pickle is excellent for flavouring fish sauces, and after the lemons themselves are used the liquid may be strained, bottled, and used for this purpose. The best time for making lemon pickle is from November to April.

Lemon, Salts of.—This name is commonly but incorrectly applied to salts of sorrel or binoxalate or quadroxalate of potassium. When sold it is frequently mixed with half its weight of cream of tartar. In domestic economy it is used to take ink out of linen.

Lemon Squeezer.—This little utensil is employed to press lemons, in order to obtain from them every drop of their juice. It may be obtained at a trifling cost.

Lemon Thyme. (*See* THYME.)

Lemon Wine. — Wine is occasionally made from lemons as it is from oranges. It should be made when lemons are in good condition and cheap.

Lemonade is a cooling and useful summer beverage, employed as a refrigerant and antiseptic drink in fevers and inflammatory complaints, and also in hæmorrhage, when it should be given iced. It is made either of sliced lemon, sugar, and water; or of citric acid, essence of lemons, sugar, and water; and when properly prepared it may be taken in large quantities without injury to the system. Sometimes, however, on account of its cheapness, tartaric acid is substituted for the citric acid, and the lemonade thus made is inferior in quality, and is neither so wholesome nor so agreeable as the true beverage. Lemonade was first publicly sold in England in the years 1630-33, when it was brought from Italy, in which country it was originally made.

Lemons are the fruit of the *Citrus Limonum*, a tree which is a native of the north of India. The lemon does not appear to have been known



SPRIG OF LEMON-TREE.

at all in the early ages of the world. The Romans did not know of it until a late period, and then they employed it only to keep the moths from their clothes; the acidity of the fruit being objectionable to them. In the time of Pliny the fruit was regarded as an antidote against the effects of poison. The lemon is supposed to have been introduced into

Europe during the Crusades. It is almost naturalised in the south of Europe, and the produce of the lemon groves of Italy, the south of France, Spain, Portugal, and other countries bordering on the Mediterranean, is largely exported to the more northerly regions. It is said that Sicily alone exports annually 30,000 chests, each of which contains 440 lemons. The lemon-tree is so completely naturalised in some parts of Brazil, that the flesh of the cattle which graze in the woods acquires a smell of lemons, the animals being very fond of the fallen fruit. Lemons are oblong, wrinkled, and of a pale yellow colour. The rind, juice, and essential oil are all possessed of valuable properties. Lemons are imported all the year round, but they come freshly into England in June. They are largely used in cookery, and should be kept in a dry airy place, hung up in little netted string bags. In addition to their other virtues they possess cleansing properties, and it is said that the remainder of lemons which have been peeled and squeezed, if put into the scullery soap-dish, will cleanse the hands of the cook as well as her saucepans.

Leno is much used for white window curtains. It is clearer, softer, and thinner than book muslin, which it resembles in many respects. In leno the threads of the warp and woof differ in size. This material will not stiffen with starch so readily as other muslins.

Lenses are thin pieces of glass, or some other transparent and refracting substance, having their two opposite surfaces either both spherical, or one spherical and the other plane. The peculiar property of lenses is that parallel rays passing through them have their direction changed, so that they either converge to a point called the *focus* of the lens, or diverge as if from that point. By means of lenses, therefore, objects at a distance from the eye of the observer may be either magnified or diminished, and on this property of lenses depend the special powers of microscopes and telescopes. (*See* MICROSCOPE; TELESCOPE.) Lenses may be divided into two large classes—*convex* and *concave*. Convex lenses are those which are thickest at the centre; these converge the rays of light passing through them. Concave lenses are those which are thinnest at the centre; these diverge or disperse the rays. Of convex lenses, there are the *double-convex*, the *plano-convex*, and the *meniscus* lens (Greek, *mēniskos*, a little moon). Of these the double-convex has both surfaces convex; the plano-convex has one surface plane, the other convex; and the meniscus has one surface convex, the other concave, the radius of the convex surface being smaller than that of the concave. Of concave lenses, there are the *double-concave*, the *plano-concave*, and the *convexo-concave*. In the double-concave, both surfaces are concave; in the plano-concave, one surface is plane, the other concave; and in the convexo-concave, one surface is convex and the other concave, the radius of the concave surface being smaller than that of the convex.



Double-convex Lens.
Plano-convex Lens.
Meniscus Lens.
Double-concave Lens.
Plano-concave Lens.
Convexo-concave Lens.

Lenses are of great assistance in correcting the defects of vision, the most common of these defects being what are known as *long-sightedness* and *short-sightedness*. A long-sighted person can see by means of parallel pencils of light only—that is to say, he can only see an object distinctly when it is sufficiently distant, that the pencils (or bundle of rays) which reach his eye are sensibly parallel; all near objects, the rays from which are sensibly divergent, are unseen by him. The near-sighted person, on the contrary, can see an object distinctly when it is near, and sends diverging pencils to the eye, but cannot see when it is so distant as to send parallel pencils. By the use of lenses in the form of spectacles (*which see*), both these defects of vision may be remedied. By means of a convex lens, the diverging pencils of light from a near object may be changed into parallel pencils for the long-sighted person; and with a concave lens the parallel pencils proceeding from a distant object may be changed into diverging pencils to suit the near-sighted person.

In anatomy, the crystalline humour of the eye is termed the lens of the eye. (*See* EYE.)

Lent (from a Saxon term denoting spring).—An ecclesiastical period extending from Ash Wednesday to Easter. It is generally regarded as a great fast, but as Sundays are always festivals, and never fast days, they are excepted, and are called Sundays *in* Lent, and not Sundays *of* Lent. From the first day of Lent to the last there are forty-six days, from which the six Sundays have to be deducted, leaving forty as the days of Lent. The earliest Lenten fast extended over a shorter period. Irenæus and Tertullian make it forty hours; under Gregory the Great it was thirty-six days; and subsequently was fixed in its present form.

Lentils.—The lentil, called by botanists the *Ervum lens*, and belonging to the natural order *Leguminosæ*, has been used for food from the earliest years of which we have any record. It is not much used as food in our country, albeit it has been proved, by analysis, to be one of the most nutritious articles of diet in the world. The French and the Germans, however, seem to know and duly appreciate the value of the lentil, and use several kinds in soups, &c. There are several varieties, the smallest being considered the best for human food, and the large kinds given to cattle. It is cultivated in the same way as peas, but is sown later, and the soil should be rich and warm. Although lentils are not so productive as tares, either in grain or in straw, still its produce is much more nourishing.

Leprosy.—Leprosy is a loathsome skin disease, happily rare in this country, but very prevalent in the East. There are two forms of leprosy—one characterised by tubercles, the other by spots. The latter are so devoid of feeling that it is said a red-hot iron may be applied to them without its touch being perceptible. The disease does not appear to be communicated *by* contagion, but there is no doubt that though it may slip a generation, it is essentially hereditary. In most instances it is of slow progress, first showing perhaps a tubercle, or spot, attended by considerable fever, then gradually dying away, only to recur again, however, after a variable period, with greater severity. The tubercles, or spots, spread, and soon become ulcers, discharging most offensive matter. These ulcers eat deeply into the soft parts, often exposing the joints, and ultimately in some cases, if the patient continues to live, causing the bones to drop off one by one. Whilst this is going on, the face assumes a cadaverous and swollen expression, the eyes run, the lids become everted, the hair changes in colour and drops off, the nose runs, the mind becomes clouded, and the sufferer exhibits a most pitiable spectacle. It is not to be wondered at that, in times and countries where hospitals were unknown, persons suffering from this terrible disease should have been regarded as outcasts, and condemned to dwell in tombs and caves of the mountains, apart from their fellow-men, until death puts a welcome end to their sufferings. *Treatment.* As leprosy occurs most frequently where filth abounds, prevention by cleanliness must be the first care. There is no known remedy for this disease, death usually resulting in from eight to ten years. Some cases, however, have recovered, and there is still hope that if civilisation and the laws of sanitation do not eradicate it, some potent remedy may yet be discovered. The administration of cashew-nut oil has been favourably spoken of, but sufficient experience of this drug has not yet been gained to enable us to speak with any certainty as to the results.

Lessee. (*See* LEASES.)

Lethargy.—A condition of drowsiness or sleepiness in which the subject finds it almost or quite impossible to keep awake or bestir himself. The word coma is better used of this morbid state, and a person who is lethargic through disease of some kind is properly styled comatose. In common parlance the term lethargy is used of excessive inactivity.

Letter-books, &c.—Books in which some sort of record of letters sent or received is kept. The book may take the form of a mere register of names of persons written to, or from whom letters have been received; or it may in addition give further particulars, such as the date, and a summary of the letters; or it may contain a verbatim copy of the letter itself. Letter-books which contain a fac-simile copy of letters sent are termed copying-books, and are generally used in all houses of business. They usually consist of a certain number of pages of tissue-paper, with an index. For the method of copying, *see* COPYING MACHINE.

Letter-boxes. — Many houses are supplied with letter-boxes, in which the postman may place the letters without disturbing any member of the household. Letter-boxes are almost indispensable in houses of business. In private dwellings they usually consist of small boxes fastened to the inside of the door of the house, with a narrow slit facing the outside, just large enough to admit letters, but so constructed that any after-removal of the contents of the box from the outside of the house is practically an impossibility. In places of business it is always advisable that the box be provided inside with a lock and key, so that letters may be removed by authorised persons only.

Letter-cases.—For the safe preservation of letters, notes, and other documents requiring to be carried about, leather letter-cases provided with pockets will be found very convenient. Plain pig-skin cases are the most durable, and are strongly to be recommended. Letter-racks, consisting of a wooden case with a number of pigeon-holes, are very serviceable to all persons carrying on extensive correspondence; a pigeon-hole can then be set apart for each letter of the alphabet, or for every two or three letters, so that all papers may be alphabetically arranged, ready for immediate reference when required. Small wooden letter-racks of oak or other wood, provided with two or three slides, and suitable for hanging against the wall of the sitting-room, will also be found convenient in the household.

Letter-clips.—These may vary considerably in size, shape, and material, but the principle of their construction is usually the same in all cases. The letters are clipped between two pieces of wood or metal, which open and shut much in the same way as the human jaw, the closing power being provided in a spring or other contrivance.

Letter of Attorney. (*See* POWER OF ATTORNEY.)

Letters and Letter-writing.—To be able to write a good letter is a most desirable accomplishment, and the art of letter-writing will be found to well repay the time and study spent upon its cultivation. As to the mere mechanical part of a letter, there is much to be said. A fit and proper choice of paper and envelopes, pens and ink, should in the first place be made; a letter written on common or soiled paper, with bad-coloured ink and a spluttering pen, not only reflects discredit on the writer, but is a mark of great disrespect to the person to whom it is sent. Writing materials are now so cheap that the use of those of an inferior description, which are at the same time impediments to neatness and indications of neglect, can seldom be regarded as other than false economy. The handwriting itself should be free, neat, and *legible;* but it is usually well to avoid all pretensions to excessive elegance. A *free* hand, which is neither crabbed, nor formal, nor abounding in flourishes, is the most to be preferred. It is unfortunately well known that many men of note in the world have written very badly—so illegibly, in fact, that they have been unable

at times to read their own letters; and from this fact an idea has become to a certain extent prevalent that clever people are always bad writers, and *vice versâ*. But the ascertained fact that very many clever people also write *well* and *legibly* would seem to prove that the prevailing notion is a false one; the real fact is that no fixed rule can be laid down in such a matter. The rule that letters should be written legibly cannot at any rate be too much insisted on; it is eminently selfish in a writer to occupy the time of his correspondent by providing him with a heterogeneous mass of hieroglyphics to decipher. Next to handwriting, in the *desiderata* for a good letter, come correct orthography, punctuation, and grammatical construction. Nothing reflects greater discredit on the writer than inaccurate spelling and ungrammatical sentences. These, however, are faults which are so well known and admitted, that they are specially guarded against, while the almost parallel fault of omitted or inaccurate punctuation is lightly regarded. Indeed, the use of stops, even in otherwise well-written letters, is commonly neglected, and the proportion of letter-writers who carefully and correctly mark the punctuation is unfortunately very small indeed. These, then—neatness, legible handwriting, correct orthography, punctuation, and grammar—are the elementary requisites for a good letter. The style and the subject-matter form more advanced considerations, and in speaking of them it will be well to divide letters into the two great divisions under which they obviously fall—business letters, and ordinary or social letters. The business letter in this great trading and money-making century must necessarily be of very great importance, and, since the time of both sender and receiver is presumably valuable, brevity should be its first characteristic. The letter should go straight to the business in hand, dealing with all necessary points *seriatim* and shortly. As Ben Jonson has so well written, "Brevity is attained in matter by avoiding idle compliments, prefaces, protestations, parentheses, superfluous circuit of figures, and digressions; in the composition, by omitting conjunctions and such-like idle particles that have no great business in a serious letter but breaking of sentences, as oftentimes a journey is made long by unnecessary baits." The letter must not, however, be so curt that its clearness is interfered with: every statement should be perfectly free from obscurity; no phrase or word should be in the least ambiguous. Misunderstanding arising out of a carelessly-worded letter has often created much mischief, and been the cause of costly proceedings in the law-courts. Brevity and perspicuity must, then, go hand-in-hand together in a good business letter, and with them should be linked vigour of style and tact. By this last is meant that knowledge of men and manners which may enable the writer to compose his letter in a style befitting the person he is addressing. The ordinary every-day letter of a friendly or social nature, though not of such actual importance as the business letter, is nevertheless one of the luxuries of social life, and as such worthy of much care and thought. To be able to write a good letter on every-day topics as from friend to friend, equal to equal, is a most valuable accomplishment. So widely is this recognised, that many men of mark in literature have left treatises and precepts on the art of letter-writing. From these it may be gathered that spontaneity is the first element in the composition of a good letter; the writer's feelings and impressions should be transcribed faithfully, and without constraint. The style should be simple and unaffected, avoiding all pretensions to literary effect or fine writing, which, if indulged in, will probably only result in stilted and unnatural sentences. Repeated quotations, and scraps of Latin, Greek, and foreign languages are, as a rule, in bad taste in a social letter. After spontaneity and naturalness of style should come heartiness; the writer should show that he enters thoroughly into the matter in hand, that he takes pleasure in writing, and that he is keenly interested not only in what he writes about, but in all that may concern his friend. In writing special letters of a social nature, brevity, as in business letters, should be aimed at. This is especially the case in writing letters of condolence on the death of some near relation or dear friend of the person addressed; sympathy should be strongly evident in the letter, but this is all—"words weaker than his grief will make grief more." In addressing letters to persons of title, distinction, &c., there are certain forms of superscription, commencement, &c., which should be rigidly observed. These, however, are all separately given in this work. (*See* ADDRESSES OF LETTERS, &c.)

Letters of Credit.—Letters from one merchant or banker to another, authorising credit to a certain specified amount to be given to the bearer. As with circular notes (*see* CIRCULAR NOTES), they are intended for the convenience of travellers. The mode of procedure is as follows:—Any person going abroad, and having made up his mind as to the largest amount of money he is likely to require, calls on his banker or other agent, and deposits that sum of money with him (unless, of course, that or a larger amount is already standing to his credit), at the same time naming the towns at which he wishes money to be made payable. The bankers then give him a letter of credit for the amount upon those towns, he having previously signed his name on slips of paper, one of which will be sent to the banker's agents in each of the towns named. Armed with his letter of credit, the traveller, when in want of money, has only to call on one of the bankers or agents named in the document, state what sum he requires, and sign his name for the amount (the signature being, of course, compared with that forwarded by the issuing house), and the money will at once be handed over. The amount so paid is then marked on the letter of credit, so that other bankers, to whom application may be afterwards made, may at once see what sum remains unpaid of the original credit.

Letters of Marque are commissions granted to captains or merchants for reprisals,

in order to make a reparation for those damages they have sustained, or the goods they have been deprived of by strangers at sea. They are granted by the Secretaries of State, with the approbation of the Sovereign and Council, and usually in time of war. The words *marque* and *reprisal* are used as inconvertible terms, although the latter is strictly "taking in return," and the former passing the frontiers in order to such taking. These letters are granted by the law of nations, wherever the subjects of one state are oppressed and injured by those of another, and justice is denied by that state to which the oppressor belongs. In this case, letters of marque and reprisal are granted in order to seize the bodies or goods of the subjects of the offending state, until satisfaction be made, wherever they happen to be found; and, in fact, this custom seems dictated by nature. The necessity, however, is obvious of calling in the sovereign power to determine when reprisals may be made, for if not every private sufferer would be a judge in his own cause. Reprisals are to be granted only in case of a clear and open denial of justice. At the present day, in consequence partly of treaties and partly of the practice of nations, the making of reprisals is restricted to the seizure of commercial property on the high seas, by public cruisers or by private cruisers specially authorised thereto. On the 16th of April, 1856, the Plenipotentiaries of Great Britain, Austria, France, Prussia, Russia, Sardinia, and Turkey, assembled in Congress at Paris, signed a declaration, of which the first article was—"Privateering is and remains abolished." They also engaged, on behalf of their respective Governments, that the declaration should be brought to the knowledge of the states which had not taken part in the Congress, and that they should be invited to accede to it. It was agreed that the declarations should not be binding, except between those Powers who had acceded, or should accede, to it. The United States of America were invited to accede to this declaration, but declined.

Letters-patent. (*See* PATENTS.)

Lettuces.—The lettuce (*Lactuca*) is an annual herbaceous plant which has been cultivated in Europe from very early times. It is a deliciously refreshing vegetable, and though not much cooked in England, it is largely used when raw in the preparation of salads. It has a particularly pleasant taste, and is said to have a sedative action upon the nervous system, which allays pain and induces sleep. Those persons, therefore, who have no tendency to apoplexy, and who are troubled with wakefulness, may be recommended to eat lettuces at supper. It is supposed that the lettuce is a native of the East Indies, although it is not known to exist anywhere in a wild state. It was first cultivated in England in 1562. There are many varieties of cultivated lettuces, but they may all be divided into two large families—the cos and the cabbage. The leaves of the former are oblong and upright, and need to be tied together for blanching; those of the latter have rounder leaves, which spread out nearer to the ground, and which form a head something like a cabbage. Cabbage lettuces are grown at all seasons, but mostly in winter, on account of their hardihood. When young they are sweeter than the cos, but at full growth this is reversed, and the fine white-hearted cos is the better of the two. Cos lettuces thrive best in summer. The soil for lettuces should be light and very rich, with a light subsoil. Early and late crops require a sheltered situation, but those which are grown in the middle of summer do best in an open situation which is shaded only when the sun is at its height. It has been calculated that a quarter of an ounce of seed will produce about four hundred plants; therefore a mere pinch of seed will do for one sowing for a moderate-sized family. If the seed can be sown so thinly that the young plants can be left to grow and heart where they come up, they will do better and be earlier than if they need to be planted out. If this cannot be managed, they must be thinned when they are about two inches high, and placed about one foot apart, if they are intended for hearting, and six inches apart if they are to be eaten young. Each time they are disturbed they should be watered regularly until they are settled to the ground. An occasional dose of liquid manure is of great benefit to lettuces. The beds should be kept weeded and hoed, and a vigorous warfare should be maintained against slugs, snails, aphides, caterpillars, and grubs of various kinds. As there is scarcely a garden pest that does not devour the lettuce, it is a good plan, when this can be done, to get one or two toads established in the beds. Lettuces that threaten to run may be delayed by nipping out the centre bud before tying them up. When, however, it is desired to save seed, plants for the purpose should be chosen from those which have survived the winter, or from the early sowings. Those which have run up prematurely should be rejected. The stems should be tied to sticks, to keep them steady while the seed ripens; and the seed should be gathered as it ripens, and dried before it is stored. Seeds of the finest kinds may be bought for from 6d. to 1s. 6d. per packet. Lettuces that have run to seed need never be wasted where live-stock is kept, for pigs and poultry of all kinds are very partial to them, and they constitute a very valuable addition to their ordinary food. Early crops of lettuce should be sown in January, and again in February in a frame. At the end of February a sowing may be made in a warm sheltered situation, and after this small sowings may be made every two or three weeks until the beginning of June, and again from the end of July to the middle of September. Most of the lettuces will need to be tied up, in order to blanch the hearts and to increase their size. The lettuce, especially when the plant has been allowed to run to flower, contains a milky juice, which possesses mild soporific properties; it is collected and inspissated, and used under the name of lactucarium, or lettuce opium, as an anodyne, sedative, opiate medicine.

Leucite.—A mineral composed of a double silicate of alumina and potash or soda. It is a common ingredient of volcanic rocks.

Leuksæmia.—This disease, also called leukocythæmia, is a morbid condition of the blood characterised by a remarkable increase of the white corpuscles, and a corresponding diminution of the red corpuscles. The cause of this condition has not yet been clearly made out, but the disease is essentially one of debility, there being marked want of vitality and excessive pallor of the skin. The only treatment likely to prove beneficial is the administration of full doses of iron, a generous diet, and sea air. The name is derived from two Greek words signifying "white blood."

Levée.—The name given to the visits of ceremony paid to distinguished personages in the morning, or, as is implied by the word (French, *se lever*, to rise), at their rising. The term is chiefly used in this country in connection with the ceremonious visits to royalty paid on certain stated public occasions by such subjects as may be entitled to the honour. (*See* COURT DRESSES; COURT LEVÉES; COURT PRESENTATIONS.)

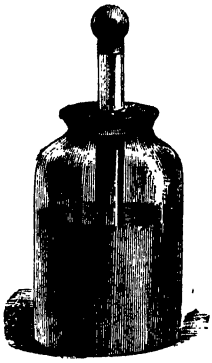
Level.—A geometrical instrument used in surveying to indicate the direction of a line parallel with the plane of the horizon. *Spirit-levels* are instruments in common use for ascertaining if any surface is perfectly horizontal. They are merely glass tubes of a certain length, mounted on a stand, and containing spirit of wine. If the surface on which one of these instruments is placed is perfectly level, or horizontal, the bubble in the tube will be found in the upper part of the tube. The *artillery foot-level* is the common line and plummet level, with a scale for showing the inclination of a straight line from the horizon.

Levelling Staves.—These are used with a spirit-level for the support of a mark, and to indicate at the same time its height.

Lever.—This simple but important mechanical aid is merely a strong unbending rod or bar, which, working on a fulcrum, or prop, is used for raising weights. *Lever-boards* are boards so fixed that they may be turned at any angle for the admitting of varying quantities of light and air. Lever watches are instruments constructed on the lever principle, the second power in mechanical science. The *universal lever* is an ordinary lever with the addition of the wheel and axis.

Leviathan Stitch.—This is used for grounding canvas. It is a raised thick stitch, and consequently more wool is consumed than for the ordinary cross-stitch. The manner of working it is as follows:—Four squares are taken for one stitch; one complete cross-stitch is first made on this large square, then the wool is taken across the middle of it from the bottom to the top, and then from the left side to the right: in this way all the outside holes have wool taken through them. Each crossing should always be taken in regular order, and the progression of the stitches is made backwards.

Leyden Jar.—A glass jar coated inside and out with tinfoil to within a certain distance of the top. The mouth is usually closed with a wooden stopper, through which passes the stem of a brass knob. From the bottom of the stem in question a chain extends to the bottom of the jar. The use of the jar is important in electricity, and has been known since 1746.



LEYDEN JAR.

Libel.—The malicious defamation of any person expressed otherwise than by mere words (in which case it is slander), as by writing, print, figures, signs, or any other symbols. There must be malice in it to constitute any writing a libel, and the truth of defamatory writings is not at common law any justification of them; but under the Act 6 & 7 Vict. c. 96, it is competent for the defendant to plead the truth of the libel, and that it was published for the common good. The defendant in an action for libel may in mitigation of damages (after notice in writing of his intention) show that he made or offered an apology before the action, or as soon afterwards as he could, in case the action was commenced before he could do so. He may also prove that the publication was without his authority, and did not arise from want of due care and caution on his part. By 8 & 9 Vict. c. 85, if any person shall publish or shall threaten to publish any libel, or directly or indirectly propose to abstain from printing or publishing or offer to prevent the printing or publishing of any matter touching any person, with intent to extort any money, security for money, or valuable thing from such person or any other; or with intent to induce any person to confer or procure any appointment or office of profit or trust, he shall be liable to imprisonment, with or without hard labour, for a term not exceeding three years. This word also signifies in the Court of Arches a formal allegation in the nature of a pleading, containing the substance of the plaintiff's complaint. (*See* ARCHES, COURT OF.)

Library.—A library ought in its general effect to be comfortable and warm, but at the same time slightly sombre and stately. The book-cases should be of moderate height, so that none of the books may be out of the range of sight, and each one may with advantage be surmounted by the bust of a well-known author and philosopher, or with a vase of curious design. The ideal library would be large and stately, with cunning little recesses surrounded with book-shelves. Each recess would be provided with a writing-table and its accompaniments, an easy chair, and a chair to be used when writing. These tables should be supplied regularly with the latest magazines and reviews, the last new good books, the cream of the current literature of the day. Luxury of this kind cannot, however, always be secured. Every library should be provided with one or more tables, fitted with

drawers, and supplied with the auxiliaries for reading and writing, paper-knives, inkstand, pens, blotting-pads, letter and foolscap paper, calendar, letter-weights, a postal guide, and a directory. The floor of the library may be covered with a Turkey carpet, and the furniture should be of carved oak with leather fittings. Most of the chairs should be easy ones, although two or three chairs for writing may be provided, to be used when literary work and not mere enjoyment is the object of the student. One good painting or engraving may be admitted over the mantelpiece, but with this exception whatever space there may be on the walls should be covered with maps rather than pictures. The chimneypiece should be adorned with bronze ornaments and a bronze or black marble timepiece, and if the arrangement of the room permit it, one or two marble figures may be placed in the spaces between the book-cases. A chandelier severely simple in its shape should be suspended from the middle of the room, and in addition to this a lamp with a green shade should be placed upon each writing-table, which can at pleasure be used instead of gas.

Library, Care of.—Any one who has cultivated and values the friendship of books is most anxious that the objects of his affection should be treated with reverence and care. In some libraries the book-cases are fitted with glass doors, in order that the books may be preserved from contact with dust and dirt. The plan is an excellent one, but it is not very usually adopted, for one thing because book-shelves so made are expensive, and for another, the reader and student who wishes to refer constantly to his books likes to feel near them and to be able to place his hand immediately upon a volume without even the trifling delay which is involved in unlocking, opening, and shutting a door. But if glass is dispensed with, the books ought still to be cared for. They ought to be protected by having narrow strips of leather fastened with brass-headed nails upon the edge of each shelf, and this will to a great extent preserve the tops from dust. Leather already stamped out and ornamented for the purpose may be purchased at a reasonable cost. When the library is swept, the books, writing-tables, &c., should be carefully covered with dust sheets, and tea-leaves should be plentifully sprinkled upon the carpet to keep the dust from rising. In a well-cared-for library the books should be taken down about three times a year, and lightly beaten and dusted. The shelves should then be washed and thoroughly dried before the books are returned to their places. It is well known that when black beetles take up their abode in a house, they are particularly fond of attacking the books, and sometimes do great mischief; their ravages may be to a great extent prevented by having the carpet carried under the book-cases, so that the space between the lowest shelf and the floor may be entirely filled up. (*See also* Books, Care of.)

Library Tables should be made square, heavy, and with four separate legs. *Burl* walnut is used a great deal in the trimmings, and gives this style of table a rich appearance. The upholstery is generally of plush, baize, or leather, the latter being generally preferred, leather having the elements of stolidity and hard wear about it. Green is the best colour for this purpose, as it affords a relief to the eye when that organ has become somewhat weakened from excessive use by reading or other causes. This fact is not generally known, but if any one whose eye has become dimmed from matching or comparing colours will allow the vision to rest for a moment upon a green surface, the eye will speedily recover its power, and enable the person to distinguish shades which a short time previously were quite indistinct.

Lice.—The popular name of a genus of disagreeable parasitic insects termed *Pediculi*, which live on human beings, terrestrial mammalia, and birds. They are distinguished by having a flat body, almost transparent; six legs, terminated by a claw adapted for taking hold of hairs or feathers; a mouth small and tubular, enclosing a sucker; and no wings. It would appear that animals of different kinds are infested by different species of lice peculiar to them: thus those which are found on birds are quite different to those of man. Lice fasten their eggs (which are commonly called nits) on hairs or feathers, and they stick them there with a kind of gummy substance, so that they are exceedingly difficult to get rid of. The young cast their skins several times before they reach maturity, which they are supposed to do in eighteen days. Lice multiply with most astonishing rapidity, several generations occurring in a short period. Three varieties of lice infest the human race. Of these there are the common or head-louse, which is best known; the body-louse, which is very much like it, but larger; and the crab-louse. The body-louse occurs principally in adults who are dirty in their habits, and the head-louse in children Lice emigrate from one person to another. The best antidote against them is cleanliness. When they have taken possession of a person, the best treatment that can be adopted, and one that has the recommendation both of ample experience and complete success, is the application of white precipitate, which is the bicarbonate of mercury in the form of an ointment. This kills them at once.

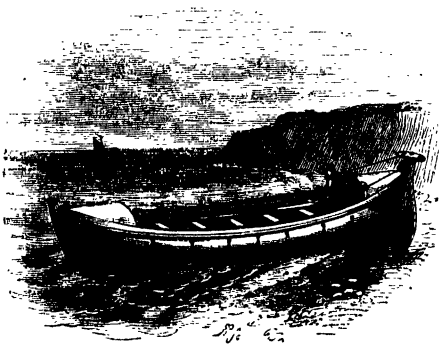
Licence.—A grant of permission or power of authority to another to do some lawful act. It may be either written or verbal. As a general rule, licences in respect of land are revocable at the will of the grantor, for they confer no interest in the land. Licences are granted for a variety of purposes, such as to keep dogs, to carry guns, to sell intoxicating liquors, for music and dancing, to sell game, &c. (*See* Assessed Taxes, &c.; Dogs, Laws concerning; Game Laws; Hawkers and Pedlars; &c.)

Lie, or Lye.—1. Water impregnated with alkaline salt imbibed from the ashes of wood. 2. A short extent of railway track by the side of the main line, connected with it at each end, into which carriages are run when not required, or on the occasion of loading or unloading them.

Lien.—A right which one man has to retain that which is in his possession belonging to another until certain demands of the person in possession are satisfied. Thus the right which a solicitor has to keep possession of the deeds and papers of his client until he has paid the solicitor's bill is termed the solicitor's lien upon those deeds, papers, &c. There are two kinds of lien—viz., particular and general. A particular lien is the right to retain the specific article itself in respect of which the claim arises. A general lien is the right to retain an article, not only in respect of demands arising out of it, but also for a general balance of account arising out of dealings of a similar nature. A lien may exist in respect to both real and personal property; but as to personal property, it is dependent on possession, and ceases when that ceases. In regard to real property, it is independent of possession, and, indeed, implies that the person claiming the lien is out of possession—*e.g.*, in the case of a vendor's lien for unpaid purchase-money, or of a purchaser for his deposit. The lien is, however, in all cases commensurate only with the interest of the person creating it.

Life Assurance. (*See* INSURANCES.)

Life-boats and Buoys.—Life-boats are constructed for the purpose of saving life at sea. They are sustained in the water by hollow tubes, barrels, or large pieces of cork attached to each side externally, and also closely built in beneath the side benches. They are necessarily of great strength, in order to resist the violent shocks they encounter, and at the same time possess sufficient buoyancy to enable them to float, though loaded with people and filled with water; facility in turning and the power of



LIFE-BOAT.

righting themselves when capsized are also essentials. Such boats are maintained at regularly-appointed stations, at short distances from each other, on nearly every part of our coasts, always ready to put to sea when vessels are seen in danger of shipwreck, and provided with means for being conveyed to the shore and launched as speedily as possible. The average expense of a life-boat station, including a ten-oared boat, life-belts for the crew, transporting carriage for the boat, and cost of boat-house, is £900, which station can be maintained at the annual expense of £70. *Life-buoys* are usually of a barrel shape, constructed so as to render their sinking impossible, and are thrown into the sea when a man falls overboard.

Lifts are machines for conveying goods or people from the lower part of a building to the upper part, or *vice versâ*. The commonest kind of lift is on the wheel and endless band principle, and is simple in construction and working, being intended for light weights only; its usual purpose being that of transporting the paraphernalia connected with the dinner-table from one floor to another. The ordinary lifts used in warehouses, factories, hotels, mansions, railway stations, &c., for lifting heavy goods, though of course made much larger, are constructed on the same principle—the cage, cradle, or platform varying from 16 or 18 inches to 12 feet square or more, and the weight they will lift being from 1 cwt. to 3 tons. In order to guard against accidents from the breaking of the ropes, a safety apparatus has been invented by which the cradle of the lift is held perfectly secure in the event of the rope or chain giving way, and no lift of any size should be erected without this or some similarly effective protection.

Light.—Daylight exercises considerable influence upon both animal and vegetable life, and also upon a good many inanimate substances. Upon those endowed with life, the effects of light are of the highest importance. The vegetable kingdom readily furnishes proof of this, as none (except some of the lower orders of plants) will flourish if deprived of the light of day. In such case the plants will pine and lose their healthy green colour, and be unable to absorb the carbonic acid which they require for their sustenance. The necessity of the light is shown by the tendency of plants to bend in the direction of the source of light, whenever they are placed, as in a room, where the windows are on one side. The blanching of celery, endive, lettuce, &c., is caused by earthing up the plant, or tying the leaves together, so as to exclude the light; an artifice sanctioned by fashion, but by which the quality of the salad is certainly not improved. In the case of cauliflowers, the turning down of the leaves to reduce the light has a practical advantage in checking the too rapid progress of the flower. The beneficial effects of light upon animal life may not be so apparent, but still it is a matter of sufficient importance to claim much more attention than it usually receives. The little sunlight that finds its way into the narrow courts and alleys of our great metropolis is partly the cause of the stunted growth and pale faces of our London children. The increased intensity of the sunlight in more southern climes (independently of their greater warmth) is one of the reasons why a winter's residence in the south of Europe is so very beneficial to many invalids. Its hygienic importance should be more studied than it generally is in the building of our houses. Most inanimate organic substances are more or less bleached by the action of sunlight; woollen, linen, and cotton goods used to be exposed with this object in bleaching-grounds,

until more rapid chemical processes were discovered. Many artificial colours produced from dye-stuffs are very liable to fade under the influence of sunlight. An opposite effect is produced upon some inorganic compounds; thus nitrate of silver, which is perfectly colourless, assumes a dark hue on exposure to light. Advantage is taken of this in photography. Iodide of potassium exposed to the sunlight suffers decomposition, iodine being liberated. The red prussiate of potash becomes darker under the influence of sunlight. It hardly needs to be added that all such substances should be kept in the dark. The electric conductivity of selenium is increased by exposure to sunlight.

Lightning Conductor. (*See* CONDUCTOR, LIGHTNING.)

Lights. (*See* WINDOWS.)

Lights, Animals'.—Those organs which in man are called lungs are in other animals named lights, probably on account of their lightness. They are eaten as a part of the pluck or fry, and as they are composed almost entirely of membranes and vessels, they contain a considerable proportion of nitrogenous matter. They are not, however, very easily masticated or digested, and they could scarcely be eaten alone. A food called "faggots" is prepared from bullocks' and sheep's lights mixed with bullocks' liver. It is very desirable that before being used as food the lights should be thoroughly cleansed, and the glands and any diseased parts there may be removed.

Lights, Artificial.—A very ancient form of artificial light is that furnished by a wick steeped in oil, and hence the works of students in the old days of Greece and Rome were often spoken of as "smelling of the midnight oil." The common clay lamps of those nations, and the more elegant bronze ones too, were generally in the form of a covered cup or boat, with a hole in the centre for pouring in the oil, and another smaller hole projecting over the lip, through which the wick was drawn. Candles are a somewhat later invention; and for many centuries these two forms, with slight modifications, were the only sources of domestic illumination. Fires of wood and coal were much used for out-door lights, and even now are sometimes to be seen. Science has, however, done much in late years in furnishing both new sources of light and improved modes of management. Both the natural and artificial hydrocarbons are now used, such as naphtha, petroleum, paraffin, ozokerit, coal-gas, camphine, &c., as well as the animal and vegetable oils and fats; and many different kinds of burners have been devised, such as the Argand and fish-tail burners, &c. More powerful lights, applicable to special purposes, have been invented, of which the most important are the oxyhydrogen lime-light and the electric light. There are also lights used mainly for scenic effects, such as the intensely brilliant light of burning magnesium, and the red one of strontium. Further information on the subject will be found under the respective headings of ARGAND LAMP; CANDLES; ELECTRIC LIGHT; GAS-LIGHT; LIME LIGHT; &c.

Lign Aloe.—The name of some tree which produced a precious perfume or gum. It is generally identified with the *Aquilaria agallochum*, which occurs in Cochin China and Northern India, attains a height of 120 feet, and produces a costly perfume.

Lignine.—This is the real skeleton or woody portion of a tree or plant; it is the insoluble residue that remains over after the plant has been treated with acid and alkaline solutions, with water, alcohol, and ether; whatsoever is not soluble in these is called lignine. Lignine is, of course, porous, because the vessels which contained the juices of the tree run through it, and it varies in hardness according to the species to which the plant belonged. In the drying of timber the wood contracts, because the watery portion evaporates. Lignine which is perfectly dry is a non-conductor of electricity; but after it is exposed to the air it speedily absorbs water, and then becomes a conductor. Although wood exposed to the effects of light, air, and water gradually and quickly decays, it may be preserved under water for any length of time; or if once fairly dry and afterwards varnished, it is also preserved.

Lignite. (*See* BROWN COAL.)

Lignum Vitæ.—This is the excessively hard wood known officinally as guaiacum (*which see*). The resin is used in medicine, and given in that form of chronic rheumatism which is called cold rheumatism.

Ligurite.—A variety of titanite, found in Liguria, in Italy. It is not to be confounded with the so-called ligure in the breastplate of the Jewish high priest.

Lilac is called by botanists the *Syringa vulgaris*, and belongs to the natural family *Oleaceæ*. The word lilac is a corruption of the Persian *lilag*, meaning a flower. The common lilac, so well known to our shrubberies, and whose sweet-scented flowers show so prettily side by side with the yellow-blossomed laburnum, was originally a native of Persia, being taken thence to Turkey, and gradually finding its way west. The lilac-tree grows to a height of fifteen to twenty feet, and very quickly too; nevertheless, if the soil is favourable, it will last for as many as forty years. We have several other species of very pretty lilacs, such as the Josikas lilac, and the pretty Persian lilac. The word *syringa* is derived from the Greek word signifying a "pipe," and lilacs are so called because the wood has been used to make the stems of Turkish pipes. Lilacs, on the whole, are very showy shrubs, and do not require any very great care in cultivation.

Lilac (Colour and Dye).—Lilac is a compound colour, produced from the blending of blue and red, and is that of the flower after which it is named and of a pale wild violet. Wool is first dyed blue and then scarlet, in the usual manner, to produce this colour, and by mixing cochineal with sulphate of indigo the process of dyeing may be performed at once. Silk is first dyed crimson by means of cochineal, and then dipped into the indigo bath. Cotton

and linen are first dyed blue, then galled, and dyed by oxide of iron.

Lille Lace. (*See* LACE.)

Lily.—The lily, or *Lilium* genus of botanists, is the type of the natural order *Liliaceæ*, and in colour may be either white, yellow, or red. The common but sweet-scented white lily is a well-known early summer flower in our gardens. At one time the flowers of this plant were used as a medicine, being supposed to possess some anodyne properties and to be of use as an anti-epileptic, and even now the roots are some-



LILY OF THE VALLEY.

times employed as emollient poultices, for which they do very well, being mucilaginous and soothing. The Turk's-cap lily is another beautiful flower cultivated in our gardens; so are the superb Martagon lily and the orange lily. They are best propagated from the root offsets, or from the seeds which give us new varieties. The transplanting should take place in autumn, when the leaves are decayed. The beautiful little lily of the valley requires greater care in its culture.

Lima Bean.—A large flat bean, grown in America on poles. It is too tender for cultivation in the climate of England, is extremely delicate in flavour, and in America is used in the manufacture of a national dish called "succotash," a delicious stew of the small white bean and the lima, when both are green.

Lime, Accidents from.—Quicklime is highly caustic and very irritating, exercising a corrosive action on the animal tissues. If any small particles get into one's eyes, all visible specks should be at once removed, and the eye-ball thoroughly washed afterwards with a little weak acid and water: vinegar will serve sufficiently well for the purpose. Lime is an antacid, and is used in medicine as such; but should over-doses be taken it will act as an acrid poison, the best antidote for which is any aërated water charged with carbonic acid.

Lime (Fruit).—This fruit (*Citrus acida*) is regarded by many botanists as a variety of the same species as the citron and the lemon. It is a native of India and China, and has long been cultivated in the West Indies and the south of Europe. In the West Indies it is grown for hedges as well as for the sake of its fruit. The fruit is similar to the lemon, but smaller in size, being only about an inch and a half in diameter. It has a thin smooth rind and an extremely acid juice, the flavour of which is regarded by many as more agreeable than that of the lemon. Limes are imported into Great Britain in a preserved state, for use as a dessert fruit. The sweet lime (*Citrus limetta*) is a variety, probably the result of cultivation, which is grown in the south of Europe. Its pulp is of a less acid nature than is that of the common lime.

Lime-juice.—The juice of the lime is imported into Britain, like that of the lemon, for the manufacture of citric acid. It is also used as a beverage, and is valued for its anti-scorbutic virtue. It is very variable in quality, being affected both by the quality of the fruit and the method adopted for the extraction of the juice. Limes yield only a small quantity of juice, and that which is freshly expressed contains a good deal of extractive matter. When, however, the liquid has stood for a time, the pulp settles, and a clear bright liquid is obtained.

Lime Light, also called Drummond light, and more familiarly known as the oxyhydrogen light, is very useful in the illustration of lectures where an intensely brilliant light, and one which at the same time will not destroy colours, is required. The usual arrangement is a lantern, in the centre of which is placed the cylinder of lime, in a line with the telescopic apparatus and lenses for throwing the objects exhibited upon the screen opposite. Upon the lime the jets of oxygen and hydrogen are directed by two nozzles, attached to the supply-pipes which pass through the bottom of the lantern, and are regulated with stop-cocks. The gases are generally held in bags made wedge-shaped, and placed between boards connected by hinges, so that they collapse like a pair of bellows as the gas passes through the supply-pipe. Upon the upper boards heavy weights are placed, so as to ensure a steady pressure of the gases. It is very important in the management of this light that the weights be equal and placed upon the gas-bags before the stop-cocks are turned on, and that they should never be removed during the course of the operation, because if by any chance the one gas should be sucked in through the supply-pipe into the other bag, an explosion would be the result. The gases by themselves would afford but a feeble light when ignited, but in presence of a piece of lime an intense brilliance is developed, the lime being rendered highly incandescent. Lime itself is so hygroscopic that it is difficult to keep it from absorbing moisture in our damp climate; and the cylinders of lime should therefore be kept in air-tight cases.

Lime-tree.—There are four species of the lime or linden-tree, of which the common lime-tree (*Tilia Europæa*) is the best known and most valuable. The wood is light, smooth, and of a spongy texture, but uniform in grain and delicately white. It is found extremely serviceable for the manufacture of light articles intended to be protected with paint. It is not liable to warp, and is therefore largely used for cutting-boards, the keys of musical instruments, for carvings, &c. The bark, cut into narrow slips and called *bast*, is used in the north of Europe for making ropes, mats, &c.

Lime-water is largely employed as a medicine. It is tonic and antacid, and destroys worms, and when mixed with an equal quantity or an excess of milk it affords an excellent remedy in the bowel complaints of children, and in vomiting produced by irritability of the stomach. It is also given to weakly children, to afford a supply of lime to their bones when they do not possess the power to assimilate lime from their daily food in a sufficient quantity. Dr. Hutchinson, of Dublin, strongly recommended an infusion of Peruvian bark in lime-water as a valuable tonic in scrofula, rickets, and extreme general debility. He asserts that it has cured several desperate cases of debility which had been pronounced hopeless. The medicine was prepared by pouring a quart of lime-water upon two ounces of coarsely-powdered Peruvian bark, and letting it remain for six hours, then straining off the liquor. When taken alone, lime-water is alkaline to the taste, but milk disguises its flavour without impairing its virtue. Lime-water may be bought at the chemist's, or it may be made at home. An easy way of making it is to pour six pints of boiling water upon a quarter of a pound of freshly-burnt lime. The liquor must be stirred or shaken briskly, and the vessel covered instantly, and set apart for three hours. Afterwards the solution can be preserved upon the undissolved lime, and the clear fluid poured off when it is wanted for use. It is a curious fact that lime is twice as soluble in cold as it is in boiling water, but the advantage of boiling the water is that it is thereby rendered purer.

Limerick Lace. (*See* LACE.)

Limestone.—A term of very extensive application, and inclusive of all the kinds of stone, &c., which produce lime. Under this head are comprised lias and oolitic limestones, chalk, sundry sorts of marble, and a large number of crystallised forms. Many of these are of great value on account of their utility or beauty. Not only are they employed in such arts as building and sculpture, but, under one form or another, in a great variety of chemical and other preparations. They help to fertilise the soil, and are among the constituents of animal and vegetable structures.

Limited Liability.—The liability of the members of a joint-stock company may be either unlimited (which it seldom is) or limited; and if the latter, then the limitation of liability is either the amount, if any, unpaid on the shares (in which case the limit is said to be "by shares"), or such an amount as the members guarantee in the event of the company's being wound up (in which case the limit is said to be "by guarantee"). Every limited banking or insurance company, and deposit, provident, or benefit society, under the Companies' Act, 1862, before it commences business, and also on the first Monday in February and in August of every year during which it carries on business, is required to state, in a certain form, the capital of the company and the number of the shares into which it is divided, and the number issued, the calls made and received, and the liabilities of the company on the preceding 1st January and 1st July, and the assets of the company on such day. A copy of this statement is to be put up in a conspicuous part in the registered office of the company, and in every branch office (25 & 26 Vict. c. 89, s. 44). No banking company claiming to issue notes in the United Kingdom shall be entitled to limited liability in respect of such issue, but shall be subject to unlimited liability in respect thereof. (*See* JOINT-STOCK COMPANIES.)

Limoges Enamel.—The style known as *Champ Levé*, practised by the early school of Limoges. According to this process the ornamental design or the figures to be filled in with colour were cut in the copper-plate or other metal to a certain depth, and a thin partition of the metal was left wherever two colours met, to prevent their running into each other, by fusion, when fired. In the *Late Limoges* style, which sprang up under Francis I. (1515-1547), the metal plate was covered with a coating of dark enamel for shadows, which was painted upon with white, and sometimes decorated with gold "hatchings," and the hands and other portions of a figure design completely coloured. These paintings in enamel were usually copied from well-known pictures and engravings of the period, the style being much influenced by that of Italian artists employed by Francis I. A degeneration shortly took place, when the last or *Miniature* style replaced it, originated by Jean Tontin, of Châteaudun, and perfected by Jean Petitot, of Geneva, born 1607, and subsequently a miniature painter, long resident in England and afterwards in Paris.

Lincoln Cheese. (*See* CHEESE.)

Linden. (*See* LIME-TREE.)

Line.—The twelfth part of an inch. For careful measurement of small objects this division of the inch is very convenient, and is often marked upon foot-rules.

Linen.—Linen is a textile fabric, manufactured from the fibres of the common flax (*Linum usitatissimum*), a plant which from time immemorial has been cultivated for this purpose. The earliest history of fine flaxen textiles is connected with the Valley of the Nile. In time out of mind the Egyptians were famous for the growth of flax, as well as for the beautiful garments they wove out of it, which became to them a very profitable article of commerce. During late years many mummies have been brought to this country from Egypt, and many of the narrow bandages in which they were swathed

were made of linen of exquisitely fine texture. We learn from Sir Gardner Wilkinson that the finest piece of mummy cloth of linen sent to England, and now in the British Museum, appears to be made of yarns of nearly one hundred hanks in the pound, with one hundred and forty threads in an inch in the warp, and about sixty-four in the woof. Linen formed parts of the garments of the Hebrews as well as of the Egyptians; nevertheless, it was from Egypt, as Solomon hints, that the Jews had to draw their fine linen. From Egypt linen passed, during the time of the Emperors, to the Romans, when the Roman priests began to wear garments of linen. During the Middle Ages, linen and woollen cloths formed the only dress materials used. The manufacture was carried to the greatest perfection in Germany and Brabant. At the present time the linens of France, Belgium, and Holland enjoy the highest reputation. The Irish, too, are remarkable for the excellence of their linen. In the ordinary varieties our own manufactures are rapidly improving, and give every promise of ere long equalling those of foreign manufacture. In Scotland, also, a large trade in the coarser linens is now carried on. Linen is remarkable for its soft smooth texture, which makes it a very agreeable article of clothing. In temperate climates it is more porous, and attracts moisture more readily, and is a better conductor of heat than cotton, and on this account it is less fitted for being worn next the skin, both in cold and hot weather, than is cotton. It feels, however, much more agreeable than calico, the latter being apt to irritate delicate skins. Besides this, linen wears and keeps its colour better than calico. Its wonderful durability is evidenced by its existence on mummies; and a German writer, Seetzen, says that he found several napkins within the folds on the covering on a mummy, which he unwrapped, and he had them washed several times without injury, and used with great veneration this "venerable linen, which had been woven more than 1,700 years."

Linen is frequently adulterated by being mixed with cotton, which is a much less expensive and a more easily wrought material. It is not easy to detect this fraud when the fabric is new, although after it has been used and washed, a cloth in which cotton threads have been mixed with linen ones never has a properly smooth, glossy appearance. Various expedients are employed for detecting the adulteration. If the fabric is unravelled and the threads are put under a good microscope, the presence of cotton threads in linen cloth is distinctly discernible. It will be found that the two fibres are quite different. Those of cotton have a flat shrivelled look, and appear something like a narrow twisted ribbon with occasional joints; those of flax are round, straight, and jointed. After the cloth has been exposed to the action of strong alkaline lyes, the fibres of cotton untwist themselves, and assume a rounded form, but they are still quite different to the linen threads. The following plan for testing the purity of linen is simple and easy of application:—Take a small piece of the cloth, and soak it for a couple of minutes or more in a boiling mixture of about equal parts of hydrate of potassium and water contained in a vessel of silver or glass. Take it out, and press it between sheets of white blotting-paper until it is perfectly dry, then draw the threads apart in every direction. The white or pale yellow threads will be of cotton, and the dark yellow threads of linen.

Linen, Bedroom.—The linen for the bedroom consists of sheets, pillow-cases, towels, counterpanes, and toilet-covers. *Sheets* and *pillow-cases* may be of cotton or linen, whichever is preferred. Linen is the more expensive, but it is pleasanter to the touch; it wears better, and it keeps its colour better than cotton. Cotton, however, is preferred by some, because it is warmer than linen. Old East Indians generally use what is called Indian sheeting—that is, fine twilled cotton. Twilled cotton is very good for winter use. Servants' sheets are usually made of cotton. A material called Bolton sheeting is very suitable for the purpose. The width of sheeting for a single bed should be sixty-six inches; for an ordinary double bed it should be eighty-eight inches wide. If the sheets are wanted to tuck in amply both top and bottom, they should be three yards long, although they are very often now-a-days only two yards and a half long. For pillow-cases, linen—even coarse linen—is always to be preferred to cotton, because it keeps clean longer. Pillow-cases may be made quite plain, with strings, or they may be trimmed with lace. *Bedroom towels* should be from thirty-five to forty inches long. If too short, they slip off the towel-rail. For ordinary use huckaback towels are excellent; they dry the skin well and make it glow. Huckaback towels with damask borders have a very good appearance; and bath towels, which will hold a good deal of water, may be bought of twice the usual size; they are, however, rather expensive. Sometimes linen diaper towels are used. They are very fine and soft, and look well, but they are objectionable, because they soon get wet through, and then they are of no use. *White Marseilles quilts* are very generally used, and when figured on both sides are very handsome, though rather heavy. What are called toilette quilts are lighter, and may be had in various qualities. For servants' beds, coloured Alhambra counterpanes are the most suitable. Eider-down quilts are now very usual; they are very warm, and at the same time very light, and can be washed again and again. When lightly laid on the top of the bed they look very handsome. Knitted quilts are pretty, but unless very carefully washed they soon get to look dark. *Toilet-covers* are frequently bought ready made. They are, however, much more likely to give satisfaction if the exact size required is cut from the piece, and the covers are made at home.

Linen, Care of.—Sheets should be thoroughly aired after they come from the wash before they are put away. This is most important, for there is nothing more dangerous than sleeping between damp sheets. They should not only be put before a good fire, but they should be turned over and about in order that every part of them may be aired. After

linen is dried it is only necessary to secure it from damp and insects. For this purpose, and also with the object of imparting an agreeable perfume to the linen, various aromatic ingredients, such as lavender, thyme, rose-leaves, powdered sassafras, &c., may be cut up, sewn in little silk bags, and laid here and there among the drawers and shelves where the linen is kept. It is an economical plan to examine and mend all linen that needs repair *before* sending it to the wash. Every article should be carefully marked and numbered, and so arranged that each one is worn in turn. When sheets grow thin in the middle, they should be cut in half down the breadth, and turned the sides to the middle. If they again grow thin they may be turned in the same way along the length. In both cases the sides must be joined neatly and the outsides hemmed. Table-cloths and table-napkins should also be examined before being washed, and the thin places should be finely darned with soft white cotton. All stains should be carefully removed. Fruit-stains may be removed by rubbing the spot on each side with yellow soap, then laying a piece of pearlash in the cloth and soaking the place in hot water; or boiling the cloth, and afterwards exposing the stained part to the sun and air until it has disappeared. Mildew may be removed by soaping the spots while wet, and covering the place and rubbing it well with finely-powdered chalk. Wine-stains may be taken out by holding the place in milk as it boils on the fire. Fruit-stains, ink-spots, iron-moulds, and other spots may be got rid of by washing the place clean, then stretching the linen over boiling water, and applying salts of lemon or chloride of lime, or sometimes even a little lemon-juice will be sufficient. As soon as the place is free, it should be well rinsed with plenty of hot water. Recent iron-moulds or ink-spots may be done away with by dropping a little tallow from a common candle upon the place before it is washed. It is probable that the oxide of iron will mix with the grease, and that the laundress in washing out the one will wash out the other also. This plan may prove effectual the second time if it does not the first, therefore it may be repeated. Some laundresses, in order to get rid of acid and fruit-stains, rub the place on both sides with yellow soap, then lay a paste of cold-water starch on the mark, rub it in, and lay it in the sun for awhile. When wine is spilt on the cloth at table, salt should be immediately thrown over it. This will keep the stain for awhile from getting into the texture, and it may be washed out as soon as the cloth is removed. When linen has been carelessly washed, and consequently has become a bad colour, its whiteness may be restored by washing it well in water to which a strained solution of chloride of lime has been added. The linen must of course be rinsed in plenty of cold water both before and after it is put into the liquid. Scorched linen may be restored by laying thickly over the damaged part a composition made of half an ounce of soap, the juice of two large onions, two ounces of fuller's earth, one ounce of dried fowl's dung, and half a pint of vinegar. Boil the mixture, and let it get cold before using it. Linen rags should be carefully preserved, as they are useful for sores and wounds. If they have become dirty and worn, they should be washed and scraped into lint.

Linen Closet and Press.—Household linen of all kinds—sheets, pillow-cases, counterpanes, towels, table-cloths, dinner-napkins, extra blankets, bed-furniture, curtains not in use, &c.—is supposed to be kept in the linen-press or closet. This press should be fixed in a dry airy situation, because nothing is so likely to make linen rotten as damp. On this account care should be taken that every article is thoroughly aired before it is put away. Each shelf of the closet should be covered neatly with clean brown paper, and a silk bag containing camphor, and another with some aromatic ingredient, should be laid upon it. A book, with a pencil attached, should be in one corner, with a record of the number of shelves, and the articles on each shelf. Any alteration that is made in the contents of the closet should be at once noted in this book. As an extra precaution, a ticket may be fastened to each shelf with the contents of the said shelf marked upon it. Linen should of course be properly sorted, and placed in piles according to its quality. Every item should be marked with the initials of the heads of the household, as well as the number of the set to which it belongs, and the date of purchase. Thus on each set of a dozen the mark might be "A. B., 12, 1878." This mark should be made in good marking-ink, as marking-cotton can be picked out. In order to secure even wearing, each article, after it has been washed, should be placed at the bottom of the pile. The contents of the linen-closet should be looked over by the mistress or housekeeper at regular and frequent intervals. When linen is worn and washed constantly it soon wears out, and therefore it is most economical to keep up the stock. When the income is limited, and there is difficulty in purchasing many articles at once, it is a good plan to put aside a small sum weekly for household linen, and with this to purchase occasionally a pair of good sheets, or a table-cloth, or something else of the same kind. As a matter of convenience, needles, coarse cotton (black and white), large scissors, curtain-rings, curtain-hooks, binding-tape, &c., should be in the linen-press, so as to be at hand if they are suddenly wanted. They may be kept in a holland bag hung from a nail at the back of the door.

Linen Damask.—It is in the department of table-linen that the manufacture of damasks, or fabrics in which figures of flowers, fruits, and other patterns are woven, has been most extensively developed. The principal seats of the manufacture on the Continent are at Courtrai and Liege, in Belgium, and also in parts of Austria, Saxony, and Silesia. Dunfermline, in Scotland, is, however, more famous for linen damasks than any other place, for it is said that the production of that one town alone is equal to that of the whole of Europe, one factory turning out more than 10,000 yards daily. The trade is carried on also at Belfast, Lisburne, and Ardoyne, in Ireland, and to a limited extent at Barnsley, in Yorkshire. In

choosing linen damask, it should be remembered that the price of each article depends upon its size, its pattern, and upon whether it is made of single or double damask. Of these two the latter is much the better. It is firmer and stouter, and throws out the pattern better, so that it has much the more handsome appearance. Besides that, it wears much longer, and is nearly double the price of single damasks. The kind of design represented affects the price. Spots and sprigs are cheaper than patterns which have a centre figure or group and a border. The designing and painting of these patterns form quite a serious item in the production of linen damask, and it is quite usual for one pattern to cost as much as £50.

Linen, Dyes for.—The same dye-stuffs are used for linen as for cotton, although it possesses less affinity for colouring matter than any other substance. Indigo is used to dye it *blue*, quercitron bark for *yellow*, and madder for *red*. *Black* is not easily produced, the linen being first dyed blue, and then steeped in a solution of nut-galls. Compound colours, such as green, purple, orange, or grey, are produced by dyeing the linen first one colour and then another, to give the required tint.

Linen, Kitchen. (*See* KITCHEN, LINEN FOR.)

Linen, Nursery. (*See* NURSERY LINEN.)

Linen Sheeting.—The manufacture of linen sheetings is carried on largely in the British Islands. The places that are most famous for them are Belfast, Armagh, and Leeds. Common sheetings are also extensively manufactured in Scotland, particularly at Dundee, Kircaldy, Forfar, and Arbroath. For choice of sheeting, *see* LINEN, BEDROOM.

Linen, Stable.—Under this head the following articles are enumerated for use in a stable:—Carriage-cloths of soft linen twelve nails square; paint-cloths of old pieces of silk; soft but coarse flannels; and saddle-cases. The last-named should be always provided for ladies' saddles, and should be made of linen or brown holland, like a bag, somewhat in the shape of the saddle they are to contain. Bags may also be provided for harness not in regular use.

Linen, Table.—Table-cloths and dinner-napkins may be bought either very expensive and of great beauty, or of merely moderate quality. The best table-linen is made of double damask, and its price will depend not only upon its size, but on the design of the pattern. Small uniform patterns, and spots and sprigs, are much less expensive than patterns which have an elaborate centre and a border round. Double damask is very much to be preferred to single damask. It is double the cost, but it wears better; it has a much handsomer appearance, because it throws out its pattern more distinctly, and it does not get soiled or creased so quickly as single damask. It is very usual now with good table-linen to have the crest or monogram worked into the material. For common wear, strong half-bleached linen table-cloths are frequently bought. They are moderate in price, they become whiter each time they are washed, and they stand a good deal of hard wear. The material may be bought by the yard. Kitchen table-cloths of huckaback are inexpensive and durable. Table-napkins of a large size are now fashionable. The medium size is twenty-six inches by thirty inches. The same rules hold good for dinner-napkins as for table-cloths. Those made of double damask are the best, and the spots and sprigs are cheaper than the elaborately-designed patterns. Tray-cloths are usually of one size—thirty-four inches by forty-three inches. Their price is regulated by their quality and pattern. A table-cloth and napkin press is most useful for keeping these articles smooth for daily use. For the preservation of table-linen, *see* LINEN, CARE OF.

Linen Thread.—Before flax can be woven into linen, it is necessary that the fibres of the plant should be reduced to thin threads of uniform size. For this purpose they are subjected to the well-known process of spinning. In olden times this work was done by hand, and the women of our Anglo-Saxon ancestors, from the king's daughters downwards, followed the occupation, the apparatus they employed being a spindle and distaff. Later, the spinning-wheel was invented, and about the middle of the eighteenth century the inventions of Hargreaves and Arkwright were applied to flax. Leeds is the great centre for flax-spinning in this country, although the manufacture of linen thread in Bohemia, Moravia, and Lombardy is of considerable importance. The thread used in sewing consists of two or more yarns, or simple spun threads united firmly together by twisting.

Linen, Washing. (*See* WASHING AND DRYING CLOTHES, &c.)

Lines.—Very good clothes-lines may be bought at the oil-shops for a penny or three halfpence per yard. They should be taken in as soon as they are done with, wiped dry, and twisted round the hand and elbow of the laundry-maid before they are put into the bag. When wanted again they should be passed through a coarse cloth before being used. When they get very dirty they may be put into the copper and boiled with the dusters, then dried, and this will make them clean again.

Ling (Fish).—This fish, which is called by naturalists the *Lota molva*, and belongs to the family *Gadidæ*, is second in value only to the cod itself. It is somewhat like the hake, but has a longer body, being from three to four feet long. The under parts are a silvery colour, the sides and back a greyish or olive-grey hue, the body is roundish, the head flat, with a large mouth, and an under jaw shorter than the upper, and possessed of a single barbule at the point. It is decidedly a fish of the northern seas, being most plentiful among the Orkney Islands and western isles of Scotland, although it is also found in the north Irish coast, and also on the shores of Yorkshire.

The ling is caught by hand-lines, and is split, salted, and dried, and thus got ready for the southern markets. Spain consumes very large quantities of this fish, so do the poorer districts of Scotland. The air-bladder is called the "sound," and is prepared and sold separately, and greatly esteemed, as much so probably as that of the cod.

Ling (Plant).—This is a name given to the *Erica vel Calluna vulgaris*, belonging to the natural family *Ericaceæ*, but more commonly known by the name of heather. It covers large districts of what might be called waste land if it did not form cover for game. It is more especially common in the Scottish Highlands. Its uses are many and varied. Growing, it helps to feed both sheep and deer, as well as to give shelter to birds. Hives of bees from such towns as Glasgow and Edinburgh are sent to the heather districts in the season, and the honey the bees make therefrom is the best in the world. Sheaves of heather in bloom are used in the northern towns to build triumphal arches, when required. It is also used by the Highlanders for beds, the little sheaves or bundles of heather being placed close together, with the bloom uppermost; it is also used for bedding for cattle, for making brooms, and to thatch houses, nothing being so durable.

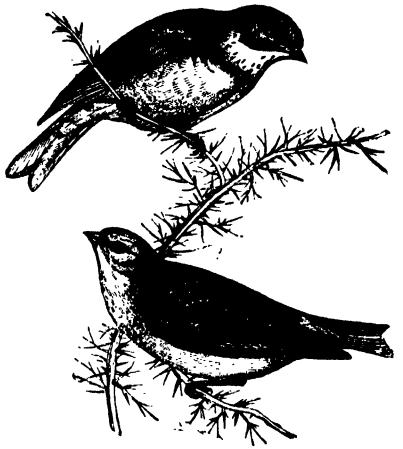
Liniments.—These are medicinal agents, used externally in the form of rubbing, with varying efficacy. (*See* EMBROCATIONS.)

Linings.—Glazed cambrics are used for chintz, and calico is best for the linings of linen cuffs and collars, because it retains stiffness better than linen. For dress bodies a material known as silesia should be chosen, because it is soft as well as thick. For skirts, starched mull and Victoria lawn are the best adapted; they are not so harsh and stiff as crinoline, nor so soft as ordinary book muslin. Some styles of dress demand softer materials for linings than others. For silk linings, sarcenet is the most suitable, being not so close and thick as silk. Persian silk is a material made for this purpose; it is the cheapest, but as it is very thin it is consequently soon worn out. As a rule, linings should be thinner than their coverings; it is always necessary to fix the two together very exactly before they are finally sewed together, and they should both be cut the same way of the material, both be of the same size, and be tacked together previously to being sewed. If these precautions are not observed, the outer coverings will wrinkle, pucker, and fall away from the linings, and thus the appearance of the whole will be disfigured.

Link. (*See* LAND MEASURES.)

Link.—A name given to a torch composed of tow or hards, &c., and pitch.

Linnet. — This is one of the sweetest singers of our groves. The song too is always beautifully varied, and the bird is very easily domesticated. Linnets build in hedges, in thickets, furze, spruce fir and other trees, if they are low enough. The young must be taken from the nest in spring-time, just before the feathers peep through their sheaths. After being removed, they must be put in a warm roomy artificial nest, and covered with a bit of cotton wadding, and fed every two hours from sunrise till evening on moistened white bread, mixed with a little hard-boiled egg, and well-



LINNETS.

soaked rape-seed. They will soon get their feathers, and be able to hop about and feed themselves; then their food, to keep them in health, must be somewhat varied. Canary-seed and rape-seed may always be within their reach, but hemp-seed is too fattening, unless they are permitted to fly about the room. A little green food, such as chickweed, groundsel, lettuce, &c., should also be given. Three things linnets ought to have in their cages: a bit of chalk, which instinct will teach them to peck at, if diarrhœa comes on; a water bath; and a little box of sand to clean themselves in, the two last-named articles being frequently changed. The males have more brown on the back than the females; and if you hold one in your hand, and on stretching out the wings perceive that the white on several feathers extends right up to the quills, that is a proof the bird is a male. Moreover, the male is somewhat bigger than the female. Linnets ought not to be confined in close, hot, stuffy rooms, else they are liable to asthma, which only a change of food and air will remedy.

Linoleum is a peculiar preparation of linseed oil hardened or oxidised, mixed with ground cork, pressed on canvas by rollers, then painted and printed, and used for floor-cloth. Linoleum is by many preferred to ordinary oil-cloth, because it is not so cold, it is noiseless, and it is impervious to damp.

Linseed.—This is the seed of the *Linum usitatissimum*, or common flax. It is largely imported into Britain from India and the continent of Europe for making linseed oil and oil-cake. These seeds are very mucilaginous, and linseed oil is expressed from them. The oil-cake that is left after expression is useful for feeding cattle and poultry. Linseed meal, which

is so valuable for poultices, is made by grinding fresh oil-cake to powder; but it is much better if made by grinding the seed itself, because then it still contains the oil. Linseed tea is largely used in bronchial, urinary, and other affections of a like nature. It is made by soaking the seed in boiling water with liquorice root, and the strained liquor becomes a mucilaginous drink, which possesses demulcent properties, and allays irritation of the lungs and throat. It may be rendered more palatable by the addition of sliced lemon and sugar-candy.

Linseed Oil may be readily obtained from linseed by expression. It is usually amber-coloured, but when pure it is colourless. It has a disagreeable odour and smell. It is chiefly remarkable for drying rapidly when laid on any surface which is exposed to the air, and on this account it is largely used in making paints and varnishes. Cold-drawn linseed oil, or that which is made without heat, is purer, but does not keep so well nor dry so quickly as that made by the aid of heat.

Linsey-woolsey.—This is a very strong and durable material which has for a long period been manufactured; it is made of flax and wool. Its appearance is somewhat coarse, harsh, and dingy in colour; it is used for gowns and skirts by the poorer classes, on account of its cheapness and serviceable qualities. In the present day, serge has in a great measure taken its place.

Lint (Anglo-Saxon, *linet*, flax, hemp).—A species of linen manufactured of flax and of hemp, ravelled or scraped into a soft substance, and employed for the dressing of wounds and sores. (*See* CHARPIE.)

Lintel.—By this term is understood a piece of stone or wood placed over a doorway in a horizontal position to support the superincumbent weight above a door or window.

Lip-salves.—These are:—1. *Rose lip-salve.* This is prepared as follows: Oil of almonds three ounces, alkanet half an ounce; digest with a gentle heat, and filter. Melt one ounce and a half of white wax and half an ounce of spermaceti with the filtered oil; stir it until it begins to thicken, and then add from twelve to thirty-six drops of attar of roses. 2. *Peruvian lip-salve.* This is made in the same way as the preceding, only substituting twenty or thirty drops of Peruvian balsam for the attar. Eight drops of oil of lavender may be added. 3. *Grape lip-salve.* This is also called *pommade au raisin pour les lèvres.* It is thus prepared: Put into a glazed earthen pipkin half a pound of fresh butter, a quarter of a pound of yellow wax, one ounce of alkanet, and three bunches of black grapes; boil together, and strain without pressure through linen. 4. *French lip-salve.* This is composed of lard sixteen ounces, white wax two ounces, powdered nitre and alum of each half an ounce, and a little alkanet. 5. *German lip-salve.* This contains butter of cacao half an ounce, oil of almonds a quarter of an ounce; melt together with gentle heat, and add six drops of essence of lemon.

Lipogram. — Compositions in verse or prose in which a particular letter is omitted throughout (Greek, *leipō*, I omit, and *gramma*, a letter). Great ingenuity was wasted among the ancients in the production of lipogrammatic writings. As an instance may be mentioned the *Odyssey* of Tryphiodorus, in the first book of which the letter *a* was omitted, in the second the letter *b*, and so on.

Lips, Ailments of.—The most common of these are hare-lip, cancer (epithelium), chaps, &c. (*See* FACE, AILMENTS OF.)

Liqueurs.—Distilled spirituous liquids, sweetened and flavoured with fruit essences, aromatic and other substances, are named liqueurs. It is probable that they were first made during the Middle Ages, in the course of the search for the quintessence and elixir of life, although Frenchmen declare that they were invented to comfort the old age of Louis XIV. Long before that monarch was born, however, Sully complained that the French wasted their money on liqueurs; and there is an old recipe of the time of Chaucer which directs that a fowl should be served with aqua vitæ poured over it. It is a curious thing that the religious orders have been patrons and manufacturers of various liqueurs, although at the present day there are only two which are really produced by them. These are Chartreuse, made by the Carthusians of the monastery near Grenoble, and Trappistine, distilled by the fathers of the grace of God in the Doubs. Liqueurs are chiefly used as stimulants at the end of dinner, and some of them are employed as appetising agents. They improve with age, and, unlike ordinary wine, should be placed on their ends in the cellar, instead of being laid down horizontally. The French divide liqueurs into three classes—ratafias, or simple liqueurs; oils, or fine liqueurs, which contain a larger proportion of saccharine and spirituous matter; and creams, or superfine liqueurs. Sometimes the same aromatic infusion gives its name to two liqueurs, according to the proportion of the constituents. There is a large variety of liqueurs, of which the following are some of the more important:—*Absinthe* (*which see*). *Acqua d'Oro.* The oldest of the very sweet liqueurs, which was invented by the Italians in the thirteenth century, and brought into France in 1533 by Catherine de Medici. It was thus named because the makers dissolved chips of gold leaf in it, so that it might be really true that to drink Acqua d'oro was to drink gold. *Alkermes* and *Anisette* (*both of which see*). *Benedictine.* A liqueur said to have come from the Abbey of Fécamp, which abbey is really a private factory, the owner of which trades in the religious name. Benedictine is labelled with the sign of the cross, and is consecrated with the letters A.M.D.G. (*Ad majorem Dei gloriam*). *Clove Cordial.* Flavoured with bruised cloves, and coloured with burnt sugar. Much sold in the London gin-shops. *Chartreuse* (*which see*). *Crème de Menthe.* A liqueur flavoured with oil of mint and oil of citron, and coloured with saffron and indigo. *Crème de Myrobalanti.* A French product, named from some preparation of the myrobalan nut or kernel. *Crème de Noyau*, or *Noyau.* A sweet cordial flavoured with bruised bitter almonds, and

sometimes with the kernels of the peach, apricot, or cherry. In Turkey the kernels of the Mahaleb cherry are used for this purpose. *Crème de Rose.* Flavoured with oil of roses, and coloured with cochineal to a bright red. Some have thought that this is an imitation of Rossolis, a liqueur which was very popular in France 250 years ago, and which was flavoured with sundew. *Crème de Thé.* A foreign liqueur, owing its name to the alleged presence of one of the active principles of tea. *Curaçoa* (*which see*). *Elixir de Spa* and *Elixir de Vichy.* Supposed to be impregnated with the virtues of the mineral waters of the places from which the names are derived. *Kirschwasser.* An excellent and wholesome liqueur, which owes its properties to the cherry. It is sometimes fiery in taste, but it is really more simple than maraschino, which is also made from cherries. *Kümmel*, or *Doppel-Kümmel*, which is the principal liqueur of Russia. It has a pleasant stimulating taste, and consists of sweetened spirit, flavoured with cumin and caraway-seeds, principally the latter. There are two qualities of Kümmel. That in common use is made at Riga; the better sort is manufactured in small quantities only at Weissenstein, in Esthonia. The difference between the two is in the quality of the spirit used. When Russian Kümmel is old, it forms crystals at the bottom of the bottle. *Maraschino.* A bitter-sweet liqueur, made from the kernel of the Marasca cherry, which is grown only in Dalmatia. This cherry is largely cultivated around Zara, where the liqueur is chiefly made. The small black gean is fermented first with honey, and afterwards with the leaves and kernels of the fruit, and great care is taken to avoid injury to the delicate flavour. *Parfait Amour* contains a number of aromatics. The late M. Kettner says:—"This, unhappily, is a liqueur which lives by its name and nothing else. We all like to taste that unknown bliss, which is not to be found on earth, and we hope to find its semblance in the bottle. The liqueur is too true as a satire. Starting with the idea that love is a bitter-sweet, Parfait Amour is made of the bitter zest of limes, mollified with syrup, with the spirit of roses, and with spicy odours. It is, in fact, a kind of orange-bitters spoilt. Whoever drinks of Parfait Amour says, 'This is a mistake.' And therein lies the success of the liqueur; it has a rosy colour; it has a fine name; and it is nought." Besides these, we may mention *Peppermint*, a common liqueur, much favoured by the lower classes in London, and consisting of sweetened gin, flavoured with essential oil of peppermint; and *Vermouth*, a liqueur made of wormwood, infused in a light Hungarian wine called St. George.

Liquidation.—By the Bankruptcy Act, 1869, a person unable to fulfil his engagements, instead of becoming a bankrupt, may, under section 125, call his creditors together and prevail upon them by special resolution to declare that his affairs shall be liquidated by arrangement. A trustee is accordingly appointed, with or without a committee of inspection, and that being done, the general provisions of the Act, as to the proof of debts, &c., are applicable in the liquidation. The property of the liquidating debtor vests in his trustee, who has the same powers as a trustee in bankruptcy. The winding up of the liquidation and the discharge of the debtor depend upon the creditors, who may make a resolution to that effect at a general meeting. The next two sections of the Bankruptcy Act, 1869 (sects. 126 and 127), relate to a debtor making a composition with his creditors; this avoids both bankruptcy and liquidation, and may be carried by an extraordinary resolution of a majority in number and three-fourths in value of the creditors. (*See* BANKRUPTCY; COMPOSITION.)

Liquids as Food. — A liquid food is valuable (1) when mastication cannot be properly effected in the mouth, owing to infancy, disease, or natural decay; (2) when the digestion is bad, and solids are rejected; (3) when there is a state of ulceration, cancer, or other disease of the digestive organs; and (4) when there is a feverish state of the body. Wine, brandy, beer, &c., are classed as auxiliary food, and under certain conditions of health are of immense benefit. They are not, however, as liquid food or drink necessary to life. Water is the only liquid which can be said to be so. (*See* DIET; FOOD.)

Liquorice.—The fresh or dried root or underground stem of *Glycyrrhiza glabra.* The ancient Greek name signifies "sweet root," and from it liquorice and other modern names are derived. Liquorice is a native of the south of Europe and of many parts of Asia. It has been cultivated in England since the time of Elizabeth. It has a sweet taste, and is expectorant, diuretic, and slightly aperient. The extract, or Spanish liquorice and Spanish juice of the shops, and the solution, form popular domestic remedies for coughs. Both by the ancients and the moderns, liquorice has been employed as an emollient and a demulcent. The roots are also largely used by porter brewers.

Liquors, Fermented.—These are liquors which have undergone the process of fermentation, which may be described as a chemical metamorphosis by means of which alcohol and carbonic acid are formed. Alcohol does not exist ready formed in nature; it is always produced by art. The essential compound out of which it is made is sugar, which is a natural product found in all vegetables, and starch, which is more abundant than sugar. When sugar is fermented it breaks up, and is re-formed into alcohol and carbonic acid. The carbonic acid escapes as a gas, but the alcohol remains, and it is the basis of the fermented beverages known as wine, beer, and spirits. All fermented liquors exert a marked influence on the functions of the body, and they differ in their effects according to the constituents that are associated with them. Much divergence of opinion has prevailed on the question as to whether fermented liquors are beneficial or otherwise in their action. When taken at all, they are undoubtedly best as a restorative after work, rather than as a stimulant before work; and in moderate quantity they increase the activity of the

circulation, and cause the heart to beat more rapidly, and therefore are most valuable as medicines. But when taken regularly as beverages, they, to use the words of Dr. Lankester, are liable to "seriously interfere with the functions of absorption, injure the coats of the stomach, prevent the proper nutrition of the system, and lay the foundation of incurable disease."

Liquors, Spirituous.—When fermented liquors are warmed, the vapour which comes from them contains much of the spirit or alcohol that is present, and if this be collected and cooled it assumes the form of a liquid, which originally received the name of spirits of wine. This operation is known as distillation, and the product is called distilled spirits. As the heat is continued and the alcohol passes away, it is accompanied by other volatile products, ethers and essential oils, which are volatile like itself, and which are easily dissolved by it. The odour and flavour of spirituous liquors vary with the source from which the spirit is obtained, and this accounts for the difference in the various spirits that are supplied for use. Of these the best known in this country are brandy, whisky, gin, and rum, each of which is referred to separately. Besides these, many other kinds are of use in different parts of the world. Spirituous liquids present the worst form in which alcohol can be introduced into the system. This is not only on account of their strength, but also because of the absence of those constituents which modify in other beverages the effect of alcohol, and because of the presence in them of fusel oil, a liquid more active than alcohol, and exceedingly deleterious in its effects.

Liquors, Unfermented.—"A supply of water under some shape or other," says Dr. Pavy, "is one of the essential conditions of life. It is just as needful as solid matter. It not only enters largely into the constitution of the different parts of the organism, but is required for various purposes in the performance of the operations of life. Without it there could be no circulation nor molecular mobility of any kind. It forms the liquid element of the secretions, and thereby the medium for dissolving and enabling the digested food to pass into the system, and the effete products to pass out." Although liquids of various kinds are consumed, water forms the essential basis of all drinks. Many of the beverages employed, however, contain special properties for the sake of which they are valued. The various liquids of the alcohol class are amongst these. In addition to them there are exhilarating and restorative beverages which are not alcoholic in their nature, and these are largely consumed and exert a great influence on the condition of mankind. The best known of these are tea, coffee, and cocoa.

List.—This is the rough edge which always borders flannel of all kinds. When flannel is used the list is torn off; but although considered a disfigurement to flannel in general, various uses can be made of list: grey list can be run in close strips on calico stays for the children of the poor; scarlet list can be made into little boots for infants; pink list makes warm and soft garters, and list of all colours is useful for loops when nailing trees to walls. List is an Anglo-Saxon word which means border or strip.

Litany.—A solemn form of supplication used in public worship (Greek, *litaneia*, supplication). The term seems to have been first used by the Eastern Church to denote a special form of prayer used on particular occasions. The Litany in the Book of Common Prayer of the Church of England is principally translated from the forms of the litanies of the Western Church in early use in this country.

Literates.—Literally, men of letters. In this country, however, the term is used to denote those persons who are admitted to holy orders without having previously taken an academical degree.

Lithiasis.—This is the term sometimes used to express a condition of the body in which there is a tendency to the deposit of lithates in the urine from the presence of lithic acid in the blood. It is, in other words, the gouty condition.

Litharge.—The protoxide of lead; a scaly substance of a yellowish colour produced in the course of smelting lead ores, and more largely in the separation of silver from lead by cupellation. It is used as a pigment, and by the manufacturers of glass and earthenware. To the metallurgist it possesses properties of considerable value, as it forms fusible compounds with some of the metallic oxides which are infusible by themselves, and thus enables them to be readily separated from others. Though valuable as a flux, it has to be used with care, as it speedily penetrates and destroys the crucibles in which it is melted.

Lithography.—The art of tracing letters, figures, or other designs on stone, with a view to their transference to paper. The tracing, or drawing, is made on a slab of limestone having a sufficiently hard, smooth, and absorbent surface to fit it for the purpose; and a chalk pencil or specially prepared ink is generally used. The drawing, or tracing, having been carefully made, a weak solution of nitrous acid is then poured over the stone, with a view to render the alkali contained in the chalk insoluble in water. A solution of gum is next poured over the face of the stone, and when this is washed away, the drawing will be found no longer removable. All is now ready for the taking of impressions, which are obtained as follows:—The printer damps the whole surface of the stone with a wet sponge, but water is only absorbed by those portions of it unoccupied by the drawing. An ordinary printing-roller, properly prepared with printing-ink, is next passed over the stone, and ink is retained only by those parts occupied by the drawing and which are *dry*, while all the rest of the stone, being moist, declines the greasy ink altogether, on account of the antipathy existing between oil and water. Damped paper is next placed on the stone, and pressure is brought to bear on the whole; the ink is transferred from the stone to the paper, and a correct representation of the original drawing, or tracing, is obtained. There are many various modes of lithography,

such as, for example, for colour-printing, when several stones—one for each colour—are used to produce one perfect impression; but the main principle is in all cases the same.

Litmus.—A blue pigment derived from the *Rocella tinctoria*, *Lecanora tartarea*, and some other lichens. The colouring matter is soluble in alkaline liquids, but only partially so in water or alcohol. Paper tinged blue by being steeped in a solution of litmus is at once turned red by the feeblest acids, but can be restored again to a blue colour by the action of an alkali. Hence litmus paper is much used by chemists as a convenient test of the acidity or alkalinity of solutions.

Litre.—The standard measure of capacity in the metric system of weights and measures. It contains 61·027 cubic inches, and is equivalent to ·22 or $\frac{22}{100}$ of an imperial gallon, or rather more than $1\frac{3}{4}$ English pints. (*See* METRICAL SYSTEM.)

Litter.—This was a covered carriage moved by men or horses, being suspended by straps slung over poles projecting either at the sides or in front and behind. The bearers, if men, passed the straps over their shoulders and grasped the poles, or carried it with the handles of the poles on their shoulders. When horses were employed, the litter was either swung between them as they stood side by side, or they were arranged one before and one behind. Men and horse litters were used in England as late as the time of Queen Elizabeth.

Liturgy.—The established ritual regulating the public services of the Church, the word being derived from the Greek *leitourgia*, divine service. In the early days of the Church the term denoted only the mass or communion service, and it was so used by ancient ecclesiastical writers. In the Church of England, however, the word *liturgy* is used in a wider sense, and comprehends the whole of the authorised services of the Church for all occasions throughout the year.

Liver, Ailments of.—These vary from simple disorder to the most serious disease. We shall describe a few of the more important:—1. *Congestion of the liver.* This is a condition which usually precedes but is not necessarily followed by cirrhosis, or nutmeg liver, so called because it presents a nutmeg appearance when cut. The most frequent cause is valvular disease of the heart, but it may result from exposure either to excessive cold or heat, or from habits of intemperance. The symptoms are a bulging of the liver, sallow skin, foul tongue, constipated bowels, and feeble pulse. The treatment is to regulate the diet by plain living, to take plenty of exercise, and keep the bowels relieved by occasional doses of blue or Plummer's pill, and a course of Friedrichshall water. 2. *Inflammation of the capsules of the liver.* This is called perihepatitis, and is usually the result of inflammation in adjacent parts, as in pleurisy, peritonitis, &c., the treatment for which will include this also. 3. *Acute inflammation of the substance or connective tissues of the liver.* This usually results from some blood-poison, as pyæmia, typhus, scarlet fever, or malaria. It may also occur after violent mental excitement or during pregnancy. It is a serious condition, requiring the most skilled advice. 4. *Chronic inflammation of the substance of the liver.* This is called cirrhosed, indurated, hob-nailed, or gin-drinker's liver. The most frequent cause of this form of liver disease is excessive use of alcohol. The symptoms are a foul tongue, feeble digestion, leaden-coloured or slightly jaundiced skin, flatulence, tenderness over the stomach and right side, and occasional feverishness. When these symptoms are associated with a history of habitual excess, the presumption is that the condition is one of cirrhosis, or hob-nailed liver. The treatment consists in complete abstinence from alcoholic drinks, in a plain wholesome diet, and in keeping the portal system relieved by saline aperients, as sulphate of magnesia or Friedrichshall water. 5. *Abscess of the liver.* This is a rare disease in this country, but occurs in hot countries, and is then generally a sequence of dysentery. (*See* DYSENTERY.) 6. *Increased secretion of bile.* This is what generally receives the name of bilious diarrhœa. It is characterised by bilious stools, a foul tongue, bitter taste in the mouth, and a hot sensation of the anus. It is first relieved by small doses of grey powder, followed by saline aperients, as magnesia, &c. 7. *Degeneration of the substance of the liver.* Of this there are three kinds—viz., (1) amyloid, waxy, or albumenoid; (2) fatty; and (3) pigmentary. 8. *Jaundice.* (*See* JAUNDICE.) 9. *Acute atrophy or wasting of the liver.* The symptoms of this formidable disease are at first those of a severe bilious attack; these are, however, soon followed by jaundice, vomiting, and delirium. The bowels are constipated, and the stools clay-coloured; the urine deposits a greenish precipitate, is dark and tarry, and when examined gives needle-shaped crystals of abnormal constituents called tyrosine and leucine. Hæmorrhage is apt to occur, and death generally supervenes within a week. After death, the liver is found very much wasted, sometimes to the extent of more than one-half. The treatment consists in the use of purgatives, and in leeching and cupping when the pain is severe, but can at the best be only palliative.

Liver, Animals', as Food.—The liver of the calf, lamb, and pig is largely consumed by man; and though it is not equal to flesh as food, it furnishes a considerable proportion of nutritive elements. It is usually fried, and thus prepared forms a rich and savoury dish; indeed, it is so rich that it is apt to disagree with the delicate stomach. The liver of the ox and pig is coarser in its nature, and is rarely eaten in England excepting by the poor, although in Scotland it is used in the preparation of haggis. It is highly desirable that liver should be cut into slices and closely examined before it is eaten, because it is apt to be infested by a parasite of the hydatid class. As this is distinctly visible, however, it may be avoided. *Pâté de foie gras*, or patty of fat liver, which is so highly esteemed as an article of luxury, is obtained by fastening a live goose to a board, and putting it very near a fire or stove, then

feeding it on oily food, and allowing it no fresh air or exercise. After a time the liver of the unfortunate bird grows fat, big, and diseased; and then the goose is killed, and the liver is made into a pie, or potted. This dish, from its highly fatty nature, is exceedingly indigestible.

Liver (in Chemistry).—A term used in the old Pharmacopœias, because certain preparations were liver-coloured. Thus the sulphuret of potassium was called liver of sulphur—an article applied externally for the cure of the itch and other cutaneous affections. Liver of antimony is a compound of the oxide and sulphuret of that metal; it acts as an emetic, but is not much used now, as other antimonial preparations are considered preferable.

Livery.—This term is applied to clothes given by a master to certain servants in his employ. A livery partakes of the nature of a uniform, and is useful, not only as indicating the position occupied by its wearer, but in many other cases, especially when characteristic of a particular rank or office. The wearing of a livery is constantly associated with dignities of every class, and is usual with officials connected with public buildings and institutions of all sorts. Its variations of colour, pattern, and material are almost innumerable. In its wider application, the term livery is applicable to the robe, or dress, worn by the children of a public school, by clergymen, by members of guilds and corporations, by aldermen and mayors, &c. Even naval and military uniforms are really liveries. Formerly the word was applied to a specified allowance of food.

Livery Servants.—Servants who wear the distinctive dress or livery provided by their employers. The following are the menservants who usually come under this denomination in families:—Coachmen, footmen, grooms, postilions, pages. Livery servants find their own linen, gloves, stockings, and shoes.

Liveryman.—In the City of London a liveryman is one who is entitled to wear the distinctive dress or livery of the Company to which he belongs, and also to enjoy certain other privileges, such as voting at elections of lord mayor, sheriffs, chamberlain, and some other superior officers.

Llama. (*See* LAMA.)

Loach.—This is called the *Cobitis barbatula*, and belongs to the natural family *Cyprinidæ*. It is a very small fish, not being over four inches long, of a yellowish colour, speckled with brown, and has six barbules springing from its upper lip, hence its Latin name. Loach spawn early in spring, are very fond of stony parts of the river, whence they are sometimes called the stone-loach. They feed at the bottom. The loach is said to be a very restless fish in stormy weather, quitting the bottom and rising to the surface, which they keep in a state of agitation by their movements. More rarely found is the *Cobitis tænia*, or groundling, which, however, some naturalists place in another genus. The common loach, although so small, is nevertheless a very dainty fish for the table. It is also used for bait for perch, eels, pike, &c., and is caught with gentles or worms, and small hooks.

Loadstone.—The magnetic or black oxide of iron; called by mineralogists magnetite. It is a very abundant ore, found in all parts of the world, and is of great commercial value, as it contains the large proportion of 72 per cent. of metal, and yields the finest qualities of iron and steel. The Swedish iron, which commands so high a price in the English market, is made from the magnetic oxide. The power of the loadstone to attract iron was known to the ancient Egyptians, though they did not apply it to any practical purpose. It is described by Aristotle and Pliny. In the Middle Ages superstitious powers were attributed to it, and it was applied to the cure of diseases. The Chinese at a very early period used it to indicate the direction of the North Pole; and were thus the first, as far as is known, to turn to a scientific use the natural magnet. Artificial magnets are now always used in preference to the loadstone.

Loaf.—A portion of bread baked is called a loaf. The size and price of a loaf are in some cities regulated by law.

Loam.—By this name gardeners understand a mixture of different kinds of earths, the chief of which consist of silicious sand, clay, and chalk, or carbonate of lime. Iron, magnesia, and various salts exist in loams also, but are seldom found in proportion sufficient to alter their nature to any important extent. Decayed vegetable and animal matter give them richness when present in any considerable quantities. In mineralogy, loam means a clay in which silex predominates to a remarkable extent and in a minute state of division. The word is derived from the German *leime*, viscid earth.

Loan Societies are institutions founded for the purpose of advancing money on loan to the industrious classes, repayable by instalments with interest. By 3 & 4 Vict. c. 110 (continued by 21 and 22 Vict. c. 19, and made perpetual by 26 & 27 Vict. c. 56), forms of proceeding of a similar nature to those prescribed in the Acts regulating Savings Banks and Friendly Societies are requisite to enable loan societies to avail themselves of this Act, as to which, see the Friendly Societies Act, 1875 (38 & 39 Vict. c. 60). These societies are entitled to issue debentures for money deposited with them (otherwise than by way of gift), and these, as well as all other notes and instruments given in pursuance of the Act, are exempted from stamp duty. They are also placed on the same footing as savings banks in the event of the death of a claimant intestate, who is entitled to less than £50, the production of a will or letters of administration not being requisite. The amount which these societies may advance is £15, and no second loan can be granted until the first is repaid. The society is permitted to receive, by way of discount at the time of the loan, interest under its enrolled rules not exceeding 12 per cent, and to receive the principal by such instalments as the rules specify, so that the first repayment shall not be due

earlier than the eleventh day from the time of the advance. With regard to the recovery of loans, the Act has provided a form of note to be signed by the borrower and two sureties; and upon failure in payment the person liable may be summoned before any justice of the peace, who may levy by distress and sale of the goods. The society (by its treasurer) may proceed against the person liable in any County Court having jurisdiction, and, where the sum due happens to exceed the amount for which the Court has jurisdiction, may recover such part of the debt as that Court can give judgment for, in lieu of the whole. An abstract of the accounts is to be made out yearly to the 31st December, and sent during January to the proper authority to be laid before Parliament.

Loans.—A loan is a sum of money, or anything else, lent to another on condition of return or repayment. If effected by the State it is called a public loan. Our National Debt has arisen from the practice of raising money to defray extraordinary expenses in time of war. As to private loans, to constitute the contract of loan there must be (1) a loan of either goods or chattels, in contradistinction to a sale or deposit of a thing with another for the sole benefit or purposes of the owner; (2) it must be lent gratuitously; (3) it must be lent for the use of the borrower, which must be the principal object and not merely accessional; (4) the property must be lent to be specifically returned by the lender, at the determination of the bailment, and in this respect it differs from a loan for consumption, where the thing borrowed, such as corn, wine, oil, or money, is to be returned in kind. (*See preceding paragraph.*)

Lobe.—The soft rounded prominence at the bottom of the human ear; the part which is pierced for those who wear ear-rings. The term is also applied to the divisions of the brain, liver, lungs, &c.; and in botany to the rounded projections or divisions of leaves. Objects which are lobed are described as lobate.

Lobelia.—This is the name given to a genus of plants which belong to the natural



LOBELIA.

order *Lobeliaceæ*. Some of the lobelias, such as the scarlet and blue, form very pretty garden flowers. The seeds are first sown in boxes, and barely sprinkled with dry peat earth; the boxes ought to be well sheltered from frost, and the plants, when they come up, kept moistened. They are planted out when hardy enough, and flower from July till October. But the most important plant belonging to this genus is the *Lobelia inflata*, called Indian tobacco. The plant grows only about a foot in height, and is an annual or biennial. It is a native of North America. It is used in medicine, either in the form of tincture or powder; perhaps its greatest value is in cutting short an attack of asthma, if given at the commencement, so as to produce nausea and vomiting. It is, moreover, used in whooping-cough, croup, &c. It should only be prescribed by a qualified practitioner.

Lobsters.—These favourite shell-fish, a genus of crustaceans, belonging to the order *Decapoda*, were known to and eaten by our ancestors at least four hundred years ago. They are found in great plenty on the rocky coasts of Britain and most parts of Europe, and are too well known to need description. Their



LOBSTER.

price is higher and they are more delicate in flavour than crabs (*which see*), although at the same time they are more difficult both to masticate and digest. Dr. Edward Smith says:—"It may be doubted whether there are any foods which are so little desirable in a sanitary point of view, or which so frequently cause indigestion, yet they are extremely popular as a change of food and a luxury, and are as agreeable to the eater as useful to the doctor. They consist chiefly of muscular fibre which is not rich in oil, so that they are most frequently eaten with oil and condiments in the form of lobster salad, and should be cut into very thin slices and well masticated." Lobsters are at their best from October to the beginning of May. When living, they are of a bluish-black colour, beautifully clouded and varied, but when boiled they become of a nearly uniform red. Like crabs, they change their shells every year, and for a short time before their moulting they appear sick, languid, and restless, and lie torpid. This is their period of growth, and it is said, if the old and new shell of a lobster be compared, the latter will be found to be one-third larger than the former. The female or hen lobster is in great request, for the sake of the spawn or eggs which belong to it, and which are used for making sauce. These eggs are small and round, and lie under the tail;

they are black in their natural state, but become a bright red when boiled. Another part of the animal which becomes a bright red on boiling is the coral, or ovary. It is used for garnishing. The flesh of the lobster lies chiefly in the tail and claws. That of the tail is firmer and closer, but less tender, delicate, and digestible than that of the claws. The quality of a lobster is determined by its weight. A light lobster is not a good one. When fresh, the tail of the animal is drawn under it and springs back when it is let go; when stale it hangs limp. Lobsters are only fit to eat when they are freshly boiled. The lobster is so highly esteemed that, in a commercial point of view, it is the most important of the crustaceans. Government commissioners report, however, that these fish are getting fewer and smaller every year.

Local Government.—The Local Government Board Act, 1871 (34 & 35 Vict. c. 70), proceeding on the preamble that it is expedient to concentrate in one department of the Government, as thereinafter provided, the supervision of the laws relating to the public health, the relief of the poor, and local government, enacts (sec. 2) that a Board shall be established, to be called the Local Government Board, and from and after its establishment the Poor Law Board shall cease to exist. By this Act all powers and duties previously vested in or imposed on the Poor Law Board by the several Acts of Parliament relating to the relief of the poor, and any other Acts, or vested in or imposed on one of her Majesty's Secretaries of State by the enactments in that behalf mentioned in the first part of the schedule annexed thereto, so far as such powers and duties relate to England, or vested in or imposed on her Majesty's Most Honourable Privy Council by the enactments in that behalf specified in the second part of the said schedule, are transferred to and imposed on the Local Government Board; and, except as otherwise provided by that Act, they shall be exercised and performed by such Board in like manner and form, and subject to the same conditions, liabilities, and incidents respectively, as such powers and duties might before the passing of the Act have been exercised and performed by the authorities in whom the same were then vested respectively, or as near thereto as circumstances admit. By the 35 & 36 Vict. c. 79, s. 36, the powers of the Secretary of State, under the Highway and Turnpike Acts, are transferred to the Local Government Board. By the Public Health Acts, 1875, various additional powers are conferred on this Board. (*See* PUBLIC HEALTH.)

Lock-out. (*See* DISPUTES.)

Lockets.—Small ornamental gold cases, made to open and close, and fitted to contain hair, miniatures, &c. They are commonly worn as pendants, attached to gold and other chains.

Lockjaw. (*See* JAW, AILMENTS OF.)

Locks.—The principle upon which all locks are constructed is the application of a lever—that is, the key—to an interior bolt, by means of a communication from without; and the security of locks depends entirely upon the various impediments which may be constructed between this lever and the bolt. Locks for drawers, closets, iron chests, and the like, are only required to lock on one side, and their keys are therefore made with a pipe, which slips on to and turns on a pin in the lock called the *drill-pin*. But doors which have to be locked sometimes on one side, and sometimes on the other, cannot have their keys made in this way; the key is therefore solid, and its plug or stem being thicker than the flat part or web, it acts as an axis, fitting into the upper part of the keyhole, though that hole does not completely enclose it. All keys for these inside and outside locks must be symmetrical, or alike on each side of a line through their middle, in order to fit the lock either way, which limits the number of the tumblers in the case of many-tumblered locks. The variety of ingeniously and intricately made locks now manufactured for different purposes is very great; and to give descriptions of these is unnecessary in the present work.

Locum Tenens.—One who holds or fills (generally only for a time) the place of another; a deputy or substitute.

Locus in Quo.—The spot or place in question. In its legal signification it denotes the place where the cause of action arose, or where anything is alleged to have been done. It is peculiarly applicable to actions of trespass.

Locust Bean is a species of legume somewhat similar in size to our broad beans, but when sold in England is of a very dark chocolate colour. It is chiefly used as cattle food, with which it is ground up; and being of a sweet nature, is extensively patronised by children in lieu of sweetmeats. It is indigenous to Egypt, and is believed by many to be the food upon which John the Baptist existed, spoken of in the Scriptures as "locusts and wild honey."

Locust-tree.—The wood of the locust-tree (*Robinia pseudacacia*) is extremely hard and strong, remarkable for its fine close grain, the medullary rays being more numerous and close than those of almost any other timber. For strength, durability, hardness, elasticity, and weight, it is superior to oak, and almost incredible stories are told in America illustrative of the extreme durability of the heart-wood. In the northern parts of the United States this wood is commonly found perforated with insects, but in the middle States it is found in its best condition. It is there held to be unequalled for flooring and ships' timbers. In the Southern States it is largely in use for railway *sleepers*, mill-cogs, and other articles that are exposed to trying usage and hard ware. In America there are three popular varieties of the locust-tree, distinguished by names procured from the colour of the heart-wood—viz., the red, the green, and the white. The first-named is the most beautiful and durable, and the second is held next in esteem. In the Western States there is, however, a fourth kind, called the black locust. These variations depend upon the circumstances of soil and situation. Stronger than oak and lighter than cedar, the locust-

wood is naturally in high favour for ship-building, and in this country it is extensively used for that purpose.

Lodgers are under-tenants who occupy and are responsible for a portion only of the house in which they live, and who are not liable for any of the taxes levied upon it. To thousands of persons, especially in large towns, apartments are a great convenience; they secure liberty of action and freedom from anxiety, which are of the greatest importance, and they are generally considered less expensive than house-keeping. Apart from all legal consequences, it is best for the lodger to have a thorough understanding before taking possession of his rooms as to what his requirements will be, and what will be expected of him in return. As a general rule, unmarried men and women will be best in unfurnished apartments; and they can board with the family or not, according to circumstances. It is easier to make arrangements for comfort with private housekeepers than with regular lodging-house keepers, although even this is a matter of opinion, some persons having a prejudice against professed lodging-house keepers, and others against private families. The truth is, that there are good and bad of both kinds, and perhaps the unhappiness of lodgers is due as much to themselves as to their landlord or landlady.

Lodgers, Law of. — Lodgings are let either by agreement in writing or by parole. As remarked above, a written agreement is advisable, in order as far as possible to avoid disputes as to terms. The agreement should define the rent, when payable, the time of entry, the length of notice to quit, and all other particulars. Where fixtures are taken, it should be ascertained whether they belong to the premises or to the outgoing tenant. The landlord implicitly warrants that the lodgings are reasonably fit for habitation. By the 34 & 35 Vict. c. 79, passed for the protection of lodgers' goods, it is provided (sec. 1), that if any superior landlord shall levy a distress on any furniture, goods, or chattels of any lodger for arrears of rent due to such superior landlord by his immediate tenant, such lodger may serve such superior landlord or the bailiff, or other person employed by him to levy such distress, with a declaration in writing made by such lodger, setting forth that such immediate tenant has no right of property or beneficial interest in the furniture, goods, or chattels so distrained or threatened to be distrained upon, and that such furniture, goods, or chattels are the property or in the lawful possession of such lodger; and also setting forth whether any and what rent is due, and for what period, from such lodger to his immediate landlord; and such lodger may pay to the superior landlord or to the bailiff, or other person employed by him, as aforesaid, the rent, if any, so due as last aforesaid, or so much thereof as shall be sufficient to discharge the claim of such superior landlord. And to such declaration shall be annexed a correct inventory, subscribed by the lodger, of the furniture, goods, and chattels referred to in the declaration; and if any lodger shall make or subscribe such declaration and inventory knowing the same or either of them to be untrue in any material particular, he shall be deemed guilty of a misdemeanour. And by section 3 it is provided, that any payment made by any lodger pursuant to the first section of the Act shall be deemed a valid payment on account of any rent due from him to his immediate landlord. Lodgers are legally considered in the same position as householders, and enjoy similar protection and greater immunities. The law makes no distinction between lodgers and other tenants in regard to the payment of their rent or ejecting them, for they are generally subject to the same rules as other tenants. A notice to quit must in all cases have reference to the letting, and for lodgings let for the month or week a month's or week's notice is sufficient. If a lodger quit without giving notice, the landlord may recover the rent, though he has put up a bill in the window for the purpose of letting the apartments, or has lighted fires in the rooms; but if the landlord let the apartments to another, he rescinds the former contract, and cannot recover rent for any subsequent portion of that tenancy. Under 2 & 3 Vict. c. 71, compensation may be awarded to the extent of £15 by a police magistrate for wilful damage done by tenants of houses or lodgings within the Metropolitan Police district to the premises or furniture therein.

Lodgings, as usually understood, are either furnished or unfurnished. They may include lodgings only, or board and lodging, attendance or non-attendance, and many variations of a like nature. The rent asked is of course regulated by the accommodation provided, by the requirements of the lodger, and especially by the locality chosen. In some situations very comfortable rooms may be hired for half or one-third the price that must be paid in more aristocratic quarters. The easiest way to find apartments is to obtain from a respectable house agent a list of those which are to let in a neighbourhood.

Loft.—An apartment at the top of a house or building, usually utilised in houses for the stowage of lumber or unused furniture: in a stable it is used as a depository for hay and corn. There are several other kinds of lofts, such as a music-loft, a singing-loft, and a rood-loft in a church.

Log.—A mechanical contrivance for ascertaining the rate at which a ship is travelling. The ordinary log is a triangular piece of light wood, forming the quadrant of a circle, about six inches radius, balanced by lead nailed on the circular part, so as to swim vertically; this is attached to the log-line, so that its flat surface is at right angles to the ship's course. When the log is "heaved," or thrown out, the line is unwound from its reel by the log, which remains stationary in the water, while the ship moves away—the number of "knots" unwound in half a minute being the number of miles that the ship travels in an hour. There are many more complicated kinds of apparatus for heaving the log, which mark the way made, changes of direction, &c. The ship's "log" is ordinarily understood to mean the record of all particulars

connected with the voyage, such as the ships spoken with, the land sighted, or other events that may happen of importance, which facts are entered every day by the chief officer in a diary called the *log-book*.

Logarithms. — A system of artificial numbers intended to expedite calculation, and save the labour and time expended in the arithmetical operations of multiplication, division, and the extraction of roots. Logarithms have been of almost incalculable value in various branches of science, and more particularly in astronomy. They were invented by John Napier, Baron of Merchistoun, in Scotland, and made known to the world in a work published by him in the year 1614.

Logography.—A method of printing, in which each type represents a whole word instead of a single letter.

Logogriph.—A species of word puzzle (Greek, *logos*, word, and *griphos*, a riddle), in which the whole word is to be discovered by means of other words formed from combinations of the letters of the original. Thus, for example, taking the word *real:* its third, fourth, and second letters will form *ale;* its second, third, and first will give *ear;* its third, first, and second, *are*. In the logogriph these combinations are of course described enigmatically, and on solving them the original word becomes at once apparent.

Logwood.—The wood of the tree *Hæmatoxylon Campechianum*, growing in the West Indies and South America. The inner wood of the tree is of a deep-red colour, and is very extensively used as a dye, and in calico-printing, &c. The colouring principle of logwood is sometimes termed *hæmatosine*. An extract of logwood forms a powerful astringent, and is much used in medicine.

Loins.—This is a name popularly given to the fleshy part of the back which is situated between the lower margin of the ribs and the upper margin of the pelvis. The muscles of this region are very strong, as there is necessarily a great strain upon them when any unusual exercise is taken. Hence it is that pain or weakness in the loins usually indicates fatigue or debility. This condition may be frequently relieved by the warm bath, camphor-soap and laudanum embrocations, and by rest.

Long Pepper consists of the spike or fruit of two species of *Piper*, or pepper-vine—namely, *Piper longum*, a native of Malabar, and *Piper officinarum*, a native of the Indian Archipelago. These spikes are gathered when unripe, and dried in the sun. They are about an inch and a half in length, with an indented surface, and in colour are dark grey. They are used in pickling and for culinary purposes, and are generally regarded as being more pungent, though less aromatic, than common pepper. Elephant pepper is only a larger variety of the same species. The roots and stems are cut into small pieces, dried, and extensively used in India as a stimulant medicine, under the title of *pippula moola*.

Longcloth.—Calico so called on account of the length of the pieces, to distinguish them from those made for exportation, which are of shorter lengths. For description of material, *see* CLOTH, LONG.

Longcloth Stitch. (*See* CORAL-STITCH.)

Longevity.—Under this head we propose to mention a few facts concerning the duration of human life in general, or in particular circumstances. According to a trustworthy authority, the probable value or duration of life immediately after birth is, in general, about 25 years in Belgium, 32·2 in France, 33 in England, and 47·2 in Geneva. Towards the age of five years the chances of prolonged life for both sexes are greatest, varying from 48 to 50 years. The natural length of man's life cannot be stated with scientific precision, but it so seldom exceeds 100 years, that a century may be taken as a limit which few surpass. The vast majority pass away before they have attained the threescore years and ten of the Psalmist. Statistics show that the duration of life is affected in many ways—*e.g.*, marriage is favourable to longevity in both sexes, but to women more so than to men; climate, style of living, trade and profession, also have a decided influence; and so have many constitutional peculiarities. But while these things all command the attention of scientific men, we can only touch on one or two of them, as indicated in the article on EMPLOYMENTS IN RELATION TO HEALTH. It is stated that in a favourable year the general rate of mortality per thousand males in England, at and above the age of 20, was 20 in 1,000; but in the case of farmers it was 28; shoemakers, 18; weavers, 17; grocers, 11; blacksmiths, 18; carpenters, 19; tailors, 19; labourers, 21; miners, 15; bakers, 17; butchers, 21; innkeepers, 30. The mortality at all ages of the army at home is nearly double that of civilians at the same ages. The mortality of officers in the army abroad is less than that of non-commissioned officers and men, but both vary considerably; and the mortality of seamen also varies, but is not very high. Dr. Guy says that eminent men do not live on an average so long as those who are less distinguished: *e.g.*—

	More eminent averaged	Less eminent averaged
Medical men	67·04	67·31
Clergy	66·42	69·49
Lawyers	66·51	68·41
Literary and Scientific	65·22	67·55
Artists	64·74	65·96

Mr. E. R. Lankester gives the following as the mean after-life of the classes mentioned at the ages named:—

	Labourers, Rural.	Bakers.	Clerks.	Miners.
10	56·00	47·89	39·98	48·51
20	47·90	40·02	31·83	40·67
30	40·59	32·25	27·57	33·15
40	32·76	24·47	21·85	24·92
50	25·07	19·09	16·04	17·53
60	17·82	14·06	12·42	11·85
70	11·34	8·76	8·76	8·70
80	6·95	4·81	4·80	4·80
90	3·80	2·35	2·34	2·34
100	·50	·50	·50	·50

The expectation of life is greater in rural districts than in towns and cities. As regards

married persons, a number selected gave a mean duration of 66·77 years, while the same number of unmarried gave only 62·00. We can only further call attention to the diminished expectation of life among the intemperate, which Mr. Lankester illustrates as follows:—At the age of 20 their expectation is only 15·55 years; at 30 it is 13·80; at 40 it is 11·62; at 50 it is 10·86; and at 60 it is 8·94. It is found, according to Mr. Neison, that among intemperate persons those addicted to beer live longer than spirit-drinkers, and that indiscriminate drinkers have the shortest lives of all. The conclusion from this is, that distilled liquors are more destructive than fermented, and that the two combined are more fatal than either taken separately.

Longitude.—The distance of any place on the globe from another place, eastward or westward, measured on the equator. More correctly, perhaps, the longitude of a place on the globe may be described to be "the arc of the equator intercepted between the meridian of the place, and some conventional fixed meridian, which is regarded as the origin from which the measures are reckoned." Lines of longitude, or *meridians*, are great circles passing through the poles and cutting the equator at right angles; each of these lines divides the earth into two hemispheres. Every place is supposed to have a meridian passing through it, and as there is no reason why one place should be chosen before others from which to reckon degrees of longitude, the conventional fixed meridian varies with different nations. Thus in Great Britain degrees of longitude are reckoned from the meridian at Greenwich, while in France the meridian of Paris is the fixed line of longitude. When the latitude (*which see*) and longitude of a place are both known, its exact position on the globe may at once be fixed.

Loo.—A game at cards, generally considered to hold the first position among all round games. It is played with a complete pack of fifty-two cards, and the cards rank as at whist (*which see*). Loo is either limited or unlimited, the laws regulating both being precisely similar, with the exception that, at limited loo, those who play and do not get a trick pay into the pool only the price of the deal, while at unlimited loo they pay the whole amount that happens to be in the pool at the time. Loo is also played in two ways, known respectively as three-card and five-card loo. Of these, three-card loo is the best game for a large party, since it admits of any number of players up to sixteen, while five-card loo is perhaps preferable for a small party of three, four, or five.

Three-card Loo.—The first thing to be done is to settle the price of the deal, and whether the game is to be limited or unlimited. At each new deal the dealer puts into the pool three counters, three halfpence, or three of whatever it may be determined to play for, and this is termed the price of the deal. The game commences by all the players cutting or turning up for deal. The cards having then been shuffled, the dealer, after paying the arranged price into the pool, gives three cards to each person, one card at a time, and beginning with the player on his left hand; lastly, he turns up a trump-card. The first player now plays a card, and the rest follow in order, each following suit if he can, and placing his card just before him on the table. Each player must "head the trick" if he can, *i.e.*, he must, if possible, play either a higher card than those previously played of the suit led, or he must trump. The winner of a trick must always lead a trump if he can; and the second and third tricks being played, each trick is entitled to a third of the pool, and those who have not taken tricks are looed, *i.e.*, pay a loo of three each to the pool. The second dealer (the deal passing in order) proceeds as before described; but in addition to a hand for each player, he deals a spare hand called *Miss*. It is now optional to play or not, and before looking at his own hand the dealer asks, in the regular order of playing, whether the players play their own hand, or exchange it for Miss, or decline playing for that pool. No one can retract after declaring his intention to stand, and whoever takes Miss must play it. The three tricks are then played as before, and the contents of the pool are shared in the proportion of one-third to each trick. The losers pay each, into a new pool, the whole amount of the pool if the game is unlimited, or the price of the deal, or such sum as may have been fixed on as the maximum of the loo. The game goes on in this way till no one is looed and the pool is empty, when a fresh start from the beginning is made as before.

Five-card Loo.—Here the dealer pays five counters, halfpence, &c., for his deal, and gives five cards to each player, after which he turns up a card for trump. The cards have the same value as at three-card loo and whist, except that the knave of clubs, which is called *Pam*, is superior to any other. Each player is allowed to change all or any of his five cards for others given him by the dealer from the pack. Those who exchange any cards must play, and are looed in five if they do not get a trick; but if they do not change they may play without running the risk of being looed. The holder of *Pam* is expected to play it in the first round. Each trick is entitled to a fifth of the pool. A flush of five trumps, or four trumps with Pam, in one hand, takes the whole pool, and all the other players, except the holder of Pam, are in this instance looed. Five-card loo is sometimes played with what is called a *running Pam*, i.e., the knave of the trump suit is Pam, instead of its being restricted to the knave of clubs.

Loo Table.—A small round table standing upon a single pillar, suitable not only for loo, but also for all round games at cards—that is, games which do not admit of partnerships, but in which each individual plays on his own account. Drawing-room tables of a similar construction are usually called loo tables.

Looking Glasses. (*See* MIRRORS.)

Loom.—A simple contrivance by which threads are woven into cloth. One set of threads run lengthwise, and this is called the warp of the material; another set run trans-

versely, and is termed the woof or weft: the latter threads are those thrown by the shuttle. Looms are of ancient origin, and are supposed to have originated in India. In later days, machinery has been introduced into their construction, and now the shuttle is no longer thrown by the hand of the weaver.

Loops.—Practice is required to make these neat and strong with needle and thread. A loop is formed of two or three single threads, and along this the seamstress works a button-hole stitch, putting needle and thread round the combined single threads each time. This button-hole stitch is repeated in an even and regular manner, until the whole loop is made thick and strong. When loops are made of cord, the two ends are placed together, and sewed firmly for some little distance. The thread should be wound round them once or twice between each puncture of the needle, for cord is liable to untwist, and therefore its ends have to be specially secured. *Lub* is the Gaelic word for "crooked," and from this our word loop has arisen.

Lord.—A title of honour belonging of right to all peers, and often used as a prefix to the names of all peers from a baron to an earl; it is also bestowed by courtesy on the eldest sons of earls, and all the sons of dukes and marquises. The title may be either one of hereditary dignity, as in the case of Lords of Parliament, or it may express certain powers, as with the Lord-lieutenant of a county, Lord Chancellor, Lord of the Treasury, lord of a manor, &c.

Lord of the Manor.—The grantee or owner of a manor. (*See* COPYHOLD.)

Lorgnettes are double eye-glasses, of an expensive and ornamental character, opening with a spring, and generally used by ladies. The term is also applied to small opera-glasses.

Lory.—The lory is a kind of a parrot, belonging to the natural family *Psittacidæ*, and the sub-family *Lorianæ*. The bill of the lory is but little curved; the margin of the upper mandible has, however, curved breaks in it; while the lower mandible is conic, slender, and much longer than it is high. The name given to the bird by naturalists is *Psittacus lorius*.

Lotions.—These are certain cooling and healing applications used in the treatment of various forms of inflammation, ulcers, &c. The one best known is Goulard's lotion (*which see*). Sulphate of zinc and alum, in the proportion of from five to ten grains of either to an ounce of water, are also much used, the former especially as an eye-lotion. Nitrate of silver, varying in strength from half a grain to a scruple in an ounce of water, is a valuable lotion in certain cases. Atropine and carbolic acid are very much used in lotions, the former in eye affections, and the latter as an anti-septic or disinfectant.

Loto.—An arithmetical game for two or more persons, played with a set of twenty-four numbered cards, a quantity of wooden discs bearing numbers corresponding to those on the cards, and some counters of bone or other material. There are fifteen distinct numbers, ranging from 1 to 90 on the face of each card, so that on the twenty-four cards each number is repeated four times. These cards having been distributed—one, two, or three to every player—the game commences by one of the players taking a bag, in which are placed the wooden discs, and drawing them out rapidly one by one, calling the numbers aloud as he does so. The player having a number on his card corresponding to that called out, covers it with a counter, and he who first succeeds in getting all the numbers on his card or cards so covered wins the game.

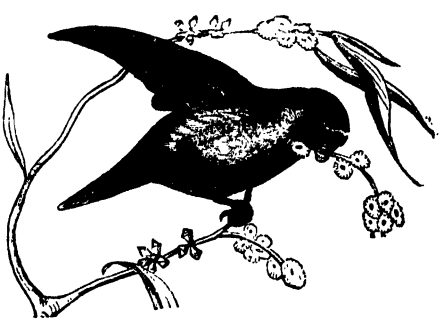
Lotteries.—A lottery is a distribution of prizes by chance. Lotteries have been frequently resorted to both by states and individuals for the purpose of raising money, but they are foreign to the morality and industry of England. By 10 and 11 Wm. III. c. 17, and other Statutes, lotteries were suppressed, and all grants, patents, or licences for the same declared to be contrary to law. But as lotteries were found a ready mode for raising money for the service of the state, as before mentioned, they have been from time to time sanctioned by particular Acts of Parliament, passed expressly for that purpose. By 42 Geo. III. c. 119, they were, however, declared to be contrary to law, and penalties imposed upon the practice. In the case of art unions (*which see*), the Legislature has sanctioned the distribution by lottery of works of art. (*See also next paragraph.*)

Lottery.—A card game, which may be played in two or three different ways, and may be made the medium of considerable speculation. It is impossible here to give the full regulations, to obtain which reference should be made to one of the recognised books on card games. It may, however, be explained that the principal feature of the game consists in each player staking on his cards as against those of the other players (this part of the game somewhat resembling *rouge et noir*), and in the existence of a pool or lottery containing three prizes, and contributed to by each player.

Louse. (*See* LICE.)

Love-apple. (*See* TOMATO.)

Love-bird.—This is a name given to a



LOVE-BIRD.

very small and very pretty paroquet, called by naturalists the *Psittacus passerinus*, and belong-

ing to the *Psittacidæ*, or family of parrots. It is called by some the *Psittacula Taranta*, and is a native of Australia, Africa, and other warm countries. Love-birds require great care in keeping. The cages should be very much larger than those we generally see. The food should be mixed, fruit should be given, and a proportion of hard food, such as almonds, &c., else the bill may grow out of all proportion. They are so called from the large amount of affection they bestow on each other.

Low Sunday.—A popular name for the Sunday next after Easter. It is probably a corruption from *Close Sunday*, the close of Easter.

Lozenge.—In geometry, a lozenge is an oblique-angled parallelogram, or rhombus. In heraldy, it is a bearing in the shape of a rhombus placed with the acute angles at the top and bottom. The horizontal diameter must be at least equal to the sides.

Lozenges are small, flat, and circular or oval cakes, employed in medicine in those cases in which it is required that the remedy should pass gradually into the stomach and act as long as possible upon the pharynx and laryngeal opening. Their familiar name is derived from the circumstance that they were originally made exclusively in the shape of a lozenge, or rhombus. Lozenges are distinguished from the closely-allied substances known as drops, by the fact that the ingredients are blended together without the aid of heat. According to the usual process of manufacture, the materials are thoroughly powdered, first separately and afterwards together, and are then beaten to a stiff paste with glutinous liquid, isinglass, or gum, which is employed to give them form. The substance is then rolled out to the desired thickness, stamped into shapes, and placed on an inverted sieve in a warm dry situation until hard. According to Dr. Paris, lozenges should be composed of several demulcent substances, the reason for this being that the larger the amount of gum used in their preparation, the more slowly will they dissolve in the mouth. Lozenges should be perfectly excluded from air and damp. They keep best in well-closed glass bottles, or in canisters.

Lucifer Matches. (*See* MATCHES.)

Lucullite.—A black marble obtained in Egypt, the colour of which is due to fine particles of carbon being disseminated through it.

Luggage.—Articles carried by persons travelling by railway or other public conveyance, and required for the convenience and use of persons so travelling. Railway companies are, subject to certain conditions, held responsible for the proper management and delivery of passengers' luggage. The quantity of luggage allowed to railway passengers is regulated by the companies. (*See also* CABS AND CAB-FARES.)

Luggage-labels. (*See* LABELS.)

Lumbago.—This is rheumatism affecting the muscles of the back, and giving rise to severe pain in that region. The complaint sometimes comes on quite suddenly, any effort or movement of the body being attended with great suffering. Though not dangerous, it is often a most obstinate and intractable malady, and hence there are nostrums without end for its alleviation or cure. It may be taken for granted that as a rule internal remedies, except such as relieve the liver and bowels, are of no avail. The treatment must therefore be local. The warm bath, and the vigorous daily use of embrocations of either ammonia (camphor liniment) or turpentine with olive oil, or soap liniment and opium, generally afford great relief. If these fail, a subcutaneous injection of morphia will often act like a charm. Placing sulphur in the stockings, smoothing the back with a hot iron on brown paper, and many other remedies of this kind have their advocates. (*See* RHEUMATISM.)

Lump.—This curious fish is an inhabitant of the British seas and the Northern Atlantic, and goes by various names, as the cock-paidle, the sea-owl, or the lump-sucker. It is called by naturalists the *Cyclopterus lumpus*, and belongs to the family *Discoboli*. It is a fish with a large body and small fins, with an elevated crest or ridge on its back, while the pectoral and ventral fins are formed into a sucker. This sucker is used by the fish to attach itself to the bottom, and defend itself from strong currents. Usually it is a leaden-blue colour, but before it spawns it changes to crimson, variegated with purple, blue, and orange. The full-grown fish are very rough, and covered with tubercles. The young are smooth, and very beautifully and brilliantly coloured. The food of the lump is the young of other fish. It is somewhat rare in the market, though occasionally seen, and is not esteemed as an article of diet.

Lunacy. (*See* INSANITY.)

Lunar Months. (*See* MONTHS.)

Lunatic Asylums.—Houses for the reception of lunatics and idiots have been long known, but until modern times they deserved their common name of madhouses, and were not managed on correct principles. During the present century a vast improvement has been effected in the mode of conducting such establishments, which have also increased in number, and are subjected to wholesome legal regulation. These asylums are now dealt with either as public or as private, the latter of which must be licensed before any person can be received or detained in them. Many modern lunatic asylums are on a vast scale. That of Bethlehem, in St. George's Road, Southwark, had in 1876 an income of over £25,000. Its origin dates from 1547. Another, St. Luke's, in Old Street, London, dating from 1751, is an immense structure, and in 1876 about 300 persons were discharged from it as benefited; its income is very large. The Idiot Asylum at Earlswood, Redhill, founded in 1847, reports an income of £30,000, and 600 patients benefited.

Lunatics. (*See* INSANITY; *also next paragraph.*)

Lunatics and Idiots, Law concerning.—A lunatic is the common legal designation of an insane person, or one *non compos mentis*. An idiot is one devoid of understanding. Both idiocy and lunacy excuse from the guilt of crimes. The administration of the estates of idiots and lunatics belongs (in right of personal authority) to the Crown, and it is exercised by the Lord Chancellor and the two Lords Justices of Appeal, by virtue of the royal sign-manual. In future, the jurisdiction now vested in the Lords Justices is directed by the Judicature Act to be exercised by such judge or judges of the High Court of Justice, or Court of Appeal, as may be entrusted with such jurisdiction by the royal sign-manual. The rules of law and equity are the same as to what amounts to insanity. As to an idiot, the Crown is absolutely entitled to the profits of his estate; but in the case of a lunatic, the Crown is trustee of his estate only. Persons are, however, seldom found idiots, but only *non compos mentis*, and the Crown scarcely ever claims its right to their property. A lunatic is never legally considered as incurable. Both idiots and lunatics are liable with respect to contracts for necessaries.

Luncheon is a modern institution, introduced since late dinners were established, and since the old-fashioned tea and supper have been dispensed with altogether. It is an informal kind of meal, the viands being placed on the table all at once, and, excepting at large parties, the guests helping themselves and one another; although it is sometimes arranged that the servants should hand the plates of the first course, and then leave the room. Moreover, table-napkins are seldom used, and small knives and forks are laid on the table. The remains of cold meat, game or poultry, a few sweets, a little hashed meat, pigeon, pork, or beef-steak pies, potted meats, salads, compotes, tartlets, custards, jellies, with bread and cheese, biscuits, butter, and fruits, are the articles usually served at luncheon. If a hot luncheon is desired, soup, cutlets, chops, fowls, entrées, and light puddings may be provided. Sherry, claret, and light beer are usually placed on the table. The dishes should, of course, be made to look as pretty as possible, and nothing should be sent to table in the exact form in which it has been already presented. Precedence is not observed at an ordinary luncheon, nor do the gentlemen conduct the ladies to the room in which it is laid. The hostess leads the way, and the guests follow. Ladies may retain their bonnets and outdoor attire when invited to remain to luncheon. Although luncheon is but lightly regarded, it cannot be dispensed with altogether without injury to health. When breakfast is taken at 8 or 9 a.m., it is most important that a fairly substantial meal should be eaten about 1 or 2 o'clock. Business and professional men too often make the mistake of omitting this mid-day meal, and content themselves, from the time they leave home in the morning to the dinner-hour in the evening, with a biscuit or some equally insignificant portion of food. But this habit cannot be carried on with impunity for any length of time. The system will become exhausted, the digestive powers will be weakened, and evidences of disordered action will soon begin to show themselves. The remedy for these will be found in the neglected luncheon, which will supply the requisite material for meeting the wants of the system, and prevent that exhaustion of power which is produced by energetic industry combined with long abstinence from food.

Luncheon-basket.—This is a convenient little receptacle in which gentlemen who are going out shooting for the day, or artists who wish to sketch, can carry their luncheon with them. A luncheon-basket is usually lined with tin, and is divided into compartments for holding the various provisions, a special place being provided for a tumbler and a bottle or flask for water, wine, or spirits.

Lungs.—These are the organs of respiration, two in number, which are situated in the thorax, or chest. They are conical in shape, the bases below resting on the diaphragm, or muscular septum, which separates the chest from the abdomen, the apices above tapering into the root of the neck about an inch above the first rib. The right lung is larger than the left, though it does not descend so low, in order to make more room for the liver. It is divided into three lobes; the left lung has only two. What is called the root of the lung is formed by the bronchis, and by the blood-vessels, lymphatics, nerves, &c., which enter or leave the lung at this point. The right lung weighs about twenty-two ounces, the left about twenty. The substance of the lung is composed of lobules of varying size, the most superficial being the largest. Each lobule is made up of a ramification of one of the bronchial tubes, and its terminal air-cells, as well as vessels and nerves, all connected by areolar tissue. When the bronchis enters the lung by the root, it divides and subdivides into innumerable branches, all of which terminate in the lobules, as just mentioned. The air-cells are tiny recesses, varying from $\frac{1}{250}$th to $\frac{1}{70}$th of an inch in diameter. The pulmonary artery conveys the impure blood from the heart to the lung to be purified. As it enters the latter it divides into branches, which accompany the bronchial tubes and terminate in a network around the air-cells. In this network the pulmonary veins begin, which receive the blood, now purified by atmospheric air, and convey it again to the heart for circulation. The texture of the lung is porous and spongy, and floats on water, owing to the air it contains. This floating or sinking of the lung in water is one of the well-known tests for deciding whether a new-born infant has breathed or not. If it has not breathed, there should be no air, and the lung should sink. This is decisive, as far as it goes; but it may happen that the lung is decomposing, and, owing to the gases which result from decomposition, it may become buoyant and float in water. Other circumstances will then have to be taken into consideration.

Lungs, Ailments of.—These are consumption, pneumonia, bronchitis, congestion, catarrh, &c., each of which will be found described under its respective heading.

Lustres.—A variety of poplin, but less substantial, composed of silk and worsted.

Lustres, Glass. — Candlesticks of cut-glass, ornamented with drops of the same, designed for a mantelpiece or bracket, but not for the table. The drops are now cut into the shape of triangular prisms, which reflect light more than any other shape. Sometimes chandeliers suspended from the ceiling are composed of drops such as these.

Lute is a substance used principally for making ships or apparatus air-tight, by closing the apertures of their joints. It is also used for coating, so as to render them able to bear a higher temperature, or for repairing fractures. The term is derived from *lutum*, clay, which forms the basis of most lutes. The best-known lutes are *Stourbridge clay*, in fine powder, made into a paste with water; *Windsor loam*, a natural mixture of clay and sand; *Willis's lute*, a thin paste made of a solution of borax in boiling water, with slaked lime. A mixture of lime and glue, or lime and white of egg, makes a very powerful cement; mixtures of borax and clay are also useful. What is known as *fat lute* is composed of pipe-clay mixed with drying linseed oil. Perhaps the lute in most general use, on account of its flexibility and consequent non-liability to accident, is that known as *iron cement*, moistened bladder-paper prepared with wax and turpentine and india-rubber. (*See also next paragraph.*)

Lute (Musical Instrument).—This, though much in use during the Middle Ages, is now practically obsolete. Dante compares the appearance of a dropsical person to the shape of the lute, the back or body of which is rotund, or barrel-shaped. In the sixteenth and seventeenth centuries the lute was a very popular instrument in England, and one Thomas Mace, a noted lutenist, gives a detailed account of the art of lute-playing in his quaint work "Musicke's Monument." Lutes were made in many sizes and varieties, each being given a distinct name, such as the *Orpharion* (or wire-stringed lute), &c. The chief among the lutes was the Theorbo, or Arch-lute, which Handel employs in the score of his "Ode on Saint Cecilia's Day." The compass of the Theorbo was very nearly that of the violoncello (*which see*).

Lute-string, or Lustring.—1. A plain stout silk, much used for ladies' dresses at one time. Of this fabric there are many qualities and colours. In the reign of William and Mary, an Act was passed for the encouragement of making "*alamode* and lute-string silks" in England, and heavy duties were imposed on all such silks imported from the Continent. 2. The string of the musical instrument called the lute. (*See preceding paragraph.*)

Luxation.—This is the old surgical term for dislocation. It is now seldom used.

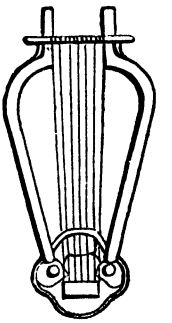
Lye. (*See* LIE.)

Lymph.—This is a fluid closely resembling blood, except that it is colourless, being devoid of red corpuscles, and contains more water. Lymph circulates in a system of its own called the lymphatic system. This is made up of lymphatic vessels and lymphatic glands, which ultimately terminate in the thoracic duct, conveying there the fluid which has exuded from the minute blood-vessels, and which has not returned by the veins, as well as certain matters which the latter have absorbed in their course. The lymphatic system plays an important part in certain diseases, especially those of a scrofulous character, and it is the lymphatic vessels and glands which become inflamed from a poisoned wound or bite of a rabid animal. (*See* GLANDS.) The term lymph is derived from the Latin *lympha*, water. For vaccine lymph, *see* VACCINATION.

Lymphatic.—This term may be applied to one of the numerous vessels which convey lymph into the circulation (*see preceding paragraph*), or it may be applied to what is called the temperament of an individual. The lymphatic or phlegmatic temperament is characterised by a pale, flabby appearance, and general torpor of mind and body.

Lynch Law. — Summary punishment administered by private individuals without the form of law. The name is said to have been derived from a certain Colonel Lynch—an Irish emigrant to Virginia, in the United States of America, and a noted soldier in the Revolutionary war—who was so renowned for the administration of justice in a summary fashion, that law administered by private persons, and followed by speedy punishment, became known all over the world as "Lynch" law.

Lynx (Fur).—The coat of an animal of several species of the genus *Felis*, and much resembling the cat, but having a shorter tail, and longer ears, which hang over at the tips like tassels. This animal is found both in Europe and America. In Canada it is the *Felis Canadensis*. The fur is long, soft, and of a greyish colour—that of the Norway species is covered with brown spots—the belly is white and silky, and not unfrequently spotted with black. It is frequently dyed, prepared, and exported for the American market, where it is much admired and valued. As it is extremely soft and light, it is generally used for cloaks, and for linings and facings of garments.



SEVEN-STRINGED LYRE.

Lyre.—One of the most ancient of musical instruments, the shape of which is generally familiar to students of Greek history. Homer is supposed to have recited his epics to the twang of the phorminx, or seven-stringed lyre. Pythagoras, Terpander, and Tyrtæus were all celebrated Greek musicians and performers on the lyre, which was gradually enlarged until the strings numbered as many as fifteen or sixteen. The strings were tuned to one or other of the Greek modes or scales, which were

built upon a system of tetrachords, or series of four notes—*e.g.*, C, D, E, F. Therefore the music of the ancient lyre would not be enchanting to modern ears.

M.

Macaroni is a particular form of wheaten flour which has made rapid strides in popular favour in this country, and is now, and has been for ages, the chief food of the inhabitants of Naples and Southern Italy. It is made by selecting the finest flour, making it into a paste with water, then pressing it through holes or moulds in a metal plate, or stamping it to the desired form, then drying or baking it. The shapes in which it is made are various; perhaps the best known is that which was described by Theodore Hook as "tobacco-pipes made easy." When properly dressed, macaroni is very pleasant and wholesome, but not so easy of digestion as some of the wheaten preparations. The finest qualities are those which are whitest in colour, and do not break or burst in boiling. In Italy the trade in macaroni is of great importance.

Macaroons are favourite sweet biscuits, made of pounded almonds, white of egg, and powdered sugar. They are formed like small balls about the size of a walnut, and baked upon wafer-paper. They should be kept in a very dry place.

Macassar Oil.—The preparation most commonly known as Macassar oil is a speciality, and presumed to be a trade secret; but the following has been published as the genuine recipe:—Take one pound of olive oil, coloured with alkanet root (which has only to be steeped in it); strain, and add oil of origanum one drachm. Bottle the mixture, and shake it twice a day for a week. This is used for rendering the hair smooth and glossy. Another recipe for a perfumed oil under the same name is as follows:—Take oil of ben or of almonds, coloured with alkanet root, one pint; add oil of origanum one drachm, oil of rosemary one drachm, oil of nutmeg fifteen drops, attar of roses fifteen drops, neroli six drops, and essence of musk three or four drops. There are other preparations to which the name of Macassar oil is given. The original Macassar oil is named after a district in the island of Celebes, and is a sort of vegetable butter, of a rancid odour and an ash-grey tint.

Macaw.—This beautiful bird (the *Macrocercus* of naturalists) belongs to the parrot family, and to the sub-family *Macrocercinæ*, which is distinguished from other parrots by the cheeks being destitute of feathers, the tail very long, and the upper mandible much hooked, the under one being higher than broad. Macaws are natives of the more southerly portions of America, where they breed, building their nests in the hollows of old trees, and laying two eggs. Some of them, such as the great green macaws, are found in the Andes mountains even at an elevation of 3,000 feet. Macaws are the most gorgeously feathered of birds belonging to the parrot family. Long ago they were very much valued by the Indians of Peru, who used to present them as gifts to their Incas. Besides the green macaw just mentioned, we have the blue and yellow, and the red and blue macaw, and the rare but lovely hyacinthine macaw. They are rather destitute of talking powers, and their voices are most harsh and dissonant.

Mace.—The mace carried before magistrates, &c., as a symbol of authority, is usually a short staff with a large and highly-ornamented head, commonly all of silver. It represents an ancient weapon with a wooden handle and a metal head—a dangerous and destructive implement when wielded with a strong arm, and therefore not a mere "bauble." Even the official mace is sometimes a formidable affair; that of Glasgow University is 4 ft. 9¾ in. long, and weighs 8 lb. 1 oz; that of Oxford corporation is 5 ft. 8½ in. long, and was the gift of Charles II. The maces that are borne by serjeants-at-arms are large and unwieldy. At the commencement of a new Parliament, or on the decease or resignation of the Speaker, the mace, which usually lies upon, is placed under the table of the House of Commons. This mace is sent to committee-rooms to summon members to attend the House, and when the serjeant-at-arms makes his appearance with it on his shoulder, committees must instantly adjourn, and proceed to the House. When the House is in committee, the mace is placed under the table. When a session closes, the Speaker surrenders the mace to be deposited in the royal treasury till Parliament meets again.

Mace (Spice).—The nutmeg when in its natural condition is covered with a membranous envelope, which lies between the nut and the outer fleshy part. This membrane is removed, and when flattened and dried forms the mace of commerce. It is of an orange-yellow colour, and has a wax-like appearance. A coarse and inferior article from a different tree is sometimes palmed off for the genuine mace. The flavour and use of this spice in cookery and confectionery are too well known to require description.

Macintosh.—In the early part of this century a waterproof material of double texture was introduced, for over-coats, capes, cushions, &c.; it was then known by the name of Macintosh, that being the name of the inventor. Macintosh cloth was made thus:—Three layers of india-rubber solution were laid thickly on the material; two pieces so prepared were then placed face to face, the one forming the outside, and the other the lining. For coats and such-like purposes this was found too heavy and incommodious, and it has been superseded by cloth of single texture, one side of which is made waterproof. The outer surface is non-absorbent, and therefore does not become wet. Macintosh is still used for air-cushions, water-beds, and surgical appliances.

Mackerel.—This fish is called by naturalists the *Scomber*, and belongs to the *Scombridæ* family. The mackerel is much too well known to need description. It is a fish common in

European seas—really a deep-water fish, but at certain seasons, notably in May and June, it visits the more shallow water around our shores, and is then taken in very large quantities. It is usually caught by what is called the drift-net, which is made of small twine, tanned to guard against the deleterious action of salt water, about twenty feet deep and six times as long. Mackerel are very excellent fish for the table, and very nourishing, though somewhat difficult of digestion by weak stomachs. They are cooked in all sorts of different ways—stewed, marinaded, fried, baked, boiled, or broiled. In choosing them, see that they are very fresh, the flesh firm, the eyes bright, and the colours brilliant. Mackerel are good in October, which is called the after-season.

Macramé Lace.—This lace, sometimes called knotted lace, possesses a decided character of its own. It is an Italian lace, made chiefly at Genoa, and was extensively used in church decorations, for the ornamentation of linen and such-like purposes. Of late years it has been introduced into this country, and the simplicity of its fabrication has made it a favourite with many workers. The word macramé is of Arabic derivation. This lace is done with twine, aided by small pins and a leaded cushion. The length of lace required is first ascertained, as it is necessary in this description of lace to measure off pieces of twine for a heading, on to and from which the remaining depth of the pattern is appended. Lengths of twine are prepared, and the thread having been fastened to the heading is then knotted in various ways, according to a design. The work is simple, effective, and very strong; it is particularly suited for furniture decoration. The Italian twine bears the best name.

Mad Apple. (*See* EGG-PLANT.)

Madam.—A complimentary title, given to ladies generally, especially to married ladies.

Madder, called by botanists *Rubia tinctorum*, belongs to the natural order *Galiaceæ*. The plant has a rough, branched, brittle stem, with lanceolate leaves in whorls, and small white flowers. It grows naturally both in Europe and Asia. Large quantities of madder root are imported into this country from Holland, Turkey, France, &c. Madder in past ages used to be employed in medicine; it is not so now, however, being only used as a dye in calico-printing. It may be cultivated in England, but cannot be sold quite so cheaply as the foreign kinds. It needs a rich deep loamy soil, which is best prepared by trenching manually. The sets are obtained from the surface roots of the old plants, or from seeds sown in the previous year, and transplanted in June. From two or three year old plants, seed may be collected in abundance in September. The root crop is not gathered until the third autumn; it is then dried until brittle, and afterwards packed in bags for the market.



MADDER.

Made Dishes. (*See* ENTRÉES.)

Madeira.—This, the produce of the island of that name, is one of the choicest of the fortified wines. It is characterised by a fulness of flavour, aroma, and bouquet, together with a degree of sweetness and body which have never been surpassed. Its peculiar flavour is obtained from the special quality of the grape from which it is made, and the amount produced can never be large, because of the limited area of the island on which it grows. The mellowness of Madeira is increased when it has made a voyage to a hot country and back again. It is on this account that it is transported to the East and West Indies, the usual practice being to ship it in butts, and when the outward voyage is accomplished, to either land it at one of the ports for a time, or leave it on board, and then re-ship it to its destination. That which has been to the East Indies is more highly esteemed, and believed to possess a higher degree of mellowness, than that which is called West India Madeira. Old Madeira is regarded as a perfect wine. Like port, its quality increases with its age, and it is capable of imparting its bouquet to other wines with which it is mixed, and this enables the dealer to sell it as old. For the connoisseur in sweet wines there is none of the class to be preferred to old Madeira; and it constitutes an excellent beverage for the invalid. The variety named Malmsey Madeira is produced from a grape which will grow on one part of the island only—the valley of the Camal de Lobos.

Madness. (*See* INSANITY.)

Madness, Canine. (*See* CANINE MADNESS.)

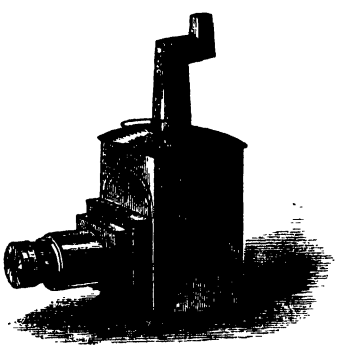
Magazine.—In literature, the term magazine is usually applied to all periodical publications contributed to by several writers, other than newspapers and reviews. (*See* NEWSPAPER; REVIEW.) Although the magazine may sometimes trench on the province of the newspaper and review, in giving notes on events of current interest, and reviews of literature, &c., it has a special field of its own, to which it is more particularly devoted; it contains a variety of original matter, usually of a light description—tales, poems, sketches, and short articles. Most of the magazines issued at the present day are

illustrated, generally with woodcuts, and their entire production—letterpress, engravings, &c. —entails a considerable expenditure of time and money. The sale of some of the well-known magazines is very large indeed, their circulation greatly exceeding that of even the most popular books, so that their vast influence on the reading portion of the public may well be imagined. The first publication of the kind in England was *The Gentleman's Magazine*, which appeared in 1731.

Magenta. — One of the earliest colours obtained from the aniline dyes, and deriving its name merely from the battle which took place in Italy previously to its discovery, at a town of that name in the province of Milan. The crude magenta-cake, without any purification, is sold under the name of "aniline crimson," and is used in dyeing certain maroons, browns, claret, and other composite colours. When employed to dye vegetable fibres it requires to be fixed with a mordant of per-salt of tin and an astringent. To correct the acidity of the colour, a small quantity of ammonia is added to the dye-bath. (*See* ANILINE COLOURS AND DYES.)

Maggots in Provisions.—The common name of maggot is given to the larvæ of the many varieties of insects which feed on animal as well as vegetable substances. (*See* CHEESE-MITES; FLOUR-MITES; MITE.) The larvæ of the flesh-fly are deposited upon meat, which is very liable to the attacks of the insect, especially in hot weather, and which quickly decomposes afterwards. The only effectual means of preventing the loss this involves is to dust the meat over with black pepper and powdered ginger, to examine it daily, and to remove immediately any traces of the obnoxious insects.

Magic Lanterns are optical instruments, invented by Athanasius Kircher in the seventeenth century, by means of which magnified images of small figures, painted on slides of glass, are represented on a wall or screen.



MAGIC LANTERN.

The magic lantern not only forms an amusing toy for the representation of grotesque figures and pictures, but it is also of great use as an accompaniment to lectures on astronomy and other sciences. By its means diagrams, microscopic slides, &c., may be shown in an enlarged form and in such a manner as to be visible to a large audience. In its simplest form a magic lantern is a lantern provided with a powerful Argand lamp; behind the lamp is a concave mirror, which directs all the light through a horizontal tube on the opposite side of the lantern, and level with the flame. This tube is fitted with two lenses, one at either end, and between them is a transverse slit in the tube, in which are placed the pictures to be represented. The inner lens—that nearest the light—is for illuminating purposes only, being intended to throw a strong light on the slide. At the other end of the tube is a double convex lens (*see* LENSES), which receives the rays of light passing through the picture, and throws them on the screen, where, from the dispersing nature of the lens, the picture or figure on the slide is represented in an enlarged form. The glass slides, on which the pictures are painted with transparent varnish, must be inserted upside down in the tube, otherwise the figures thereon will appear in an inverted position on the screen.

Magilp, Magilph, or Megilp.—A gelatinous compound employed by artists as a vehicle for colours. Much secrecy prevails as to the manufacture of this article; but it appears to consist essentially of linseed oil, which has been exposed for some time to the oxidising influences of the air, and then mixed with good mastic varnish. It is thinned with turpentine, as required, for effecting the painter's glazes.

Magna Charta. (*See* CHARTA, MAGNA.)

Magnesia.—This is, correctly speaking, the oxide of magnesium—the metallic base of the magnesian salts. The term, however, is more frequently used to designate a preparation of magnesia called the light carbonate. This light carbonate of magnesia is obtained from the sulphate (Epsom salts) by mixing the latter with carbonate of soda and boiling water, and evaporating to dryness. It appears as a white, almost tasteless powder, insoluble in water. Solution of carbonate of magnesia, called also fluid magnesia, is first of all prepared in the way just described for the carbonate; it is then suspended in water, and a stream of pure carbonic acid gas passed through it. Each ounce of solution contains about thirteen grains of carbonate of magnesia in the form of a bi-carbonate. Magnesia is a useful and safe medicine in certain conditions of the stomach, especially in that of acidity. Alone, and in combination with rhubarb, it is also extensively employed as an aperient for children. The dose of the powder as an antacid is from ten to twenty grains for an adult; of the solution, from one to two ounces. For aperient purposes, the dose must be considerably increased. (*See* DOLOMITE; EPSOM SALTS.)

Magnesium.—A soft white metal, of little use as such, but of importance as the base of the sulphate and carbonate of magnesia (*see preceding paragraph*). Magnesium is one of the lightest of the metals, its specific gravity being only 1·75, or three-fourths as heavy again as water. Formerly it was very costly,

but it is now produced at a price sufficiently reasonable for all scientific purposes.

Magnesium Light.—Magnesium burns at a very moderate temperature, exposure to the flame of a candle being sufficient to ignite it; and in burning it gives out an intensely brilliant, nearly white light. It is consequently in favour for producing strong theatrical effects, and it is also useful in photography when an intense artificial light of short duration is required. Lamps have been invented for the express purpose of burning magnesium, a special arrangement being necessary, as it burns away with great rapidity, and the aid of a permanent flame is needed to prevent its ceasing to burn. The most convenient form of taper is that of a thin riband of the metal which can be wound upon a drum, and by a clockwork arrangement can be wound off just at the rate required to keep the end in the same position; here the flame of a spirit-lamp will serve to keep the magnesium constantly in a state of incandescence. Another plan is to divide the metal into a fine powder and mix it with silver sand; the mixture is then placed in a hopper, and allowed to fall in a gentle stream through the flame of a spirit-lamp, the finely-divided magnesium taking fire as it comes in contact with the flame. One of the inconveniences of using magnesium is that it emits a dense cloud of vapour. It leaves also an abundant white ash, which is the oxide—magnesia. Magnesium powder is now used in the manufacture of fireworks.

Magnet.—In making a magnet, the bar of steel to be magnetised is placed in a line between two permanent magnets, and then two other magnets are drawn simultaneously from near the centre towards each end of the bar, the north pole of the permanent magnets being always applied to what is intended to become the south pole of the bar, and *vice versâ;* when they have thus been drawn along the bar several times, it will have become a magnet by induction. After it has thus been magnetised, it may be bent round into the shape of a horse-shoe, so as to bring the opposite poles near together—an arrangement which has many practical advantages. In order that the magnetism may not be dissipated in process of time, a keeper, or armature, should be used; this consists of a piece of soft iron placed across the two ends of the horse-shoe: in the case of straight bar-magnets they should lie parallel the one to the other, but in opposite directions, and be connected at each end by keepers, so that each keeper should connect the north pole of the one with the south pole of the other. (*See* Attraction, Magnetic; Compass, Mariner's; Electro-magnetism; *and next paragraph.*)

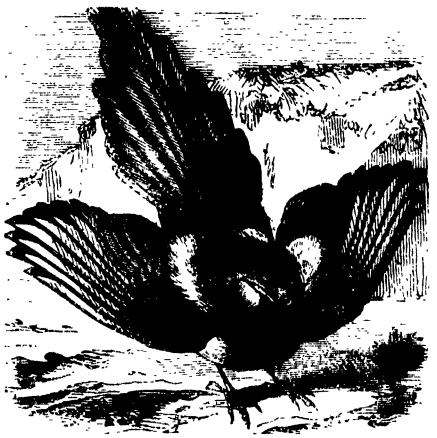
Magnetism.—If a magnet be suspended from its centre by a piece of untwisted silk, so as to be free to turn in all directions, both horizontally and vertically, it will, into whatever direction it may be forcibly turned, always settle itself in one particular direction. The angle it makes horizontally with the meridian is called its variation or declination; that made vertically with the horizon is its dip or inclination. This is due to the earth's magnetism. But though the earth itself is a huge magnet, its magnetic poles do not correspond to the geographical poles, nor indeed are they by any means fixed. The mariner's compass does not therefore point to the true north, but to the magnetic north; and the navigator has consequently to make due allowance for this variation, which will vary according to the part of the earth's surface where the observation has been taken. There are also secular variations to be allowed for, as it is found that in the course of a number of years the magnetic pole has considerably shifted its position: prior to 1660 it was east of the meridian of Greenwich, and from that time till 1815 it gradually deviated more and more to the west, and since that time it has been returning back again. There are also minor variations, changes in intensity, and violent disturbances of the nature of magnetic storms, the study of which falls within the province of terrestrial magnetism. For this purpose magnetic observatories have been established by the British, Russian, and other Governments in many widely distant localities in both hemispheres. Iron vessels, now so common both in the mercantile and naval services, are subject to the influence of magnetism; and the variations which take place in them from time to time render the frequent periodical adjustment of their compasses a matter of absolute necessity. (*See preceding paragraph.*)

Magnifying Glasses.—Glasses which so inflect the rays of light passing through them, that objects viewed through them *appear* larger than when seen by the naked eye. In reality, of course, the objects are not magnified, but the range of vision of the beholder is enlarged. (*See* Lenses; Microscope; Spectacles; Telescope.)

Magnolia.—This is a genus of plants of a very beautiful kind, named after Professor Magnol, prefect, at one time, of the botanical gardens of Montpellier. The magnolia belongs to the natural family *Magnoliaceæ*. The *Magnolia grandiflora*, a native of North America and Asia, is also called the laurel-bay, and grows to an immense height; it has large white flowers and pale green leaves, often nearly a foot in length. Many species of this noble tree are cultivated in England, and are raised either from seeds, graftings, layers, or budding. The budding ought to be done on the stronger kinds. The layers may be placed in the ground in autumn, and nearly two years will elapse ere they are fit to be potted; they should be kept in the pots until they are fairly strong and well established. To this same family belongs the anise, which is used in medicine, to relieve colicky and flatulent pains, and also to prevent griping in giving cathartics. The dose of the oil is two to five drops, on sugar.

Magpie.—This well-known bird is called by naturalists the *Pica caudato*, and belongs to the *Corvidæ*, or crow family. In its rather pretty uniform of white and black it is perhaps one of the handsomest birds we have. The

male bird is somewhat larger than the female. Magpies prefer high trees to build on. Outside the nest is not unlike that of a crow or hawk, but is lined with clay as well as grass; the eggs are four or five, and sometimes more, oblong, of



MAGPIE.

a dirty white, speckled with grey and brownish streaks. In its appetite the magpie is exceedingly voracious, and, while content at times with a meal of vegetables or worms, will kill and devour chickens, young rabbits, hares, &c., and even attempt to pick the eyes from young lambs. In character it is cunning in the extreme, and is neither a favourite with mankind nor with the lower animals. It is held in superstitious dread by many old-fashioned country people. Magpies, if taken from the nest when just fledging, are very easily tamed, and make rather nice pets. They will imitate musical sounds and the voices of other animals, and they can also be taught to speak. They are arrant thieves, however, and have a habit of getting hold of and secreting anything bright and clear, as silver spoons, pieces of money, &c.

Mahogany.—The wood of the mahogany-tree (*Swietenia Mahagoni*), which grows in the tropical parts of America—Jamaica, Cuba, Hayti, the Bahamas, Panama, Honduras, &c. This is the true or Spanish mahogany. There are also an Indian mahogany (*Cedrela Toona*), and an African (*Khaya Senegalensis*). On account of the hardness of the wood, and the beautiful polish it can be made to acquire, mahogany is much used for household and ornamental cabinet furniture. It is, indeed, the most highly prized of the furniture woods, on account of its great size and soundness, its almost perfect immunity from dry-rot, its freedom from shrinkage, and its handsome appearance. *To remove stains from mahogany.* The marks made by heated plates, cups, &c., on mahogany may be taken out with a little oil, which must be rubbed on; afterwards a little spirits of wine should be rubbed in. Ink-stains may be removed by the application of a mixture of oil of vitriol and water—a tea-spoonful of the former to a table-spoonful of the latter; or with a mixture consisting of a tea-spoonful of oxalic acid, in a tea-cupful of warm water. The application should be made quickly with a brush, or piece of flannel, and then washed off with milk.

Mahometan Calendar. (*See* MOHAMMEDAN CALENDAR.)

Maid.—A maid, or, as it is sometimes called, a dolly, is an implement sometimes used in the laundry. It consists of wood, and comprises a stem with a stout cross-handle at one end, and a sort of knob at the other. The knob is grooved on the lower side. What are termed maiding-tubs are to be met with in connection with this implement. In these tubs are steeped the articles to be operated on, and the process consists in what looks like pounding the linen. No doubt it facilitates the cleansing; but it is rather the expedient of unskilled persons than a very desirable one, as delicate fabrics may be injured unless carefully treated. The old Scotch plan of treading the linen in a tub has some affinity with this, at least in principle; but, like it, is not to be recommended.

Maid of all Work. (*See* GENERAL SERVANT.)

Maiden Assize.—An assize is so termed at which no person is condemned to die. (*See* ASSIZE.)

Maids of Honour.—Anne, Queen of Charles VIII. and Louis XII. of France, was the first to have young and beautiful ladies about her person called maids of honour. The Queen of Edward I. of England is said to have had four maids of honour; Queen Victoria has eight. The name maids of honour is also given to a particular variety of cheese-cakes peculiar to Richmond.

Maidservants.—The pleasing association which we all have with the "neat-handed Phyllis" of domestic service is connected to a great extent with the tidy appearance of the English maid-servant, and her obliging, quiet, and respectful manners. The fear has of late years been loudly expressed that the type of maidservant that we all admire so much is disappearing from amongst us. It is very much to be hoped that this is not the case, for although it might be possible to get the work done without her, the homely appearance of English homes would vanish at the same time. It is, however, possible that with the spread of education more reasonable ideas of what properly belongs to their position will be held by maidservants, while on the other hand the difficulty of obtaining good servants will lead to more considerate treatment of the maids by their mistresses. What is wanted on both sides is the practical exemplification of the principle of the golden rule, and the mistress or the maid who endeavours to make that the basis of conduct in her relation with those about her is doing something to solve one of the problems of the day.

Mail.—Derived from the French *maille*, this word originally meant a small piece of metal or money, and also a *mesh;* from this latter meaning it came to be used collectively for defensive armour formed of iron rings or meshes. In

Scotch law, the word denoted the rents of an estate, and from its usage in this sense came the term *black-mail*, expressive of payments formerly made by the owners or occupiers of lands to marauders and freebooters in return for freedom from molestation and protection. As derived from another French word, *malle*, the mail was originally a bag containing letters and papers forwarded by government; it then became extended to the coach or carriage in which such letters were conveyed, and it is now often used to denote the letters themselves.

Mainprise (from the French *main*, hand, and *prendre*, to take).—A means of redressing false imprisonment was the writ of mainprise directed to the sheriff, commanding him to take sureties for the prisoner's appearance, called mainpernors, and to set him at large. These differ from bail, in that a man's bail may imprison or surrender him up before the stipulated day of appearance, whereas mainpernors can do neither, but are simply sureties for his appearance at that day. Bail are only sureties that the party be answerable for the special matter for which they undertake; mainpernors are bound to produce him to answer all charges whatever. The word mainprise has several applications: thus, when a man is committed to those who undertake that he shall appear at the appointed day (*i.e.*, to his mainpernors), he is said "to be let to mainprise;" and a man who may be so mainprised or delivered to mainpernors is said to be mainpernable. Where an offence is not bailable the justices were frequently by Act of Parliament directed "to commit such offender or offenders to the common gaol of the county, there to remain without bail or mainprise." (*See* BAIL.)

Maintenance.—Supply of the necessaries of life; sustenance; sustentation; support; protection; defence. Maintenance, in law, bears a near resemblance to barratry; being an officious intermeddling in a suit that in no way belongs to one, by maintaining or assisting either party with money or otherwise to prosecute or defend it—a practice that was greatly encouraged by the first introduction of uses. This is an offence against public justice, as it keeps alive strife and contention, and perverts the remedial process of law into an engine of oppression. And therefore in the Roman law it was a species of the *crimen falsi*, to enter into any confederacy or do any act to support another's lawsuit by money, witnesses, or patronage. A man may, however, maintain a suit in which he has any interest actual or contingent, and also the suit of his near kinsman, servant, or poor neighbour, out of charity and compassion, with impunity. Any legitimate common interests will also warrant persons jointly contributing to bear the costs of a suit, even when it is carried on by another party. This offence is punishable at common law and also by 1 Rich. II. c. 4, by fine and imprisonment, and by 32 Hen. VIII. c. 9, by a forfeiture of £10.

Maintenance, Cap of. (*See* CAP OF MAINTENANCE.)

Maiolica, or Majolica. (*See* FAYENCE.)

Maize Arrowroot.—The peculiar starch prepared from maize, or Indian corn, and which goes by the name of Oswego, or maizena, or corn-flour, is so closely allied to true arrowroot that the difference between them is scarcely distinguishable. The preparation is both wholesome and nutritious, though not so nutritious as maize meal. The latter has, however, a harsh taste, disagreeable to those who are not accustomed to it, and this does not belong to maizena. (*See* ARROWROOT; CORN-FLOUR.)

Maize, or Indian Corn, is a plant now cultivated largely in the south of Europe, and is an important article of food among the inhabitants of many countries in Asia and Africa. It is generally thought to be a native of the warmer parts of America, where it was cultivated by the aborigines before the discovery of America by Columbus. Indeed, Columbus himself brought it to Spain about the year 1520. There are many varieties of the plant, also one distinct and smaller kind, called Chili maize, or Valparaiso corn. This is a native of Chili, and is highly prized by the natives on account of its grains, when roasted, forming a cross. The grains vary in colour, but the yellow is the most common. The cob, which is the name given to the maize ear, is sometimes gathered and eaten fresh. In America it is a favourite dish served on toast



MAIZE.

with melted butter. The grains are sometimes used, too, as a vegetable in the place of peas. A very wholesome sweetmeat may be made of these grains by gently roasting them until they burst and turn inside out, and then covering them with sugar: without the sugar they are known as "pop-corn." The meal alone does not make good bread, owing to its deficiency in glutinous matter—it requires to be mixed with wheat-flour, or rye. American brown bread is made of a mixture of rye-meal and maize. Although it is deficient in gluten, however, it is richer than any other grain in oily and fatty matter, owing to which it soon loses its freshness and becomes rancid and unpleasant. Possessing as it does so much oily substance, it is highly nutritious as food, and is largely used for fattening animals. The Strasbourg geese are fed with maize for the production of *pâté de*

foie gras. After the grain is disposed of, the stalks and fibres, &c., are all made useful; indeed, there are not many plants of more importance to man, or the uses of which are more varied, than maize. The stalks make good fuel, and are used too for thatching houses and basket-making. The spathes which surround the ear make excellent stuffing for chairs, &c. Good paper has been made from them, and in South America they are used for making cigarettes.

Maizena. (*See* MAIZE ARROWROOT.)

Majesty.—A title of honour derived from the Romans, who used it to describe the collective power and dignity of the people. It is now the conventional title of European sovereigns. Its first use as a personal title appears to have been by the Roman Emperors; coming to more modern times it was first assumed in France by Henry II., and in England by Elizabeth. Various prefixes in addition to the title of "majesty" have from time to time been bestowed by the Popes on European princes, such as the title of *Apostolical Majesty* bestowed on Stephen, Duke of Hungary, about A.D. 1000, and re-conferred on Maria Theresa in 1758; *Most Catholic Majesty* bestowed on kings of Spain, *Most Christian Majesty* on kings of France, and *Most Faithful Majesty* on kings of Portugal. In the United Kingdom the sovereign is personally addressed as "Your Majesty," and letters are addressed "To the Queen's (or King's) Most Excellent Majesty."

Majolica, or Maiolica. (*See* FAYENCE.)

Major.—In the army, an officer immediately inferior to a lieutenant-colonel, and next in rank above a captain. This class of officer is believed not to have existed earlier than the beginning of the seventeenth century. A *major-general* is an officer next in rank below a lieutenant-general.

Majority.—The condition of being of full age—that is, twenty-one years. It is attained in legal estimation on the day preceding the anniversary of birth. The term also signifies the greater number in any division of votes, &c.; also, in the army, the office and rank of major. (*See preceding paragraph.*)

Malabar.—A name given to certain pocket-handkerchiefs of cotton, printed with patterns resembling those from India.

Malachite.—A green carbonate of copper, often found as a stalactite with other ores of copper. It is of a very beautiful colour, and is marked or veined with great variety; it also admits of a high degree of polish. For these reasons it is much used for ornamental purposes—mantelpieces, &c.—and in jewellery.

Malaga Raisins. (*See* RAISINS.)

Malaga Wine.—One of the sweet wines of Spain, the product of a province of the name. It is sometimes called mountain wine. It is rich, luscious, and full of body; but it is comparatively little drunk at the present time.

Malaria.—This is a poison, the exact nature of which is unknown, which exhales from marshy districts, especially in tropical countries, and under the influence of solar heat. Malaria, so called for want of a better name, is highly prejudicial to health, exciting in the human body certain fevers called malarious fevers. (*See next paragraph.*)

Malarious Fever.—Three kinds of malarious fevers are usually described—viz., (1) intermittent fever (ague), (2) remittent fever, and (3) yellow fever. 1. *Intermittent fever, or ague.* This is characterised by a fit or paroxysm, which recurs at definite but varying intervals, and lasts for several hours. During the fit the affected person passes first through what is called the cold or shivering stage, then through a burning feverish stage, and lastly through a profusely sweating stage, after which there is a period of more or less prostration, but without fever. If this paroxysm returns in twenty-four hours it is called quotidian ague, if in forty-eight hours, tertian, and if in seventy-two it receives the name of quartan ague. These are the three forms of intermittent fever, or ague. (*See* AGUE.) 2. *Remittent fever.* This form of malarious fever varies exceedingly in intensity, and has received various names, derived from the country or district in which it is prevalent. Thus we find it called Bengal and jungle fever in India; Sierra Leone fever in Africa; bilious, remittent, and Levant fever in the West Indies and in the Mediterranean; and lake fever in America. The symptoms are similar to those of ague, except that the cold stage is as a rule much shorter and the hot stage much longer and more severe, and there is generally very little sweating. In severe cases there may be a very short remission, it being by no means uncommon for the paroxysm to occur twice in twenty-four hours. Headache, and inability to sleep, delirium, and other forms of cerebral disturbance are frequently a marked feature in this disease, and must be regarded seriously. The liver is often affected, and there may be some jaundice, with vomiting of bilious and bloody matter. If these symptoms increase in intensity, and if the tongue becomes dry and brown, the teeth covered with sordes, the breath fetid, and there is a tendency to insensibility and convulsions, then a fatal issue may be expected. If, on the contrary, the paroxysms become less severe, and if after the fifth fit there is a copious perspiration, the tongue becoming clean and moist, and the appetite returning, then recovery may be fairly expected. The treatment of remittent fever consists in bleeding from the arm in severe cases, in the administration of calomel, followed by a black draught and by repeated full doses of quinine. Brandy, wine, and other stimulants must be given if there is much prostration, and the diet should be generous. Change of air, especially a sea voyage, will, if practicable, be most serviceable during the period of convalescence. 3. *Yellow fever.* This is characterised by a very slight, if any, remission of the fever, by intense headache, by vomiting of black matter called the black vomit, and by a marked sallowness of the skin and conjunctiva. This form of

malarious fever prevails in the West Indian Islands, in South America, and on the coast of Africa. Sailors and others frequently call the disease "black Jack" or "yellow Jack," from the appearance of the vomit and the colour of skin. It is excessively fatal, and is consequently much dreaded. The treatment of yellow fever has hitherto been of little avail.

Male Servants.—These are usually found only in domestic establishments of a superior class. Some of them wear a livery, but not all; and it often happens that menservants do not wholly reside under the roof of their employer—this, however, partly depends on what their vocation is. The following is a rather full list of male servants:—Land-steward and bailiff; house-steward; steward's-room boy; butler; valet; man-cook; head-coachman; footman; under-butler; under, second, or lady's coachman; lady's footman; under-footman; hall-porter; groom; groom and valet, or groom and footman combined; postillion; outriders or couriers; stable-boy; stable-helper; head-gardener; under-gardeners; pages. The chief of these are treated of in their proper places in the course of this work. Menservants have a certain precedence among themselves, as follows for the most usual:—House-steward, valet, butler, man-cook, footman, under-butler, coachman, groom, steward's-boy, stable-boys.

Male Servants, Taxes on. (*See* Assessed Taxes.)

Malefactor.—One who commits a crime; a criminal.

Malic Acid, also called oxysuccinic acid, is very widely distributed throughout the vegetable kingdom; it is contained in unripe apples, in gooseberries, strawberries, &c., but it is especially abundant in the berries of the mountain ash when not quite ripe.

Malines Lace. (*See* Mechlin Lace.)

Mallard. (*See* Ducks.)

Mallet.—A wooden hammer, much used in carpentry for driving chisels, wedges, pins, &c. Mallets are of a great variety of forms, the most common being the square-headed—adapted for morticing and carpenter's work — and the round-headed, more particularly fitted for domestic purposes, such as the tapping of beer-barrels, &c.

Malmsey, or Malvasian Wine.—This name originally belonged to the red and white wines of Napoli di Malvasia, in the Morea, from whence the Malmsey grape originally came. Afterwards it was given to wines of a similar character, grown from the grapes of Cyprus and other islands of the Archipelago. The Malmsey of the present day is the produce of the Madeiras, the Azores, the Liparis, Teneriffe, Sardinia, and Sicily. It is made from grapes which have been fully exposed to the sun, and left upon the vines until they were almost withered. It is exceedingly sweet and luscious in its nature, and has a delicious bouquet. Malmsey Madeira is a choice rich wine of great excellence, capable of being kept many years, though it is not so strong as real Madeira. What is called British Malmsey is made from grated parsnips flavoured with Malaga raisins.

Malt is the product yielded when various grains, such as oats, rye, and maize, and principally barley, have been caused to germinate by being subjected to the action of heat. As a result of the process, the starch which is in them has been converted into dextrine and sugar, and therefore malt differs from barley in that a portion of the starch is represented by sugar. The process of malting, which is quite distinct from that of brewing, is accomplished in the following manner:—First the grain is soaked until it has imbibed about half its weight of water, and has increased in volume about one-fifth. When it will yield its flour on pressure, the water is drawn off, and the grain is thrown in a heap on the floor for twenty-four hours, when it rises in temperature, becomes dry, and gives out an agreeable odour. Germination has now commenced, and the root of the radicle and a primitive stem or plumule begin to form. In order to prevent too rapid germination, the barley is now spread on the floor and repeatedly turned about. The grains lose a small proportion of their weight, the mass becomes whiter and friable, and at the end of about fourteen days the grain is ready for the kiln. Here it is rapidly dried, and thus the germination is stopped, and the barley is ready for use. The quality of malt depends upon the grain from which it is made; the variety, upon the degree of heat to which it has been subjected in the kiln, the higher temperature yielding the darker-coloured malt. From pale and amber-coloured malt the lighter varieties of beer, such as bitter beer, table-beer, and small beer, are obtained; a darker malt is used for sweet ale, and a very dark malt for porter. Good malt has an agreeable odour and a sweet taste. Its husk is thin, clean, and smooth, and when it is broken a floury kernel is disclosed. Sometimes unmalted is mixed with malted grain; but the adulteration may be discovered by throwing a little into water, for malt floats on water, but barley sinks in it. Besides being used in the art of brewing, malt is sometimes employed as food for cattle, and it is thought to be more digestible than raw grain, although it has not been proved to possess higher fattening properties. In medicine it is frequently used as an anti-scorbutic and tonic.

Malt Extract is prepared from the infusion made with water, drained off and evaporated until it is thick and sticky, something like treacle in appearance. It is highly esteemed as a tonic and mild laxative, and may be bought in jars of various sizes. The dose for an adult is a table-spoonful or more three times a day.

Malt Liquors are fermented beverages manufactured from malt, including all beers, ales, and porters. They are generally regarded as nutritious, exhilarative, and refreshing, and when taken in excess they are intoxicating. Some of the varieties, such as stout, porter, and the heavier ales, possess a fattening power which does not belong to simple alcoholic liquids, and they are apt to produce biliousness in those who lead a sedentary life. Malt liquors appear to

have been known to all nations in all times. They were used by the Egyptians, the Greeks, and the Romans. They constituted at a very early period the favourite drink of the Germans and Gauls, from whom they were introduced to this country. Of late years the trade in malt liquors has increased so marvellously, that it is now one of the largest in the British Empire, and occupies a prominent position in that of other countries. The varieties depend upon the amount and quality of materials used. The composition of the water used exerts also a marked influence on the product; thus it is supposed that the excellence of the Burton ale rests upon the fact that the spring-water of Burton-on-Trent contains an unusually large proportion of sulphate of lime, which helps to clarify the liquid and make it bright and clear. Pale ale is made from pale malt, and its bitterness is determined by the quantity of hops used. Porter is also made from pale malt, but its colour and flavour are increased by the addition of high-dried malt. Stout is a beverage of the same nature as porter. Its chief characteristic is the large amount of extractive matter it contains. Cooper is generally understood to mean a mixture of stout and porter, although a distinct variety of beer, which occupies an intermediate position between the two, is brewed and sold under the denomination.

Malt Vinegar, or British vinegar, as it is sometimes called, is the ordinary coloured vinegar consumed in this country. It is made by mashing a mixture of malt and barley with hot water, and fermenting the weak wort thus produced as in the common process of brewing. The liquid is then drawn off into tubs, and placed in a dark but airy room, moderately heated by stoves, and heat is kept up until the conversion of the wort into vinegar is complete. In order to accelerate the process of acetification, some "rape"—that is, the residuary fruit used in the manufacture of home-made wines—or the green twigs or cuttings of vines are introduced into the tubs to act as a kind of ferment. Malt vinegar is of a brown colour, and possesses an agreeable and refreshing odour, which is derived from acetic acid and acetic ether. It varies in strength, the strongest being called proof vinegar. Sometimes the vinegar offered for sale is made from beer that has gone sour, but when thus made it is deficient in the agreeable flavour which belongs to it when it is prepared in the regular way.

Malt Wine.—This beverage is made of sweet wort, which is the liquor drawn from the mash of malt before the hops are added, and tun, which is the new beer taken after the whole operation of brewing is completed, mixed with sugar and water and fermented, then flavoured with raisins and strengthened with brandy. The sweet wort and tun can be procured of the brewer. Malt wine is best made either in March or October. The raisins and brandy can be introduced into the liquor three months after it is put into the cask, and it will be ready to bottle five or six months after. It will in all probability be fit to drink in three months.

Maltese Dogs.—These pretty little dogs came, as the name indicates, originally from Malta, but the best and loveliest are now bred and reared in England, just as the best Skye terriers are not found in the island from which they are named. They are small dogs, quite a toy weight in fact. The colour must be pure white with no orange tint on the ears; the coat is long, straight (curls are a blemish, as they show the poodle cross), and as fine as floss-silk. The tail is long and beautifully feathered, and is worn up over the back. The dog itself is low in shape, with rather short legs, but from his enormous amount of feather the real shape is somewhat difficult to describe. The face and head should be short without being snubby, and the former is seldom rightly seen from the amount of hair that hangs over it. The ears are also well feathered, and the eyes must be black and not inclined to weep, while the nose is like a button of jet.

Maltese Jewellery.—The gold and silver workers of Malta have been famous for the production of articles, chiefly personal ornaments, in the precious metals, especially silver, characterised by filigree work and other ingenious contrivances, wrought in elegant and curious patterns. Imitations are frequent, and it is not always possible to distinguish Maltese work from that produced at Venice and in some parts of the East.

Maltese Lace.—Originally the lace made in Malta was a coarse representation of Valenciennes and Mechlin, which exhibited one pattern of an arabesque character. Some fifty years ago an English lady induced a Maltese worker to copy some old Greek lace, and this circumstance led to the manufacture of white and black guipure, which has since been so successfully carried on. Maltese lace is a handsome lace which is best adapted for the trimmings of thick materials, such as velvet and silk. It is made in black and white, the former of silk, the latter of thread. Shawls made of the former are very handsome; their cost is from twenty to thirty guineas. White Maltese lace does not find much favour. Imitations are made at Buckingham and elsewhere; these are similar in appearance, but are not so substantial, so firm, or so durable.

Maltese Oranges, or blood oranges, as they are frequently called, are remarkable for the blood-red colour of the pulp. They are peculiar to the island of Malta, and are said to be produced by grafting the common orange bud on the pomegranate stock. They possess an exceedingly fine flavour.

Maltose.—A substance which is developed from grain in the process of malting, and also chemically prepared from rice in combination with dextrine, under the name of dextrine-maltose, in which form it is used in brewing, being added to the wort.

Mammee.—The mammee apple is the fruit of the *Mammea Americana*, which is a very beautiful spreading tree, not unlike the magnolia. The flowers are sweetly scented, and are used in some parts of the West Indies to flavour syrups and liqueurs. The fruit itself has two rinds—an outer very thick and tough, and an inner which is thin and bitter, and to

which the pulp closely adheres. It is sometimes cooked, but more often eaten raw, and the flavour is very pleasant. It may be obtained as a preserve. The mammee apple is supposed by some to contain certain medicinal properties, and to be good for chest complaints. Whether it be so or not, it is certainly very nourishing. The gum which is yielded by the bark of this tree is used by the negroes to destroy a tropical insect which infests the feet, called the chigoe or chegoe, chigger or jigger. It is difficult to cultivate this tree in our country.

Mandamus. — This is a high prerogative writ of an extensive remedial nature. It is in form a command issuing in the Queen's name from the Court of Queen's Bench (now the Queen's Bench Division of the Supreme Court), and addressed to any person, corporation, or inferior court of judicature within the kingdom, requiring them to do some particular thing therein specified which pertains to their office and duty, and which the Court has previously determined, or at least supposes, to be consonant to right and justice. It may be issued in some cases where the injured party has also a more tedious method of redress, as in the case of admission or restitution to an office; but it issues in all cases where the party has a right to anything done, and has no other specific means of compelling its performance. It is used principally for public purposes, and to enforce performance of public rights or duties. A mandamus lies, therefore, to compel the admission or restoration of the party applying to any office or franchise of a public nature, whether spiritual or temporal; to academical degrees; to the use of a meeting-house, &c. It lies for the production, inspection, or delivery of public books and papers; for the surrender of the regalia of a corporation; to oblige bodies corporate to affix their common seal; to compel the holding of a court, &c. The remedy by mandamus was extended by the Common Law Procedure Act, 1854, under which the plaintiff in an action in the superior courts (otherwise than replevin and ejectment) may endorse on his writ of summons a notice that he intends to claim a writ of mandamus, and may claim one in the declaration, with or without any other demand for the defendant to fulfil a duty in which the plaintiff is interested.

Mandarine, sometimes called the delight of the mandarins, is a not very common liqueur. It is made from syrup flavoured with Chinese aniseed and musk.

Mandate.—A judicial order or direction; also a contract whereby one is employed to act for another in the management of his business affairs, or some portion of them. He who so employs another is termed the mandant or mandator, and the person employed the mandatarius or mandatory. A mandatory incurs three responsibilities—(1) to execute the work with which he is entrusted; (2) to use all care and perseverance therein; (3) to render an account to his mandator. A mandator is liable for all costs reasonably incurred in the prosecution of the mandate; he is also bound to indemnify the mandatory on all incidental contracts arising therein. This contract may be put an end to, either by the mandatory's renunciation of it at any time before he has entered upon execution of his duties, or by his death; for it is founded upon personal confidence, and, in the absence of express stipulation, does not pass to his representatives.

Manganese.—A hard brittle metal, of a greyish-white colour, and very difficult of fusion. The black oxide of manganese is largely employed as a source of oxygen, while some of the salts are much used in calico-printing in the production of brown dyes. There are many and various compounds of manganese, the most generally used being those with oxygen and potash, known respectively as permanganic acid and permanganate of potash. Both of these are valuable as deodorisers and disinfectants.

Mange.—This is a cutaneous disease to which dogs are very liable. It resembles in some measure the itch in the human being, certain kinds of mange being due to the presence of a burrowing parasite, while others are constitutional. That which comes in patches here and there is usually caused by an *acarus*, or itch-mite. The constitutional form of mange may be cured by internal remedies alone; but as the public are hardly capable of distinguishing the two forms, it is best not only to give medicines internally, but to use some local application as well. Begin your treatment by carefully washing the animal in tar or carbolic acid soap; then if the spots are not very numerous, you may anoint them with an unguent composed of equal parts of the green iodide of mercury ointment and the unguent. sulph. co. of the Pharmacopœia. The following liniment has been found invaluable:—Take of creasote four drachms, and of olive oil seven ounces; mix these together, then add one ounce of solution of potassa. After the animal has been washed, the hair is parted, and this liniment rubbed on the skin twice a week, and afterwards at longer intervals. At the same time begin internal treatment; give first a dose of castor oil, and the same every week, and give in the animal's food *liquor arsenicalis* twice a day. The dose for a small dog is three drops, gradually increased for a fortnight to six drops; that for the larger breeds, six drops, increased to ten or twelve. After a fortnight omit the medicine for two days and begin again, and so on until the dog has had a six weeks' course, when the medicine is to be left off gradually, and small doses of quinine with a little cod-liver oil given for some time. All kennels must be carefully washed, disinfected, and cleansed, and the bedding must be frequently cleaned. While using the treatment here laid down, plenty of exercise and good wholesome food are to be allowed, and always plenty of pure clean water. Cats are subject to mange, and the long-haired breeds must have the hair cut off the affected parts. The same treatment will then be found to be effectual.

Mangles.—The old-fashioned mangle consists of a strong level table, upon which a large heavy box well weighted moves upon rollers, round which the articles to be mangled are

smoothly wound. The box is moved to and fro by means of straps fastened to each end, running over an upper roller, turned by a winch. Though efficient, this machine requires much labour, and is almost superseded by various other inventions, one of which chiefly consists in allowing the winch to be always turned in the same direction, instead of backwards and forwards. In others, the box is dispensed with, and the needed pressure is secured by a roller or a spring. In one, the roller turns on its axles, while the table or bed under it moves to and fro. In others, two rollers are used, and in turning the machine the linen is wound off one roller on to the other. These are easily worked, and occupy but little space; they are, however, thought not equal to the one with a movable table. There are various circumstances which should decide the purchaser, and it would be well to visit some of the very large London houses where different makes are kept in stock.

Mango.—This is one of the most delicious fruits of the East, and is borne by the *Mangifera Indica*, a magnificent tree, and a native of the tropical portions of Asia and Africa, although found also in the West Indies. It belongs to the natural family *Anacardiaceæ*. In sandy loam in hothouses, even in Europe, this tree may be cultivated from layers or cuttings, or it may be raised from the seed. The fruit



MANGO.

itself is, as found in India and Zanzibar, something like a very large apricot; the kernel is used for food only in famine times, but the pulp is extremely agreeable, sweet, and very finely flavoured. It is considered a great delicacy in such cities as Bombay, where, when it can be procured, it invariably forms a portion of the dessert. The fruit is not only highly nutritious, but it is cooling and medicinal as well, especially if partaken of in the morning.

Mangostan, called also the mangosteen, is the fruit of the *Garcinia Mangostana*, of the natural family *Guttiferæ*, trees that are indigenous to the warmer or tropical portions of Africa, Asia, and America. The mangostan fruit is in appearance something like a large apple or orange, very juicy and very delicious eating. The tree which bears it will grow only in the Indian Archipelago. From one of the trees belonging to this same order comes the well-known pigment and cathartic medicine called gambogo (*which see*).

Mania. (*See* INSANITY.)

Manifold Writers are books, usually of copy-book size, so constructed that by the insertion of a sheet of carbonic paper between that on which the letter is written and another sheet of writing-paper, a copy is obtained without further trouble. By the same process, but by substituting what is termed semi-carbonic for carbonic paper between other sheets of paper, as many as ten copies can be procured at once. They are extensively used in the House of Commons and by most commercial firms, and travellers find them especially useful for copying their orders at time of sale. They are also of great service where secrecy is required.

Manihot Arrowroot.—The starch of the cassava, manihot, or manioc is separated from the fibre, and imported in considerable quantities into Britain, under the name of Manihot or Brazilian arrowroot. From it tapioca is also made. (*See* CASSAVA.)

Manilla Hemp is a fibrous material obtained from the *Musa textilis*, a plant allied to the banana, which grows in the Philippine Islands, and from which cables and ropes are made. It is known to our traders and navigators under the name of "Manilla rope," and is equally applicable to standing or running rigging.

Manna.—A juice which exudes from and concretes upon the bark of a species of ash-tree which grows in Southern Europe. The manna most esteemed is that brought from Calabria called flake manna. It is dry and brittle, yellowish-white in colour, slightly sweet and slightly bitter in taste, the latter predominating. It is used for medicinal purposes, especially by Italian doctors, who were the first to make known its particular properties. As a gentle purgative for children it is valuable, owing to its being free from any irritating properties, and to its resemblance to sugar, which makes it agreeable to take. There is another kind of manna much used by the Arabs and other Eastern nations, who spread it on bread like honey; this is obtained from the bark of the tamarisk shrub; it exudes in consequence of punctures made by small insects which frequent that tree. This description of manna does not possess medicinal properties. The manna mentioned in the Bible is not supposed to be either of these kinds, for the Hebrew word which describes it does not signify any vegetable secretion.

Manners.—The ancient saying, "Manners maketh man," may be doubtful grammar, but it is good sense. By manners we mean a man's conduct, behaviour, and carriage, not merely as regulated by the conventional decrees of etiquette, but as judged on their own merits. The manners of a barbarian may be good, while those of a philosopher may be bad; yet the one

may know nothing about etiquette, and the other be well versed in its requirements. Truly, good manners involve certain moral attributes, and other high qualities, which are instinctively recognised by society. There is a certain kindness of expression and disposition, which is combined with grace and refinement, and an absence of all affectation. Of course, unkindness of manner and act, making self merry at the expense of others, an overbearing and haughty demeanour, self-conceit and self-praise, rudeness of language, violence of temper, disdain, negligent dress, improper and excessive eating and drinking, smoking in an unsuitable place and time, and a thousand other irregularities, all belong to bad manners. The opposite conduct characterises good manners. Consideration must be paid to the age, rank, and condition of those with whom we have to do; and it requires considerable self-possession not to lose sight of what is required under particular circumstances. It has been truly said by an American writer that good manners can be successfully cultivated best in early life, and in the domestic circle. There is nothing which depends so much upon habits as the constantly recurring claims of good manners; and if a child grows up without being trained aright, it is very rarely the case that he recovers what he has lost. The true cradle of good manners is the home, and if there they are accounted of paramount importance, the great step has been taken towards their proper exemplification elsewhere. But if the demeanour of brothers and sisters, fathers and mothers, servants and masters, is not prudently regulated, the Babel of bad manners at home will be followed by grave errors abroad. Our readers will see that to go fully into this matter would require an essay, and not a few mere hints; but meanwhile let us enforce upon them the importance of good manners by saying they are as beautiful and blessed as they are advantageous—"A man's manners make his fortune."

Mannheim Gold.—Another name for Dutch gold. (*See* GOLD, DUTCH.)

Manor.—A *manerium* seems to have been a district of ground held by lords or great personages, who kept in their own hands so much land as was necessary for the use of their families, which were termed *terræ dominicales*, or demesne lands, being occupied by the lord, as *dominus manerii*, and his servants. The other, or tenemental lands, they distributed among their tenants, which from the different modes of tenure were called and distinguished by two different names. First book-land, or charter-land, which was held by deed under certain rents and free services, and in effect differed nothing from free socage lands, and hence have arisen most of the freehold tenants who hold of particular manors, and owe suit and service to the same. The other species was called folk-land, which was held by no assurance in writing, but distributed among the common folk or people at the pleasure of the lord, and resumed at his discretion—being, indeed, land held in villenage. The residue of the manor being uncultivated was termed the lord's waste, and served for public roads, and for common of pasture to the lord and his tenants. Manors were formerly called baronies, as they still are lordships, and each lord or baron was empowered to hold a domestic court, called the Court Baron, for redressing misdemeanours and nuisances within the manor, and for settling disputes of property among the tenants. (*See* COURT BARON.) This court is an inseparable ingredient of every manor, and if the number of suitors should so fail as not to leave sufficient to make a jury or homage—that is, two tenants at the least—the manor itself is lost. All manors must have existed as early as the time of Edward I. (*See* COPYHOLD; FEUDAL SYSTEM.)

Manservants. (*See* MALE SERVANTS.)

Mansion.—According to its original meaning, this word meant simply a tent pitched for soldiers on their march. Afterwards it was applied to a roadside house built for the accommodation of strangers. At the present time it is understood to mean a large commodious residence, although in law it signifies the lord of a manor's chief house within his fee. (*See* HOUSE.)

Manslaughter, in law, is the act of killing a man or woman without any *malice prepense* or forethought. The English law very humanely makes a distinction between a hasty and deliberate act; for when two persons on a sudden quarrel fight, and one is killed, as it is done in a sudden heat of passion, and not with any premeditated malice, it is manslaughter, and not murder. (*See* MURDER.) This crime may either be committed voluntarily, as on a sudden loss of temper; for if a man be greatly provoked and kills the aggressor, it is manslaughter; but if it appears that there was a sufficient cooling time for the heat of anger to subside, this shows a deliberate revenge, and amounts to murder. Or it may be involuntary, but in the commission of some unlawful act, in which latter respect it differs from homicide *per infortunium*, as if one shoots off a gun in a highway, and where people often meet, and kills a man; or if he is shooting at game and is not qualified or licensed, and kills another, it is manslaughter. And in general when an involuntary killing happens, in consequence of an unlawful act, it will be murder or manslaughter, according to the act which occasioned it. Both voluntary and involuntary manslaughter are felony, and punishable at the discretion of the Court by penal servitude for life, or not less than three years, or by imprisonment with or without hard labour for any term not exceeding two years, or by a fine (24 & 25 Vict. c. 100, s. 5). It is evident from the nature of this crime that there can be no accessories, because it must be done without premeditation; but when two men once fell out and immediately fought, and the sword of one was broken and his friend lent him another, with which he killed his antagonist, it was made manslaughter in both. Again, there were two men in a room quarrelling; a brother of one of them standing at the door, who could not get in, stood out to his brother to make him sure; and the brother killed his antagonist—it was likewise held to be manslaughter in both.

Mantelet. (*See* MANTLET.)

Mantle.—A loose garment worn over others as a cloak, with or without sleeves or cape. Mantles, varying as they do with the fashion of the day, are given some distinguishing name to denote any little change in style. In the Middle Ages they were worn over the armour, fastened by a *fibula* in front, or on the right shoulder, leaving the right arm free. The mantle is an important part of the official insignia of the various orders of knighthood. Ladies of rank used to wear similar mantles, which in many instances were decorated with heraldic charges, either their own and their husbands' arms impaled, or their husbands' only. Examples of these may be seen in old engravings and monumental effigies.

Mantlet, or Mantelet.—1. A small cloak worn by women, very convenient and light for going out in the evening, as it does not crush or disarrange the dress underneath. It reached originally to a little above the knee, but now to rather below the waist, and is made like the cape of a large cloak, hollowed round the neck, and set into a band, or has a collar turned over. It may be of velvet, satin, silk, cloth, merino, or of a shawl material, and lined with silk, muslin, or glazed calico, and the trimming of lace, fringe, velvet, satin, or fur. 2. A musket-proof shield of wood, metal, or rope, or kind of movable parapet, used for the protection of sappers or riflemen, or to shield the gunners at embrasures. The saprollers are now employed to protect sappers.

Mantraps and Spring Guns.—These were mechanical contrivances to catch trespassers. They are now made unlawful by the Statute 24 & 25 Vict. c. 100, s. 31, which enacts that whosoever shall set or place, or cause to be set or placed, any spring gun, mantrap, or other engine calculated to destroy human life, or inflict grievous bodily harm upon a trespasser or other person coming in contact therewith, shall be guilty of a misdemeanour, and liable to penal servitude for three years, or imprisonment for any term not exceeding two years with or without hard labour. This enactment does not extend to gins or traps such as are usually set with the intent of destroying vermin, nor to spring guns and other engines set in a dwelling-house for the protection thereof from sunset to sunrise.

Manuring Plants.—The most important of all the various substances used for the purpose of restoring to the soil those qualities which plants extract from it in growing are, perhaps, the excrements of animals. (*See* MIDDEN.) Liquid manure is very serviceable on light soils, which it so impregnates with soluble matter that the roots of plants, shooting in whatever direction they may, will derive benefit from its presence. It may be applied either before sowing or soon after. Refuse animal matter of all kinds, decomposed in water, is often used as an artificial liquid manure. Shells, lime, chalk, gypsum, tanners' and leather-workers' refuse, marl, clay, pond mud and weeds, sea-weed, salt, ashes, malt-dust, and other materials, are all found useful as manures. The lime laid on fallows serves to destroy weeds and convert them into manure. On poor chalky land ashes are frequently used; bone-dust is found to be very highly beneficial. For clover and meadow manure, soot is extremely good. Rape-dust containing in large proportions oily and mucilaginous matter, is of great value for enriching a poor soil. Guano—supposed by some to be the excrement of birds, and by others the remains of *Diatomaceæ* (a genus of minute Algæ)—is a manure of high worth, found abundantly in small islands and on the cliffs near the coast of Peru. It was first discovered at Ichaboe, an island situated off the south-western coast of Africa. The value of guano is chemically estimated by the proportions in which it contains ammonia, phosphates, and organic matter. African guano has the more soluble matter, and that from Peru the greater quantity of uric acid, which dissolves more slowly.

Manuscript for Printers.—In preparing manuscript for the printers, a few points are worthy of notice. The handwriting should be as legible as possible; only one side of the paper should be written upon; there should be a narrow margin on the left-hand side of each sheet of paper, in which any necessary alterations or addenda may be made, so that excessive interlineation may be avoided; passages which are to be italicised in print should be carefully underlined; and, finally, directions should be marked in the event of any desired change from the body or general type of the manuscript. It is desirable also to number each of the folios. (*See* PROOFS, CORRECTION OF.)

Manx Cat.—The Manx cat was at one time common to the island of Man, but is now found all over England, and is to be met with at nearly every cat show in the kingdom. Its peculiarity is that it possesses no tail, or only a little hook, the mere rudiment of that appendage. In other respects it does not differ from the ordinary varieties. MANX cats are found of all breeds and colours. Although there are still classes for them at large shows, they are not now considered curiosities by any means.

Manzanilla.—A sort of Spanish sherry including several varieties, which are generally described as "thin, dry, and highly tonical," and derive their name from a supposed resemblance of flavour and fragrance to *manzanilla* or camomile. The idea that camomile is introduced into the vat while the wine is fermenting is said to be erroneous. These wines have the reputation of being pure, because they will not readily blend with others. Those shown at the Vienna Exhibition were, "with rare exceptions, almost as colourless as they were thin; all the natural spirit of the wine seemed suppressed, as it were, by the bitter medicinal flavour which is the distinguishing characteristic, and which age did not appear materially to subdue." As regards age, when good, manzanilla will keep for nearly thirty years. Its well-known bitter aromatic flavour is really due to some peculiarity in the soil. One curious

circumstance is, that this wine sometimes develops into amontillado; and it is worth remembering that, thin as it is, it contains a fair share of natural alcohol, and should therefore be used with moderation.

Maple.—There are thirty-six or more varieties of this famous tree (*Acer*), all more or less nearly allied to the sycamore and plane, six of which are indigenous to Europe, twelve or more to America, and others to various parts of Asia; of these, one is an evergreen. The kind known as the greater maple is most serviceable in arts and manufactures, is extremely hardy in its nature, and grows to a great height. The wood is of a close fine grain, can be cut with ease, and is not liable to warp with heat or moisture. When it displays beautiful markings, with a mottled appearance arising from knots, it is technically called bird's-eye maple, from the supposed resemblance of such knots to the eyes of birds. The wood is beautifully delicate in colour, and will take a high polish, for which reason it is extensively used as a decorative material for interior fittings of rooms, railway carriages, ships' cabins, for Tunbridge ware, furniture, &c. Before the general introduction of pottery, it was the material in common use for bowls, platters, mugs, &c. If kept dry and free from the attacks of insects, maple-wood is very durable. In America, maple-trees are abundant, and a large quantity of the wood is shipped there regularly for this country—chiefly that known as bird's-eye maple, a long, narrow wood which is indigenous to Oregon, and grows abundantly in New England, New York, and Michigan. Maple is much used by wood-turners, who prefer it to beech. The red maple is a rose-coloured wood which is admirably suited for cabinet-work; but it is not strong, and when exposed to alternations of temperature and dryness rapidly decays. Specimens of this kind having fibres or markings of a serpentine description, and a changeable lustre like that of shot-silk, form beautiful panel-work. The straight-grained varieties of American maple sometimes closely resemble satin.

Maple Sugar.—The *Acer saccharinum*, or sugar-maple, abounds in America, where its wonderful rich autumnal colour gives the woods a glory of which those who have not seen it can have but a faint conception. The wood is of less value than that given by other varieties of this tree, and it is mainly valued for the saccharine matter contained in its ascending sap, which is obtained by tapping the trunk in the spring during some five or six weeks. The sugar-maple is rarely seen in this country.

Maps, To Colour.—Map-painting is a very simple process when the colourist has a knowledge of the meaning of the colours to be employed. The old maps, for want of colour and the system of signs used in drawing maps, are very imperfect and confusing. Care must be taken to mix sufficient thin colour to cover the parts to which it is to be applied without a pause, which would render it patchy and uneven; to apply the brush lightly and expeditiously, and to avoid extending the colour of one part over the boundary-lines of another. Where buildings are introduced they are indicated with bright red if brick, and with Indian ink, very thinly applied, if wood. Highways are tinted with burnt sienna, and other roads are left plain; cultivated ground is indicated by pale yellow, dark green is used to express woodland, light green for park lands, heaths by a pale purple tint, and rivers with pale blue, and umber and lake may be used for railway routes.

Maps, To Mount.—Maps are usually mounted upon linen, good calico, or canvas of a close fine texture. This is first strained over a wooden frame or a flat stout board (such as is used for drawing) with tin tacks. The surface of the map having been previously made thoroughly and equally damp with a sponge and clean water, is turned downward, and its back coated to the edges with good paste. When smoothly and evenly covered with this adhesive material, which should be perfectly smooth and free from lumps or grit, the position of the map on the linen or canvas is reversed, and it is lightly patted down with a soft clean cloth. When it is even or flat, free from blisters, creases, or wrinkles, place over it a piece of clean paper, and let it be well and firmly rubbed down, and put aside to dry gradually. The same process is used for mounting prints of all kinds. When dry, the map is separated from the board or frame with a T-square and a sharp knife, and is ready to be attached with glue to the roller, or to be bound in a book. The map being mounted is usually varnished. For this purpose it is first sized, the size used being generally that known as parchment-size, and coated with a varnish which will not crack in rolling up, and is most capable of resisting damp, excluding air, and retaining its transparency. A very good varnish for prints and maps is composed of one ounce of Canada balsam with two ounces of oil of turpentine.

Marabout Feathers.—The adjutant or marabout stork is a native of certain parts of India, and the beautiful light marabout feathers, which are so highly esteemed for ladies' head-dresses, are taken from the under-side of the wings of this bird, and are imported to this country from Calcutta. There are two kinds of marabout feathers—the white and the grey. Of these the white are the more valuable, and they sometimes sell for their weight in gold. When a marabout hat is spoken of, it simply means a hat adorned with a marabout feather.

Marabout Silk.—A fine thin silken fabric of which fancy coloured scarves are made, so called from its delicacy of tissue. These scarves usually have a white centre and a coloured border.

Maranta Arrowroot.—There are several varieties of arrowroot, and of these Maranta arrowroot, which is also called indiscriminately Bermuda, Jamaica, and West Indian arrowroot, is the best. It is extracted from the tubers of the *Maranta arundinacea*, a native of tropical America, and extensively cultivated in the West Indian Islands, and of late years both in the East Indies and Africa. The plant grows

to the height of about two feet; it has hairy leaves and clusters of small flowers, and bears fruit about the size of currants. The roots are about three-quarters of an inch thick and a foot long, and it is from these that the starch is extracted. (*See* ARROWROOT.)

Maraschino. (*See* LIQUEURS.)

Marble.—As known by geologists, marble is a rock of granular and crystalline texture composed of carbonate of lime. It may be almost pure carbonate of lime, when its colour is white; or oxide of iron and other matters may be combined with it, in which case it is of various colours. Popularly, however, the term marble is applied to other rocks also, and it may be held to include all kinds of calcareous stone sufficiently compact in texture to admit of a fine polish. Statuary marble is a white close-grained rock, much resembling loaf-sugar in texture, and susceptible of a fine polish. Of the statuary marbles used by the ancients, the most famous were the *Parian* or *Marpessian*, obtained from the island of Paros, and of a splendid creamy tint; and the *Pentelican*, procured from Mount Pentelicus, in Attica. The ancients also obtained a marble from Luna, in Etruria, which was indeed the *Carrara* marble so famous at the present day, and so universally used by modern sculptors. Various coloured marbles have been and are still known. Of these the most famous are the *Marmor Laconicum*, now known as *Verde Antico*, a clouded green marble, consisting of a mixture of white marble and green serpentine; the *Marmor Libyeum*, or *Rosso Antico*, a marble of a deep blood-red colour, sprinkled with white dots; the marble of Milos, *Giallo Antico*, deep yellow, marked with rings; and several black marbles, or mixtures of black and white, *Nero Antico*, a deep black marble, being one of the best known.

Marble, To Clean, &c.—There are a number of popular recipes for cleaning marble, any of which will be found to answer the purpose. Of these the following may be given:—1. Mix together with water three parts of common soda, one part of finely-powdered chalk, and one part of pumice-stone; rub this well over the marble, and afterwards wash off with soap and water. 2. Make a mixture of soft soap quarter of a pound, pounded whiting quarter of a pound, common soda one ounce, and a small piece of stone-blue; boil together for a quarter of an hour, and then, while hot, rub over the surface of the marble, and leave it for twenty-four hours; then clean off with soap and water, and polish with a rough flannel. Spots of grease may be removed from marble by means of a mixture of fuller's earth and hot water; cover the spots with this, and let it dry on for twenty-four hours; then clean off with soap and water.

Marbles.—Small spheres of marble, stone, glass, or other material, with which a variety of games are played by boys. The best marbles are those which are made of the stone which gives them their name; inferior kinds, however, made of stone or pottery-ware are very largely sold. Marbles of variously-coloured glass are also much used, and are very pretty, but they are liable to chip. Dutch *alleys*, most highly prized by marble-players, are made of a hard marble found near Coburg, in Saxony. The marble which the player uses to shoot with is usually denominated the *taw*. For some games a much larger marble is used, known as a *bonce*; this, however, on account of its size, cannot be shot, but must be rolled by the player. The number of games at marbles, which owe their origin to the ingenuity of players of this and past times, is so large that it is quite impossible to give any detailed account of them.

Marbling Paper.—Paper made to resemble in some degree the appearance of certain marbles—the imitation is generally of the remotest—is largely used by bookbinders under the name of marble-paper. The processes by which it is manufactured vary, but the following will give a general idea of their principles:—The different pigments, chiefly mineral, are ground up with small-beer to which a little ox-gall has been added. A mucilage composed of linseed and water is boiled in a copper vessel, and placed in a trough to cool. On the surface of this the pigments, reduced to a proper consistence, are thrown with a brush, and then the operator, with a quill or rod, arranges the colours in streaks and dots in a more or less complicated way. On this the paper is lightly laid, and then withdrawn and put aside to dry, the glossy surface being afterwards secured by hot-pressing. The edges of books are either marbled in the same way, or have the colours sprinkled upon them with a brush.

Marchioness. (*See* MARQUIS.)

Marchpane is not often met with now-a-days. It is a confection of pistachio nuts, almonds, and sugar, made in the form of a paste, rolled out thin, and stamped into fancy shapes, or made into a sandwich with jam between the layers. The word itself is a corruption of *masse-pain*, bread lumps.

Marigolds.—These plants or flowers belong to the natural order *Compositæ*, and there are several kinds of them. The *Calendula arvensis* is the field marigold, and grows plentifully in many parts of Europe, notably among the Rhenish vineyards. *Calendula pluvialis*, or the rain marigold, is so named because on the approach of a shower its petals are shut up. The leaves of this plant are sometimes used for the purpose of adulterating saffron. The *Calendula officinalis* is the common marigold, and is rather a pretty garden flower; some are deep orange in colour, others lemon, and some double. It is not really indigenous to our country, but seems at first to have been introduced from France or Italy. The marigolds are easily cultivated, and need a light, rather poor soil, and plenty of sun. Sow from April till June, and when they are about three inches high thin them or transplant them, and in the following May or June they will be in full blossom. Gather your winter store when they are at their best, and dry them in the sun; afterwards keep them in paper bags. They are used in some parts of England to dye cheese a beautiful yellow colour. They possess little

or no medicinal qualities, but are put in broths



COMMON MARIGOLD.

and soups to give both colour and aromatic flavour.

Marine Glue. (*See* GLUE, MARINE.)

Mariner's Compass. (*See* COMPASS, MARINER'S.)

Marjoram is a herb largely used as a seasoning in cookery. It is retained in the *Materia Medica* as a stimulant, tonic, and remedy for nervousness, but it is not often used medicinally. There are four varieties. The common marjoram is the only species which is a native of Britain, and it is found not unfrequently in dry, hilly, and bushy places. The sweet, summer, or knotted marjoram (*Origanum Majorana*) is an annual plant, a native of Greece and the East, and was introduced into this country about 1573. It may be sown from French seed on a hot-bed at the end of February, and planted out in May. It is rather tender, and requires a light dry soil. If taken in-doors and kept in a warm sheltered place free from wet, it may be kept through the winter. It will be found advantageous to do this, as dried herbs are never so good as fresh ones, and sweet marjoram imparts a delicious flavour to soups, stews, and sauces, and will supply the place of many other herbs when the exact thing that is wanted is not at hand. July is the best time for drying this herb. Pot marjoram is a hardy perennial, a native of Sicily, and was first cultivated in this country in 1759. It may be easily propagated by dividing the roots in March, April, September, and October. Winter marjoram is not so well known as the other varieties. It was introduced into this country in 1640.

Mark.—A piece of money at one time current in England and Scotland, of the value of 13s. 4d. A coin of the same name is now current in Germany, being equivalent to about 1s. sterling.

Markers for Books.—These well-known appliances are often made ornamental as well as useful. The simplest are of silk ribbon or braid, with or without tassels or other appendages. Many consist of strips of perforated card, embroidered or otherwise adorned with mottoes and devices, and mounted upon ribbon. Some are of card-paper only in long strips, and illuminated or ornamented with drawings, lithographs, &c. Of course the variety is endless; but reference may be added to the combination of paper-knife and book-marker, which is sometimes seen in ivory or tortoiseshell.

Marketing.—The high price that must be paid for provisions renders it most important that the thrifty housekeeper should understand what to buy and where to buy it. Dr. Kitchener, in his famous rules for marketing, says:—"The best rule is to pay ready money for everything, and to deal with the best tradesmen in your neighbourhood. If you leave it to their integrity to supply you with a good article at the fair market price, you will be supplied with better provisions, and at as reasonable a rate as those bargain-hunters who travel around around about a market, till they are trapped to buy some unchewable old poultry, tough mutton, stringy cow-beef, or stale fish at a very little less than the price of prime and proper food." As to the wisdom of paying ready money when marketing there can be no doubt, for the practice of giving and receiving credit is a fruitful source of ruin to both tradesmen and their customers; but whether it is desirable to trust the choice of provisions to the tradesmen is another thing. Certain it is that in so doing the housekeeper resigns to the provision dealer the right of selection. It is to be feared that the practice which has of late years become so common, especially in large towns, of the tradesmen sending round, and the mistress giving orders for articles, has been too much for the integrity to which Dr. Kitchener would trust, and has made it easy for the purveyor to palm off upon the inexperienced housekeeper inferior articles at a high price. Loud lamentations have been made over the decay of good housekeeping and domestic management amongst us, but no more certain method could be taken for the prevention of that decay than that each housekeeper should regularly and systematically do her own marketing. The knowledge which is required for the judicious choice of provisions can only be gained by experience, but it is an experience which, when once gained, will be most valuable. Written rules might be given, but they are difficult of application, and the eye, touch, and smell of the initiated will be of greater service in marketing than anything else. For the benefit of the novice, however, a little general information may be given. Fish of all kinds is best when stiff and springy to the touch, short, plump, and thickly made, gills brightly red, eyes bright and clear. When meat is clammy and livid it is stale. The lean of both beef and mutton should be smoothly grained and of a healthy brownish colour, the fat white and pure. Veal should be fat, white, and young; if the kidney is tainted, the meat is stale. In lamb, the quarter should be short and thick, the neck fat, the kidney fat and

sweet. Pork should be chosen by the colour and the smoothness of the rind. Inferior pork has little lumps in the fat, and the latter looks moist and greasy. The best bacon has a thin rind, the fat is white and pure, and the lean a bright red, interspersed with threads of fat. The meat of small pigs is always unprofitable. (For game, *see* GAME, CHOICE OF.) Poultry is the best when the bones are small, the legs short, and the flesh clean and white. When the legs are smooth and the spur short, the bird is young. When the eye is sunk and the meat tainted it is stale. Cheese should be probed and tasted. Butter also should be tasted. Eggs, if newly laid, appear semi-transparent when held between the eye and a strong light; if they shake about they are stale. Further particulars concerning various articles will be found under the respective headings. (*See* ADULTERATIONS OF FOOD, &c.)

Markets are public places appointed for selling and buying. The establishment of a market is one of the royal prerogatives, and it can only be effected by virtue of the king's grant, or by long usage, which presupposes such a grant. Markets are held in most cities and large towns either once or twice a week. Formerly they were usually held on Sundays, and not unfrequently in the churchyards; but subsequently Statutes were passed prohibiting this. In old times it was customary for a cross to be set up where the market was held, and this was called the market-cross. In country towns not only provisions of all kinds, but sometimes clothing, boots and shoes, iron and hardware, and other articles of merchandise, are sold at the markets. In London, however, and some of the larger towns, it is found necessary to devote a separate market to a particular class of provisions. Thus there are in London, Covent Garden Market for fruit, vegetables, and flowers; Smithfield for meat; Leadenhall for poultry; Billingsgate for fish; and the Metropolitan Cattle Market for live stock. It is a great economy to live near a good market, for provisions may almost always be bought there cheaper than at the shops.

Marking Ink.—This is used by the majority of people in lieu of cotton. Some prefer those inks which require the linen to be prepared previously by a solution which is said to ensure indelibility and to prevent the linen from being injured, a calamity sometimes caused by inks which burn holes in the material. There are a great many varieties of marking inks, but nitrate of silver is the principal ingredient in most of them. The following forms a useful preparation:—Nitrate of silver, a quarter of an ounce, dissolved in seven fluid drachms of dissolved water; mucilage, a quarter of an ounce, to be afterwards added. A good permanent marking ink may be made by dissolving platinum in a mixture of three parts of hydrochloric and one of nitric acid, letting the solution continue till the acid can dissolve no more; the liquid must then be diluted with water, and caustic potash, sugar, and gum must be added. (*See next paragraph.*)

Marking Linen.—Table-linen looks the best when marked with white linen thread in satin or damask stitch (*which see*). For bed-linen, red or blue cotton is better than ink. The letters are formed in cross-stitch after the manner of those on samplers, and care should be taken to count the threads and to keep strictly on the line. In this same way all woollen and merino articles of under-clothing should be marked. Under-garments of linen and calico are now marked with ink specially prepared, that being a quicker method. A few rules should be observed to ensure a satisfactory result, for blots or ill-formed and crooked letters disfigure the garment irremediably. The material should be stretched straightly over a piece of wood and held tight; the pen should be a quill, and kept strictly for this use (one which has been used with other ink must not be taken); a thread of the material should be kept in view on which the letters should stand, and the letters should be formed by down strokes, and made in characters small and legible. Immediately it is marked the linen should be exposed to the air and sun: these two elements will fasten the ink more effectually than the heat of iron or fire, and are much less likely to be injurious, for linen is often scorched when dry. It must be left exposed until the letters are quite black.

Marks, Trade.—By the Trade Marks Registration Act of 1875, a trade mark may consist of a name of an individual or firm, printed, impressed, or woven in some particular and distinctive manner; or a written signature of an individual or a firm, or a copy of such; or a distinctive device, mark, heading, label, or ticket; and there may be added to the above any letters, words, or figures, or combination thereof. A mere English or foreign word is not capable of registration as a trade mark, nor a word merely denoting the quality of an article. Persons violating the above-mentioned Act may be legally proceeded against, and may be restrained by injunction or punished by fine, damages, &c. The sale of articles bearing counterfeit trade marks is also punishable, and the seller may be compelled to give information as to where the articles were procured.

Marmalade is, strictly speaking, a confection of quince, from the Portuguese *marmélo*, a quince; now the word is applied somewhat indiscriminately to conserves of various fruits, especially oranges and lemons. Marmalade is made by mixing fruit pulp with sugar, and boiling the preparation until it stiffens so that it will jelly when cold. It is exceedingly wholesome, and the slight bitterness which belongs to orange marmalade helps to stimulate the appetite of those who require a relish with their food.

Maroon.—So named from the French *marron*, a chestnut, being of a brownish-crimson, the brown hue predominating. Maroon-lake is a colour, which may be prepared from madder, remarkable for its transparency and the depth and durability of its colour. For the purpose of dyeing wool, 20 lbs. of cudbear, or 25 lbs. of orchil, should be boiled with 4 oz. of magenta crystals during the space of ten minutes, and cooled to 175° Fahr. before the immersion of the stuff; the temperature being increased to

212°, when it should be removed, rinsed, and dried.

Marquee.—A tent of large size, usually of oval or oblong shape, supported by two or more poles. Marquees are generally made of stout linen duck, or other strong material, the price varying according as they are strengthened with webbing, rope, or in other ways. The sizes range from about eighteen feet long by twelve feet wide, to one hundred or one hundred and fifty feet in length, with proportionate width. A marquee is a most desirable adjunct to a country-house, being useful for breakfast, luncheon, or dinner parties. Properly fitted up and decorated, and with a boarded floor, a very handsome and convenient dancing-room can also be obtained. In the hands of an experienced maker—marquees can be fitted up with every requirement, large trees, fountains, and flower-beds being sometimes covered in so as to form part of the decorative effect of the interior. They have of late come largely into use for garden parties and wedding breakfasts; for the former a marquee of the size proportioned to the number of guests is erected on the lawn, with a table at which refreshments are served. They are, however, specially adapted for wedding breakfasts in summer-time, the pleasant warm light displaying the guests and table to the best advantage, and by this contrivance all disturbance of the furniture in the house is avoided, the rooms being left at liberty for reception of the company and display of presents. A marquee forty feet by twenty feet would accommodate a wedding party of from fifty to sixty persons.

Marquetry.—Woodwork of a decorative character, composed of fancy woods, varying in texture and colour, let one into another in accordance with some design previously made. The work is sometimes still further enriched with inlay work of silver, brass, ivory, and tortoiseshell, &c. It is a kind of wood-mosaic or veneer work. Marquetry was extremely fashionable in the eighteenth century, and a taste for it has of late years been slowly reviving. This kind of decoration has existed since the arts were in their infancy.

Marquis.—The title of the second of the five orders of hereditary peers of the United Kingdom, a marquis being next in rank to a duke. The word is said to be of German extraction, having originated in the *mark-grafen*, or *margraves*, military officers having entrusted to them the charge of the marches or frontiers, and known even prior to the days of Charlemagne. The eldest son of a duke is by courtesy a marquis, but *only* by courtesy, so that he does not on that account occupy a seat in the House of Lords. The wife of a marquis bears the title of marchioness, which latter title has also been occasionally bestowed on ladies by the Sovereign as an independent dignity. A marquis and marchioness have, each of them, special robes and coronets. The coronet of a marquis consists of a gold circle set round with four strawberry-leaves, and alternating with them are four pearls set on pyramidal points. The coronet of a marchioness has eight pearls on points, with the same number of small strawberry-leaves alternating, and a gold tassel on the top. The eldest son of a marquis is by courtesy an earl, and his younger sons are viscounts. The oldest English marquisates at present in existence are Winchester (1551), Lansdowne (1784), Townshend (1786), Bath (1789), and Salisbury (1789).



MARQUIS'S CORONET.

Marquise Ring.—An old style of ring, comprising the customary gold hoop, but having an oval mount in the direction of the finger. This mount is jewelled in various ways with diamonds, pearls, turquoises, &c., or with any combination of these. Rings in this form were not uncommon for mourning, and were set with hair, enamelled, &c., as taste suggested. They are frequently met with of large size, and then are sometimes called thumb-rings, though probably they were more often worn on the fore-finger.

Marriage.—As a question of law, marriage is a voluntary contract, and the principles which apply to contracts in general are applicable to marriage in particular, with some exceptions, one being that the marriage contract can be lawfully made by persons under the age of twenty-one years. In this country marriages are effected in various ways:—1. *By special licence*, which is granted by the Archbishop of Canterbury, and allows the solemnisation at any time or in any place. 2. *By common licence*, which renders banns unnecessary, and is granted by the archbishop of the province or the bishop of the diocese, or, rather, is issued under their authority to persons properly attested, and on payment of the fees. 3. *By banns*. In this case the names of the contracting parties are read in church on three successive Sundays. If they live in different parishes, the banns are published in each; but in any case marriage must ensue within three months after publication, or the banns will have to be republished. Fees are charged for banns. 4. *By certificate of registrar*, either with or without licence, which supersedes the necessity for banns in order to a marriage in the Church of England, though it must be issued in the district where the wedding ceremony is to take place. Parties intending to marry by *certificate of registrar without licence* must give notice to the superintendent registrar of their district, making the proper declarations, and paying a fee of 1s., on which an entry is made in the "marriage notice book," which is open at all reasonable times for inspection. The notice, or a copy, must then be suspended in the register office for twenty-one days in succession, during which objections can be entered, and at the end of which, should there be no objections, a certificate is given for 1s., stating that due notice of the marriage in such a place has been entered, and that no one has forbidden the issue of the certificate. The certificate may be for the solemnisation of marriage in the registrar's office, when a religious service is not allowed; or it may be in a registered place of

worship, with such forms and ceremonies as the parties think fit; or it may be in a church, as stated above. Jews and Quakers, also, are allowed their own forms. Marriage by *certificate of registrar with licence* is a more expensive and formal procedure than the preceding, and requires notice only in one district when the parties reside in two; the notice need not be posted in the register office, and the registrar will grant a licence on the expiration of one whole day after receiving notice. This licence is good for three months, but not in any church of the Church of England. After a marriage at the registrar's office there may be any religious service, but it neither invalidates nor confirms the civil marriage. Of all legitimate marriages certificates are granted, and can be obtained afterwards if properly applied for. What is called a *clandestine marriage* is punishable at common law, independent of the Marriage Acts, by fine and imprisonment. Such a marriage can take place in various ways. Persons may knowingly solemnise marriages in a place which is not duly authorised, or without a registrar, or in less time than the law prescribes; to do any of which things is felony. But prosecution must take place within three years. A marriage is void between parties who knowingly intermarry at any place other than the one specified in the notice or certificate, or without notice to the superintendent, or due certificate of notice, or without licence when necessary, or in the absence of a superintendent or registrar when necessary. If a valid marriage is effected by a wilfully false notice, the offending party forfeits all interest in property accruing by the marriage. It is perjury to wilfully make false declarations, to sign false notices or certificates, or to forbid the issue of a certificate by false representations. In general, every marriage is clandestine which is effected by fraudulent evasion of the law, or in direct contravention of essential legal provisions.

Law respecting Marriage.—In this compact the free will of both parties is essential; for if the consent of either be wanting, or if it has been obtained by fraud, error, or duress, the marriage is void, even though all the required forms may have been gone through. Persons of insufficient mental capacity, as lunatics, idiots, and children, cannot contract marriage. The marriage of a lunatic, however, contracted during a lucid interval is good, unless a commission of lunacy has been taken out and remains unrevoked at the time of the marriage, when it is void, under 15 Geo. II. c. 30. The age of consent is fourteen in males, and twelve in females. If either is between the age of seven and the respective ages of fourteen and twelve, the marriage is not void, but imperfect. It cannot be annulled until the party wishing to annul it has arrived at the age of consent. Either of them, upon attaining that age, may declare the marriage void; or upon their both attaining it they may confirm the marriage. In the former case, a legal dissolution would not be necessary; in the latter, another marriage service would not be requisite. The marriage of a child under seven years of age is a nullity. A promise to marry *in futuro* is not binding if the party be not twenty-one years of age; but where there are mutual promises to marry between two persons, one of whom is of the age of twenty-one years, and the other under that age, the adult is bound by the promise, but the minor is not. It has been stated that the parties must be capable as well as willing to contract marriage—in other words, they must not be under any legal disability, such as:—1. A prior marriage undissolved, and the former husband or wife still alive. A second marriage under such circumstances is absolutely void, and punishable as a felony. (*See* BIGAMY.) 2. Proximity of relationship—that is, being within the prohibited degrees of consanguinity or affinity. Before the year 1835, marriages between the prohibited degrees were voidable, but not absolutely void—*i.e.*, if their validity was questioned during the lifetime of the parties they would be pronounced void, but after the death of either party their validity could not be questioned. But in 1835, by 5 & 6 Wm. IV. c. 54, all marriages celebrated between persons within the prohibited degrees were declared to be void for all purposes. The marriages now illegal in respect of proximity of degree are those between persons in the ascending and descending lines *in infinitum*. The ascending and descending lines form what is called lineal consanguinity—as father, grandfather, great-grandfather, and so upwards in the direct ascending line, and son, grandson, great-grandson, in the direct descending line. Marriages also between collaterals, to the third degree inclusive, according to the mode of computation in the civil law, are prohibited. Collaterals are those who descend from a common ancestor, but do not ascend or descend from one another, as brothers, uncles, nephews, &c. A man's parents are counted as one degree in collaterals; his brothers and sisters, grandfather and grandmother, are in the second degree; and his uncles, aunts, nephews, and nieces in the third degree. The prohibition as to collaterals extends not only to consanguinity, but also to affinity. Cousins-german, or first cousins, being in the fourth degree of collaterals, may marry. Though those of the consanguinity of the wife are always related by affinity to the husband, and *vice versâ*, yet those of the consanguinity of the husband are not at all necessarily related to those of the consanguinity of the wife. Hence two brothers may marry two sisters, or father and son may marry mother and daughter. These prohibitions extend to the relations of the half-blood as well as to the whole blood, and they also apply though one of the parties be illegitimate; for though, as to many civil consequences, an illegitimate person is deemed *nullius filius*, the law recognises his relationship to his natural parents for moral purposes. 3. Inability to consummate the marriage, arising from certain physical defects. 4. The fraudulent suppression of the name of one or both of the parties in the publication of the banns. A suit for nullity on this ground can only be maintained if both were cognisant of it; in that case either may maintain the suit. In the case of a marriage by licence, however, it seems that the fraudulent suppression or alteration of a name does not invalidate

the marriage. After a marriage has been dissolved, neither party can contract a second marriage until the time limited for an appeal against the decree of dissolution has expired without any appeal being presented, or until such appeal has been dismissed, or until, in the event of such appeal, the marriage has been declared to be dissolved (20 & 21 Vict. c. 85, s. 57). The time limited for an appeal is three months from the date of the decree, if Parliament be then sitting; or if Parliament be not sitting at the end of three months, then fourteen days next after its meeting. The 7 Geo. IV. c. 76, directs that the consent of parents or guardians shall be obtained to the marriage of minors; but the marriage is not invalidated for want thereof. The consent required is that of the father, or if he be dead, then of a guardian lawfully appointed; if there be no guardian, then of the mother, being unmarried; and if there be no mother unmarried, then of any guardian appointed by the Court of Chancery. But where the person whose consent is required is *non compos mentis*, or where such person, being the guardian or the mother, is abroad, or the consent to a proper marriage is unreasonably or from undue motives withheld, the Lord Chancellor, upon petition, has power to give relief. If the marriage is by the publication of banns, and the party whose consent is required dissent from the marriage, he or she attends the church, and states his or her objection immediately after the banns are published by the minister, who will request the attendance of the dissenting party in the vestry-room after the conclusion of divine service, when the sufficiency of the objection will be decided upon by such minister, and if the objection be valid, the publication of the banns will be void; but if the objection be invalid, the marriage will be duly solemnised. If a marriage be about to be effected by licence, and there is an objection to the same, the person whose consent is required enters a *caveat* against the granting of a licence with the Master of the Faculties, before whom a discussion will take place upon it, and he will decide the question according to his discretionary jurisdiction. It is to be observed that if the minor be a widow or widower, no consent is necessary, since he or she would be then deemed emancipated. Social arrangements and other preliminaries of a more private nature depend upon circumstances and usages which need not here be enumerated. (*See* COVERTURE; DIVORCE; HUSBAND AND WIFE.)

Marriage Banns. (*See* BANNS; MARRIAGE.)

Marriage, Breach of Promise of. (*See* BREACH OF PROMISE.)

Marriage, Certificates of. (*See* BIRTHS, DEATHS, AND MARRIAGES, REGISTRY OF.)

Marriage, Civil. — This is marriage effected through a superintendent registrar, as described under the heading of MARRIAGE.

Marriage Customs.—These vary in accordance with the circumstances of the parties married, but they generally include festivities. Newly-married persons commonly leave the parental roof on the day of marriage for a tour in the country or abroad, and as they depart they are often followed by showers of rice, the throwing of slippers, &c. Sometimes the path to the church is strewed with flowers, the church itself is ornamented, and musical performances are introduced, and when the service is over the bells ring a merry peal. The number of bridesmaids is often considerable, and they, as well as the bride, receive presents from the bridegroom. The giving of presents by friends is also a usual custom. We only add that a marriage party usually assembles at and proceeds from the house of the bride.

Marriage Dresses. (*See* WEDDING DRESSES.)

Marriage Registration. (*See* BIRTHS, DEATHS, AND MARRIAGES, REGISTRY OF.)

Marriage Services.—The services for the solemnisation of marriage are diversified. Those of the Church of England need not be described; and it is sufficient to note that religious ceremonies in other cases are in accordance with the usages of the community, whether Roman Catholic, Congregational, Quaker, Jewish, or other. A religious service is not necessarily attached to a civil marriage (*which see*), but the parties make a declaration, the form of which is prescribed by the Act. Sometimes a religious service of a social character is held in the house from which the parties proceed to be married.

Marriage Settlements.—These are legal instruments entered into by the parties intending to marry, or by some parent or relative in their behalf. If made before the ceremony they are termed ante-nuptial; if afterwards, post-nuptial. The former are in all cases most desirable, as they are looked upon as tantamount to purchases for value, while the latter are merely voluntary, and liable to be defeated on a variety of grounds. If, however, a post-nuptial settlement be preceded by articles entered into before marriage, and pursuant to such articles, then it relates back to the date of the articles and becomes practically ante-nuptial. There are also some other rules favouring post-nuptial settlements, which it is beyond the province of this work to state in detail. The stamp duty on these instruments is 5 per cent. on the amount or value of the property settled.

Married Women's Property. (*See* COVERTURE.)

Marrons Glacés.—A sweetmeat which is very popular in France about Christmas-time. It consists of Spanish chestnuts deprived of their skins and boiled in syrup. When fresh they are of a dark colour, are coated with sugar, and are easily masticated; but they soon become pale, hard, and insipid.

Marrow is a light fatty substance which fills the bones of mammals. It is generally of a yellow colour, and is found on analysis to contain in 100 parts 96 parts of oil, 1 of areolar tissue, and 3 of water. The oily part is composed of the same materials as common fat, with the fluid portion in greater abundance. It is of low specific gravity, and is therefore

well suited to fill the cavities of the bones. For the sake of lightness, the larger bones of birds are filled with air instead of marrow, the air passing in from the lungs. Beef marrow furnishes an exceedingly bland fat, and on this account, and also because it is not so much disposed to rancidity as other fats, it is largely used by perfumers in the preparation of pomades and other cosmetics. When scented it is considered equal to bear's grease for strengthening the hair and promoting its growth. It is also used in cookery; and when melted down is esteemed as a valuable substitute for suet and butter in the preparation of puddings and cakes.

Marrow, Vegetable, constitutes the fruit of the *Cucurbita ovifera*, which is supposed to be a variety of the common gourd (*Cucurbita maxima*). It was not until the year 1819 that this vegetable was introduced into the English market, and it is said to have been brought by an East India ship from Persia, in which country gourds are grown in perfection. It is now extensively cultivated in this country, and is dressed in various ways, and of these the simplest is the best—that is, to boil the marrows, and to serve them with sauce poured over them. The Turkish way of dressing marrows is to cut a little piece off one end, scoop out the seed, fill the cavity with a savoury mince, replace the top, and stew the marrow in gravy till it is done enough. This vegetable possesses a delicate flavour, and is easily digested; and although it is very watery, it contains more nutritive matter than its ally the cucumber. It derives its name from the softness of its fleshy substance. The vegetable marrow delights in a rich and open soil, with plenty of moisture. It needs a little special attention, and if carelessly treated there is danger that, should the season prove ungenial, the crop may fail entirely. The seed should always be sown in pots, and as the plant is very rampant in its growth only one seed should be planted in each pot. Old seed is always better than new. The young plants ought to be strong enough to be put out of doors by the middle of May or June. They need from the very first a luxurious ground, and should be stopped occasionally to keep them from getting too large. They require plenty of liquid manure, alternated with cold water; and if large fruit is desired, the object may be advanced by allowing one or two marrows only to come to maturity, but their flavour is best when they are not more than six inches long. Although there are dozens of varieties of marrows, and all are good, the best known are the common white and dark-green kinds. A newer sort, the custard marrow, is exceedingly productive, and surpasses them all in delicacy of flavour. It is small and peculiar in shape, and as it is not so early as the common marrow, it is a good plan to grow a few plants of each, so that the custards may be used when the others are beginning to decline.

Marsala Wine.—The Sicilian seaport from which this wine is exported obtained its name from the Arabs, who when they held Sicily esteemed the port so highly that they called it *Marsa Alla* (port of God). Marsala is a good sound useful wine, and is considerably consumed in this country. When well aged it deserves to be highly esteemed; and as it is moderate in price it constitutes an excellent substitute for sherry where the income is limited. There is no doubt that good Marsala is very greatly to be preferred to bad sherry. Marsala is rather full-bodied, and is of the average alcoholic strength of the fortified wines. It resembles Madeira somewhat both in colour and flavour. Thirty thousand pipes of Marsala wine are manufactured annually, and of this quantity two-thirds are exported.

Marsh Trefoil, commonly known as buck-bean, is a water-plant called by botanists *Menyanthes trifoliata*. It has a creeping root, from which long-stalked leaves rise in triplets, and also flower-stems, about which the blossoms cluster. The flowers are pinkish externally, white internally, and delicately fringed; they are very elegant, and the plant may easily be cultivated in fresh-water aquaria, ponds, or lakes. It was once a popular remedy in gout, rheumatism, and fever; its properties are tonic and bitter, and in large doses cathartic and emetic. At present, little use appears to be made of it among us. *Menyanthes trifoliata* is a native of this country, and so is another species, *Menyanthes nymphæoides*; but neither of them is common, and the latter is rarer than the former. The marsh trefoil flowers about July.

Marshal.—A title of honour in several European countries, where it is applied to various dignities and offices of honour. The word is derived from the old German *mähre*, a horse, and *schalk*, a servant, and in its earliest use denoted a groom or manager of the royal horse. With the growth of chivalry, however, the title rose in importance, until at length in this country the marshal had sole jurisdiction over the court of chivalry, a power at one time exercised by him conjointly with the constable, which latter office has been practically obsolete since the reign of Henry VIII. An earldom attaches to the dignity of marshal, and the office is now hereditary in the family of the Duke of Norfolk. (*See* EARL MARSHAL OF ENGLAND.) Besides the Earl Marshal there is a Knight Marshal, or Marshal of the Queen's (King's) Household. In military affairs, marshal is the title of an officer of very high rank. At one time the Marshal of France denoted the commander-in-chief of the French armies. In Great Britain the office of field-marshal, which has been adopted from Germany, is second only in dignity to that of commander-in-chief.

Marshmallows, Uses of.—The marshmallow is a plant which grows naturally on banks, at the foot of hedgerows, and on untilled land or in marshes, especially near the sea. The stem is two feet or more in height, and covered over with a downy material, the flowers in clusters of a pale rose hue, and the roots thick, pale, fleshy, and carrot-like. The root has a feeble odour, and is mucilaginous and sweet to the taste. It is this root that is used in medicine as an emollient and demulcent. It is used externally as a poultice to inflamed parts, and as an enema in tenesmus, and in irritations of

the bowels, or chest, or urinary organs, it may be used much in the same way as linseed tea. Four ounces of the dried root, with three ounces of raisins, may be boiled in six pints of water until it is reduced one-third; this, when strained, makes a very pleasant decoction. It is, however, more used in France and other parts of the Continent than it is in this country.

Martagon Lily.—This is the *Lilium superbum* of botanists, and belongs to the natural family *Liliaceæ*. It was originally imported into this country about one hundred and fifty years ago, and is now common in our gardens, it being a native of North America. The bulb of this flower is remarkably white and ivory-like, and the flowers are very showy, red or orange with dark spots, but the smell is far from agreeable.

Marten.—This is the name given to a kind of weasel, the *Mustela martes* of naturalists, belonging to the *Mustelidæ*. It is a most elegantly formed little animal, and there are two varieties of them—the beech marten and the pine marten. The former has the lower part of the neck or throat white, the latter has it yellow. The beech or stone marten is found all over temperate Europe, and in some parts of Asia. It builds its nest of hay or straw in the clefts of rocks, or in hollow trees or ruins, and is often found quite close to the dwellings of man, where it is by no means a welcome visitor, especially when it pays its attentions to the farmyards. The pine marten, on the other hand, is more inclined to shun mankind, living in woods and forests in Europe and America, and generally preying on small birds and their eggs. The marten's fur is sometimes dyed to represent sable, but it is not by any means so rich and glossy.

Martin.—The martins belong to the *Hirundinidæ*, or swallow tribe. They generally arrive in this country soon after the swallows



HOUSE MARTIN.

come. The *Hirundo urbica*, or house martin, is by no means destructive either to useful animal or to vegetable life; its presence therefore is tolerated, and it is seldom or never prevented from building in the eaves of our houses or our windows. House martins build their nests of clay, laying it on in stripes until complete, and they are then lined with grass and feathers. They breed three or four times in the year, laying four or five pretty little white eggs. The male bird has a short black bill, the crown of the head and back are bluish-black, the wings and tail dull black, and chin and under surface of the body white; length about five inches and a quarter. They leave us towards the end of October. The sand or bank martin (*Hirundo riparia*) is a smaller variety, with dark-brown beak and hazel eyes, the chest and under part of the body white, other parts dusky brown. It builds in sand-banks and quarries. There is another martin that visits North America called the purple martin. It builds a nest of sticks, and feeds on wasps, bees, &c. The fairy martin of Australia is another variety. It builds a curious nest of clay and mud, and is more gregarious in its habits than the others.

Mashing.—When vegetables are boiled till tender, and beaten into a smooth mass, they are said to be mashed. In order to ensure their being perfectly free from lumps, they are best passed through a coarse sieve before they are served, although when they are young they may generally be worked smooth without this.

Mask.—A cover to conceal or disguise the face. Masks are now only used in pantomimes, but originally they were worn by all actors, and are first mentioned in connection with the Bacchic festivals of the ancient Greeks. They were of various form and character; and those introduced by Æschylus, B.C. 525—456, must have been works of art, our conception of which is formed by the imitations in stone which have been preserved to us. In those days, on account of the immense size of the theatres, the masks were provided with metallic mouthpieces, in order to give additional power to the actor's voice. The term mask is also applied to a species of drama in which masked persons represented fictitious or allegorical characters. These entertainments were in fashion as early as the 14th century, and seem to have reached the height of their popularity under James I. and Charles I.

Masquerade is a gathering or assemblage of persons masked or disguised. Masquerades may be said to have been most common in the reign of Charles II., when they were of frequent occurrence among the citizens. They were suppressed by Act of Parliament in 1724, but were revived and carried to great excess, in violation of the laws, some fifty years later, when we are told that a ticket for a masquerade at Ranelagh fetched 25 guineas. The invention of this kind of entertainment is ascribed to Grenacci, an Italian, about the commencement of the sixteenth century.

Mast.—The name mast is given to the fruit of many of our forest trees, such as acorns, beech-nuts, &c.

Master.—In the universities the most ancient of all academical titles, and attached

to the faculty of arts. In the English universities the degree of Master of Arts (abbreviated M.A., or A.M.) follows that of Bachelor. (*See* ARTS DEGREES.) In modern times the title of Master has been attached to faculties other than that of arts, as Master in Surgery (abbreviated M.S.), a degree granted by the University of London. In the Royal Navy, a Master is an officer ranking with but junior to a lieutenant; he has, under the captain, general charge of the navigation of the ship. After a long period of service the master is granted the title of staff-commander and staff-captain, ranking with commanders and captains. Masters are now rarely appointed in the navy, their place being taken by navigating lieutenants—*i.e.*, lieutenants who have passed a special examination in navigation. In the merchant navy, a Master is a person entrusted with the navigation and command of a ship, and he is by courtesy called the captain. In Scotland the eldest sons of some of the landed nobility are designated as Masters, the title of "The Master of ——" being prefixed to their father's title of peerage. The title of Master is also associated with many offices of distinction in this country, of which the following are the most important:—

Master of the Buckhounds.—An officer of the royal household, who controls all matters relating to the royal hunts. A salary of £1,500 per annum attaches to the office, which is vacated on a change of ministry.

Master of the Horse.—The third great officer of the household, having the superintendence of the royal stables, stud, &c. He also has authority over all the equerries and pages, grooms, &c., connected with the royal household. A salary of £2,500 attaches to the office, which is vacated on a change of ministry.

Master of the Household.—An officer of the royal household in the Lord Steward's department, employed under the Treasurer of the Household to examine accounts, &c.

Master of the Rolls.—One of the judges of the Court of Chancery in England, and next in rank to the Lord Chancellor.

Master and Servant.—A relationship founded on convenience, whereby a man calls in the assistance of others where his own skill and labour are insufficient to answer the cares incumbent upon him. Where a servant is hired for one year certain, and so on from year to year, as long as both parties shall agree, and the servant enters upon a second year, he must serve out that year, and is not merely a servant at will after the first year. If a woman servant marries, she must nevertheless serve out her term, and her husband cannot take her out of her master's service. If a servant be disabled in his master's service by an injury received through another's default, the master may recover damages for loss of his service. And also a master may not only maintain an action against any one who entices away his servant, but also against the servant; and if without any enticement a servant leaves his master without just cause, an action will lie against another who retains him with a knowledge of such departure. A master has a just right to expect fidelity and obedience in all his lawful commands, and to enforce this he may correct his servant in a reasonable manner, but this correction must be to enforce the just and lawful commands of the master. In defence of his master's person or property a servant may justify assaulting another, and though death should ensue it would not be murder on the part of the servant. Acts of the servant are in many instances deemed acts of the master; for as it is by indulgence of law that he can delegate the power of acting for him to another, it is just he should answer for such substitute, and that his acts, being pursuant to the authority given to him, should be deemed the acts of his master. If a servant commit an act of trespass by command or encouragement of his master, the master will be answerable; but the servant is not thereby excused, as he is bound to obey the master in such things only as are honest and lawful. If the servant of an innkeeper robs his master's guest, the master is bound to make good the loss. Also if a waiter at an inn serves a man bad wine, by which his health is impaired, an action lies against the master, for his permitting him to serve it to any person is deemed and implied general command. In like manner, if a servant is frequently permitted to do a thing by the tacit consent of his master, the master will be liable, as such permission is equivalent to a general command. If a servant is usually sent upon trust with any tradesman, and he takes goods in the name of his master upon his own account, the master must pay for them; and so likewise if he is sent sometimes on trust and sometimes with money, for it is impossible in such cases for the tradesman to know when he comes by the order of his master and when by his own authority, or when with and when without money. But if a man usually deals with his tradesmen himself, or constantly pays them ready money, he is not answerable for what his servant may purchase in his name, for in this case there is not, as in the other, any implied order to trust him; or if the master never had any personal dealings with the tradesman, but the contracts have always been between the servant and the tradesman, and the master has regularly given his servant money for payment of everything had on his account, the master shall not be charged; or if a person forbids his tradesmen to trust his servant on his account, but he nevertheless continues to purchase upon credit, the master is not liable. The act of a servant, though he has quitted his master's service, has been held to be binding upon the master by reason of the former credit given him on his master's account, and it not being known to the party trusting him that he was discharged. The master is also answerable for any injury arising by the fault or neglect of his servant when executing his master's business; but if there is no neglect or default in the servant, the master is not liable. If a smith's servant lames a horse whilst shoeing him, or the servant of a surgeon makes a wound worse, in both these cases an action for damages will lie against the master, and not against the servant; but the damage must be done whilst the servant is actually employed

in his master's service, otherwise he is liable to answer for his own misbehaviour or neglect. A master is likewise answerable for any nuisance occasioned by his servants, to the damage or annoyance of any individual or the common nuisance of the public. A servant is not answerable to his master for any loss which may happen without his wilful neglect; but if he be guilty of fraud or gross negligence, an action will lie against him by his master. A master is not liable for the wilful act of his servant, as by driving his master's carriage against another, done without the direction or assent of his master, no person being in the carriage when the act was done; but he is liable to answer for any damage arising to another from the negligence or unskilfulness of his servant acting in his employ. As to servants' characters, *see* CHARACTER TO SERVANTS. Disputes between masters and servants, and attempts to compel servants and workmen to combine in opposition to masters, have been the subject of much legislation. In 1867 the Masters and Servants Act of that year (30 & 31 Vict. c. 141) provided various remedies by summary process for breaches of contract between masters and servants. This Act, however, with a large number of earlier Acts on the subject, has been repealed by the Conspiracy and Protection of Property Act, 1875 (38 & 39 Vict. c. 86), which also repeals the 34 & 35 Vict. c. 32, which was passed to amend the law relating to violence, threats, and intimidation. The Act of 1875 provides that in trade disputes no agreement or combination shall be indictable unless the act contemplated would be indictable if done by one person; while it also makes special criminal provisions in the case of persons employed by gas and water companies. It imposes penalties on masters for not taking proper care of their servants, and on persons intimidating or using threats or violence to others, and provides for a summary process in such cases, with an appeal to the quarter sessions. By the Acts 5 Geo. IV. c. 96, 30 & 31 Vict. c. 105, and 35 and 36 Vict. c. 46, provision was made for arbitration between workmen and their employers in case of trade disputes. And by the Employers and Workmen Act, 1875 (38 & 39 Vict. c. 90), special powers are given to County Courts as to ordering payment of money, set off and rescission of contracts, and taking securities for performance of contracts in trade disputes between employers and workmen. And the same jurisdiction is given to justices by the Act up to the value of £10, which extends also to disputes between masters and apprentices. (*See also* DUTIES OF MASTERS TO SERVANTS.)

Master-key.—A key which opens a number of different locks. One of our great lock-makers some time since constructed a large safe with many compartments, every one of which had its appropriate key, and he devised one master-key which would open them all. The utility of this is obvious.

Mastic.—1. A low shrubby tree of the genus *Pistacia*, growing upon the islands and coasts of the Mediterranean, chiefly in the island of Chios, and producing a valuable resin called by the same name. The latter, which is procured by incision, is in colour of a yellowish-white, is semi-transparent, has a slight odour, bitterish taste, and is used as an aromatic astringent. It is likewise employed as an ingredient in drying varnishes. One kind is soluble in alcohol, and its solution constitutes a good varnish. It also dissolves in turpentine. 2. A kind of cement, composed of burnt clay, litharge, sand, and linseed oil, which is used for plastering walls, and for other purposes. 3. A low evergreen shrub belonging to the genus *Thymus*.

Mastication.—This is the act of cutting and chewing the food, performed by the teeth. It is the first step in the preparation of the food for digestion.

Mastiff.—This is one of the few dogs that are known to be indigenous to England. It is mentioned in history from the earliest times. So celebrated, indeed, was this island at one time for its mastiffs, that the Emperors of Rome used to appoint an officer called the *Procurator Cynegii*, whose duty was to breed these noble animals here, and send to Rome such as he considered were fit to engage in the combats of the amphitheatre. No words can convey a correct idea of the majesty and stateliness of a pure dog of this breed. They are of large size, ranging from thirty to thirty-four inches at the shoulder. The head is grand, majestic, and kindly withal in expression, very broad between the ears and eyes, and with a "stop" or hollow distinct, but not too deep; the forehead flat, and sometimes wrinkled; the eye small, deeply set, wise-looking, trusting, and mild; the muzzle square and massive, not very long and not tapering; the face short and cheeks muscular; ears small and thin and dark, and set more forward than back, but not much back either, but not at half-cock, as some breeders say. The teeth ought to be *level;* the undershot jaw looks very bad, and shows admixture with the bull. The neck is strong, muscular, clear, with little loose skin about it; the body massive, large, and long; the chest both wide and deep, and the loins wide and strong; feet small, compact, and close; shoulders and thighs strong and muscular; legs straight, muscular, massive, and hard; tail carried low, tapering, and not curled. The colour sometimes brindle, but the fawn colour with dark muzzle and mask is most popular. The coat should be fine, and the whole animal should be well proportioned and not leggy. The character of the mastiff, if true bred, is all that could be desired. Though brave, he never provokes a quarrel nor makes a wrong use of his giant strength, while in affection for his human friends he can hardly be surpassed.

Match-boards.—These are much used for lining, partition, and other work, and are so styled because they match or fit into one another at the edges by what is called a groove and tongue-joint. One edge of a board projects, or has what is called a tongue, and the other edge has a groove, so that a series may be fixed closely fitting into one another. At

the junction there is commonly seen a slight moulding, which is cut in the outer edge of one of the two boards coming together. For making the groove and tongue, planes called match-planes, or a groove-plane and a tongue-plane, are employed. When well fitted, match-boards are very useful for the purpose of keeping out draughts of air.

Matches.—There are several varieties of these useful little articles. One of the first forms in which they were known was the brimstone match, which was made by cutting dry pine-wood into splinters, and dipping the ends into melted sulphur. These were lighted from a spark, which was obtained by striking fire into tinder from a flint and steel. At the end of the first quarter of the present century this contrivance was superseded by what was called the instantaneous light box. This made way, in its turn, for lucifers, or light-bearing matches, invented in 1826, and which consisted of small strips of wood, dipped first in melted sulphur, and afterwards into an inflammable mixture made of chlorate of potash and sulphuret of antimony, and ignited by being drawn quickly through folded sand-paper. These matches were not particularly easy to ignite, but they were so popular that their name survived after they themselves had been superseded by more effective contrivances; and the term lucifer match is still applied to the congreve and congreve light now used. The congreve, or phosphorus match, is made of pine-wood cut by machinery into thin splinters, although a superior variety, named vestas, are made of wax-taper. In English-made matches the wooden splinters are square in form. In Germany, where vast quantities of matches are made, they are cylindrical; but these are not nearly so strong as when square. Matches are made of double length, and both ends are dipped into the inflammable mixture, which consists of phosphorus and nitre, or phosphorus, sulphur, and chlorate of potash, mixed with melted gum, and coloured to a dark tinge. A slight friction will cause these matches to ignite, and a little piece of sand-paper is usually attached to some part of the box upon which they can be struck. The congreve matches are exceedingly convenient, but they ignite so easily that they are very dangerous unless carefully used, and they have been the cause of numerous conflagrations. A later improvement in the manufacture of matches, and the best, is what is called the safety match. It was invented in 1855 by a Swede named Landstrom, of Jonkoping, in Sweden, and was quickly patented in this country. It differs from the congreve in that the inflammable mixture is divided into two parts, one of which is placed on the end of the splint and the other is spread on the surface of the box, previously made rough by a coating of glue and sand. By this invention the danger of fires from the accidental ignition of the matches is avoided, as neither the portion on the box nor that on the splint can be lighted by rubbing on an unprepared surface. The trade in matches is very large; indeed, so wonderfully has match-making developed itself, that in this country more thousands are now engaged in it than there were hundreds of persons who found employment in making the brimstone matches formerly.

Mate.—In the merchant service, the deputy of the master or captain of the vessel. In the absence of the master the mate takes the command. In large merchantmen there are sometimes as many as four mates, all subordinate to the master, and known respectively as first mate, second mate, &c. Mates' certificates are granted by the Board of Trade to those properly qualified to hold them. In the Royal Navy, mate was formerly the distinctive title of the officer next in grade below the lieutenant, now called the sub-lieutenant. There were also the master's mate and surgeon's mate, now respectively known as the second master and the assistant surgeon. The term is now limited to the assistants of certain warrant officers, such as gunner's mate boatswain's mate, &c.

Maté. (*See* PARAGUAY TEA.)

Materia Medica.—This is that branch of the science of medicine which treats of the various drugs and other medicinal agents employed in the alleviation or cure of disease.

Materials for Dresses.—Silk, flax, cotton, wool, hair, leather, fur. The fabrics in general use are velvet, velvetine, cotton velvet, satin, satinette, silk, tabinet, poplaine, cloth, tweed, plaid, paramatta, chalais, barèges, cashmere, bombazine, alpaca, merino, camel's-hair, mohair, serge, damassé, mousseline-de-laine, chintz, cottons, muslin (clear, figured, and Swiss), gingham, camlet, Vichy-cloth, brown holland, nankeen, picquet, linsey-woolsey, plush, rep, grenadine, batiste, tarlatan, satin-cloth, lama flannel, linen, kerseymere, Russell and Persian cords, furs of many descriptions, leather, corduroy, fustian, knicker-bocker, shawl-cloths, and pantaloon stuffs, including Russia-duck. There are many fabrics which are reproductions of the above-named stuffs with some slight difference in the combinations of material or the mode of manufacturing them, to which fresh names are given as new fashions are introduced.

Maternal or Mothers' Meetings.—These gatherings are usually carried on under the auspices of the benevolent ladies of a district, as a means of giving assistance, sympathy, and advice to the impoverished mothers of families. They are valuable not only for accomplishing the object that is specially in view, but also for promoting kindly feeling amongst the different classes of the community. The idea which they embody is that ladies of culture and education, and who have plenty of money at their disposal, can make purchases more judiciously and more economically, because in larger quantities, than their poorer neighbours. They therefore buy a store of material on the best terms, and sell portions of the same to the poor mothers at the same price, taking the payment in the pennies that can be spared weekly from the scanty income. These purchases and payments are made at the mothers' meetings, and when the business is disposed of a little time is spent in religious exhortation and instruction, and also in giving

and receiving advice as to home management, domestic economy, and the laws of health. These meetings are generally held in connection with some religious community, and in many districts they have been productive of great good.

Mathematical Instruments.—Instruments used in the study of mathematics (pure and applied), wherewith to draw the necessary figures, diagrams, &c. They are usually sold fitted in convenient cases, and a set sufficiently complete for the young student may be purchased at a low cost.

Mathematical Proof.—The proof which results from the application of mathematical principles. Such is the proof effected by algebra, arithmetic, trigonometry, conic sections, and geometry. It is the most decisive kind of evidence, but is of necessity only applicable to problems which can be solved by numbers, measures, and the like. This proof or demonstration is, however, not arrived at by the use of instruments, but by a process of reasoning and calculations.

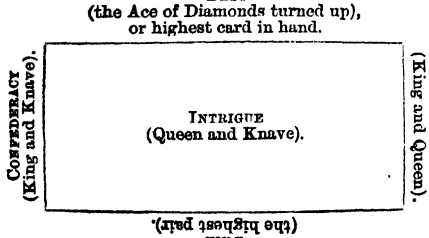
Mathematics.—The science which treats of number and magnitude, and investigates their properties. It is often divided into *pure*, and *mixed* or *applied* mathematics—mixed mathematics being the science of number and magnitude applied to the various properties of matter, as in statics, dynamics, hydrostatics, &c. The principal branches of pure mathematics are arithmetic, algebra, geometry, trigonometry, conics, differential and integral calculus, calculus of differences, of variations, and of probabilities.

Matriculation. — A word used in the universities to express the admission of a member. At Oxford and Cambridge, where the university is composed of a number of colleges and halls, matriculation is contemporary with admission into one of these colleges or halls. The matriculation examination is the entrance examination required at most colleges and universities prior to admission. (*See* University.)

Matrimonial Engagements. (*See* Betrothment; Engagements, Matrimonial.)

Matrimony. (*See* Marriage.)

Matrimony.—A card game, played with the entire pack of cards, and by any number of persons from five to fourteen. There are five winning chances in the game, which must be marked on a board or sheet of paper as shown below:—



Each player starts with an equal number of counters, and the dealer begins the game by placing as many of his counters as he pleases on either or all of the five different chances; all the other players must deposit the same stake, less one—*i.e.*, if the dealer stakes six counters, all the other players must follow with five. After this the dealer gives each person two cards, beginning with the one on his left, who is eldest hand. He then deals a third card to each, which he turns up. Should any player have the ace of diamonds turned up, he takes the whole pool. If the ace of diamonds be not turned up, each person shows his hand, and those holding Matrimony, Confederacy, &c., take the counters standing on the particular chance. That player draws "Best" who has the highest card, beginning with the ace, but the ace of diamonds in hand is of no more value than any other ace. In case two players should hold Matrimony, Confederacy, &c., or in the event of two persons holding Best, the elder hand wins. Should any chance not be gained, it stands over to the next deal.

Mats (Door, &c.).—These are used for two purposes—those placed at the outer doors are there to preserve cleanliness, and those at the inner doors are to keep currents of air from the rooms; the character, therefore, of the two kinds is different. (*See* Door-mats.) Bass mats are useful as kneeling mats when scouring floors or weeding gardens.

Mats, Fancy.—Now that covers are in general use on tables, mats of this class are not so often required. In the days when tables exhibited polished tops, mats were often necessary, on which to place all articles likely to scratch or injure the wood. But for two purposes they are still useful—for plant-pots and lamps to stand on. Wool or beads worked on canvas, wool knitted or crocheted into form, and paper plaited into shape are the materials generally used. Mats made nest-fashion have the prettiest effect, with thick full borders of wool flowers, or imitation moss, or of many layers of crimped and crushed paper round their edge. The centre of these mats should always be smooth and even, otherwise that which rests on it is liable to be overturned.

Matted Gold. (*See* Gold, Matted.)

Matter (Pus).—This is the discharge which takes place from a wound or sore. It is one of the results of inflammation, and is likely to happen whenever that condition has occurred. Matter, or, as it is more scientifically called, pus, is either healthy or unhealthy. Healthy or laudable pus is a yellowish, thick, creamy fluid, of faint odour, and having an alkaline reaction. It is composed of water, fat, extractive matter, albumen, and some salts, chiefly common salt. Microscopically, pus is seen to consist of white nucleated corpuscles floating in a fluid called the *liquor puris*. It was formerly supposed that pus was merely the result of the breaking up of tissue; but it has now been clearly shown that this is not so, but that it is blood in an altered condition from inflammation, and especially abounding in

white cells; that it is, in fact, an agent of repair, not a result of disintegration. Pus is said to be sanious when tinged with blood, ichorous when thin and watery, curdy when cheese-like and flaky, and muco-purulent when mixed with mucus.

Matting.—For passages and kitchens, that made of the fibrous covering of the cocoa-nut is the best adapted; it is thick, strong, and useful. There are a great many qualities made. That which is coarse and loosely woven allows dust to penetrate, and is soon worn into holes; those finer and closely woven, although double the cost, are really the cheapest, but they are very durable, and keep straight and flat, whereas those loosely woven curl and turn up. Indian matting is stiff and not so pliable as cocoa; it is made in squares of red and white. It is useful for placing before washing-stands, for it is not so cold to the feet as floor-cloth; it is also used for the bordering of rooms which have carpets in the centre only, and by some people this matting is substituted for carpet in sitting-rooms during the summer season on account of its coolness. Russia matting, or bast, is made from the inner bark of the lime or linden tree; it is a coarse soft matting used chiefly for garden purposes. This is of very old manufacture; it was formerly known as Dutch, because imported from Holland, and was often used for bedding.

Mattock.—An implement somewhat resembling a pick-axe, used in agriculture, military pioneering, &c. The two ends of the iron head are broad-edged, and not pointed, as are those of the pick-axe.

Mattress.—These are made of straw, of flocks, of wool, and of hair. The first-mentioned is generally known by its French name of palliasse; these, and those of flocks, are used as under-mattresses. Wool mattresses are of different qualities; those which contain white wool are superior to those of coloured wool. This class of mattress is soft and comfortable, but does not possess the coolness and elasticity of the hair mattress, which ranks first. The price of hair mattresses is usually regulated by the size, so much an inch being charged, according to the quality of the hair. When these mattresses become hard from long usage, they should be sent to the maker, who, by separating, pulling to pieces, and re-curling the hair, is able to restore the contents to the former state.

Maundy Money.—Every year there is a special coinage of money of various values at the Mint, to provide the coins required for distribution by the Sovereign on Maundy Thursday. These coins differ slightly in size and appearance from those in general use, and are known as Maundy Money. (*See next paragraph.*)

Maundy Thursday.—The Thursday preceding Easter, on which day it is customary for the Sovereign of England to distribute money and gifts among a number of poor people. The word maundy is probably derived from the fact that the gifts were formerly contained in *maunds*, or small hand-baskets. (*See preceding paragraph.*)

Mauve (Colour and Dye).—A purple or lilac colouring matter obtained from aniline, a product of coal-tar, employed for dyeing silks, and producing a great variety of beautiful and permanent shades. Much of the mauve colour now seen is obtained from archil by means of a new process. The French call it "mallow," after the plant of that name (*Malva sylvestris*), from the similarity of the colour to that of the flower of this plant. It was the first aniline colour introduced into commerce, and is otherwise known as Perkin's violet, though Kunge had previously called attention to the violet coloration produced on treating aniline with chromic acid or the hypochlorites. (*See* ANILINE COLOURS AND DYES.)

May-flies. (*See* EPHEMERA.)

Mayor.—The chief officer of certain municipal corporations or boroughs. The Mayors of London, York, and Dublin are called "Lord Mayors." The election is annual. Some corporations have no mayor, but what is styled a bailiff; and some boroughs which return members to Parliament have neither mayor nor bailiff. In Scotland the chief magistrate of a city or burgh is termed a provost. (*See* PROVOST.)

Mayor's Court.—A court held before the Lord Mayor of the City of London, being the chief court of justice of the Corporation of London, presided over by the Recorder, or, in his absence, the Common Serjeant, although in legal consideration the Lord Mayor and Aldermen are supposed to preside. Its practice and procedure are amended, and its powers enlarged, by the 20 & 21 Vict. c. 157. It possesses the peculiar jurisdiction known as foreign attachment. (*See* ATTACHMENT, FOREIGN.)

Maze denotes a piece of ground planted and arranged in various meanders, so as to render it extremely difficult, after entering the walks, to find the leading avenue. The principal expense of a maze is in connection with the green hedges, which should be at least seven feet high; and if the breadth of the walks be calculated at four feet, besides twelve inches for the room occupied by the shrubs, the diameter of a very good maze need not exceed 150 feet. It is customary to plant a lofty chestnut or a circle of poplars in the centre; but this, of course, is purely a matter of taste.

Mazer.—An old-fashioned and now almost obsolete wooden drinking-vessel of capacious kind, usually bowl-shaped, and sometimes having a low foot.

Mazurka.—This is a Polish dance *à trois temps*. It resembles the polonaise, but is more lively and animated; its movements are varied, being at one time joyous, at another somewhat melancholy. It is danced by four or by eight couples. In North Germany and France it is a favourite dance. Its name has arisen from Mazovia, a province in Poland, from whence it emanated. The polka-mazurka is danced by single couples; it resembles a slow polka. It is frequently placed in the ball-room programmes of the present day.

Mead is an old English liquor prepared from the combs from which honey has been

drained, boiled in water. Although it is not much drunk now, there is little doubt that for centuries it was well known both to the polished nations of Southern Europe and to the barbarous northern tribes. It is frequently mentioned in Ossian; and Pliny says that it possesses all the bad qualities of wine without the good ones. It is thin and brisk, of variable sweetness, and of moderate alcoholic strength; it improves with keeping, and acquires a peculiar fragrance with age. Some persons flavour mead with hops and fortify it with brandy, and then it is called sack mead. Mead is sometimes confounded with metheglin, which is a fermented liquid prepared from fresh honey.

Meal is the general name given to the edible part of wheat, barley, oats, rye, and pulse of different kinds after it has been coarsely ground. In Scotland the term meal is applied specially to ground oats, barley, and pease.

Meals.—The word meal is derived from the Saxon *mæl*, a portion, and it signifies the portion of food taken at one time. It is almost as necessary for health that food should be taken regularly and at proper periods as it is that it should be wholesome and nutritious in its nature and sufficient in quantity. As a rule, carnivorous animals take their food at long intervals. In zoological menageries it is customary to feed the wild animals only once a day, and it is said that they thrive better when thus fed than when food is given more frequently. They eat to repletion, and then they remain for some time drowsy and inactive. Animals that live on vegetable food pass a considerable portion of their time in feeding. But a mixed diet is the one best suited to mankind, and therefore it may be concluded that his method of taking food should be something between that which is adopted by the animal and vegetable feeders. This conclusion is in accordance with the practice of the majority of nations. It has been the prevailing custom, which has doubtless arisen from instinct, for three substantial meals to be taken each day, at intervals of five or six hours. The order of the meals has varied in different countries. In classic ages it was customary for the Greeks and Romans to have a light meal in the morning, another in the middle of the day, and to partake of the principal meal in the evening. In mediæval times the practice which prevailed in Europe nearly down to the middle of the last century was still to have three meals a day, but for the middle one to be the chief. Then, however, the habits of life were very different to what they are at the present time. It is said that four was a very usual time for rising; breakfast was at five and dinner at twelve, and supper, which was taken in the evening, was only another dinner. At the present time, dinner is the principal meal, and for the last hundred years among the cultivated classes it has gradually been taken later and later, until now from six to eight in the evening is the time preferred. This is in England. In France and Italy the dinner-hour is not later than four or five o'clock, and in Germany it is still usual to have an early dinner and supper. Even the court hour for dining is not later than four or five. In some parts of Germany five meals are taken—breakfast, luncheon, dinner, tea, and supper. Whatever the arrangements for the meals may be—and they must, of course, vary with the position and habits of the individual—there are two or three points that should not be forgotten. One of these is, that the fast should be broken without much delay after rising; another, that the intervals between the meals should not be too prolonged, as this is a most fruitful cause of exhaustion of the system; a third, that a hearty meal should neither immediately follow nor precede violent exercise; and a fourth, that a hearty meal should never be taken just before going to bed.

Mealworm.—This insect is well known in Britain, and is commonly met with in granaries, mills, and other places where stores of meal and flour are kept. It lays its eggs on these substances, and the larvæ feed on them and often do a good deal of mischief. The mature insect is of a chestnut colour, with short antennæ and stout legs, and it has wings and wing-covers; the larva, or mealworm, is an inch long, and is of an ochreous colour, very smooth and glossy. Cleanliness and care are required to prevent the ravages of these destructive little creatures.

Measles.—This is a contagious and infectious fever which may occur at any period of life, but is most frequently contracted in childhood. As a rule, it affects the system once only, but a second attack is not uncommon. The symptoms of measles are, in the first instance, those of common cold—viz., sneezing, coughing, running at the eyes, nose, &c., with more or less feverishness. About the fourth day an eruption of spots, resembling flea-bites, and which are clustered together in the form of segments of circles, makes its appearance, first in the face and neck, then upon the trunk, and lastly upon the extremities. This rash reaches its height about the fourth day, and gradually disappears, the skin peeling off, and leaving the patient about the eleventh day from the beginning of the attack comparatively well. This constitutes an ordinary attack of measles, requiring no other treatment than mild aperients, cooling drinks, as home-made lemonade, cream of tartar, &c., the daily use of the warm bath, and confinement in a moderately warm, well-ventilated room. Measles, especially amongst the poor, is apt, however, to be complicated with bronchitis, pneumonia, &c., when the remedies recommended for those diseases will be requisite. There is a form of measles which is called malignant, which should here be mentioned. In this affection the eruption assumes a much darker appearance, and is interspersed with petechiæ, or small spots somewhat resembling flea-bites; there is generally delirium, and the lungs are usually implicated. It proves fatal in a large proportion of cases. The only available treatment is to support the strength with beef tea, wine, brandy, &c., until the violence of the poison has abated.

Measly Meat.—Pork in particular is subject to the condition described as measly. The meat has a granulated appearance, the grains often being as large as hemp-seed; and

Dr. Edward Smith says it is known to have produced fatal results to many of those who have incautiously eaten. Such meat is therefore unwholesome, and unfit for human food. The disease is really the presence of what is called the cysticercus, and though most common about the tongue, occurs in hams, &c. The same thing is not unknown in beef. Dr. T. K. Chambers observes that the measle-worm of the pig has been found to be the undeveloped embryo of the tapeworm of most usual occurrence in Great Britain. It is some comfort and useful to know that a boiling temperature entirely destroys the vitality of these germs; hence pork should be well cooked before it is eaten. Measly meat is prone to rapid decomposition in spite of cookery.

Measures. (*See* WEIGHTS AND MEASURES.)

Meat Biscuits.—These wholesome and nutritious preparations are made either by forming a dough of fluid extract of meat and flour, cutting it into shapes, and baking the biscuits, or by mixing together to a smooth mass flour and finely-minced and pulped fresh lean meat. The latter of these two processes is believed to afford the more nourishing meat biscuit.

Meat Extracts. (*See* EXTRACTS USED IN COOKERY.)

Meat, Flesh, as Food.—Flesh meat is an essential article of food, especially in that mixed form of diet which is necessary to sustain life and vigour in cold or temperate climates. Containing as it does fibrine, albumen, gelatine, fat, mineral matter, and water, it possesses the requisite materials for repairing the waste that is continually going on in the body. At the same time it must be remembered that eating too much flesh meat is not conducive to health; it should therefore not be taken more than twice a day at the most, and then in moderation. (*See* DIET; FOOD.)

Meat-fly. (*See* BLOWFLY.)

Meat-safe.—This useful article is almost indispensable in hot weather, and is intended to preserve meat from the attacks of flies. Meat-safes are made of various sizes and prices. Small wire ones may be bought at a trifling cost, but they will not stand very much wear and tear. Larger and more durable ones are made either to fit into some convenient corner of the larder or to hang from the top.

Meat Sauces. — Brillat Savarin, the French gastronomist, gave it as his opinion that cooking and roasting might be taught, but that to make a sauce one must be born with the capability of doing so. It is quite true that the skill and *savoir faire* of a cook are shown in nothing more than in the choice and manufacture of sauces. As Dr. Kitchener says, "A great deal of the elegance of cookery depends upon the accompaniments to each dish being appropriate and well adapted to it. The most homely fare may be made relishing, and the most excellent and independent improved by a well-made sauce, as the most perfect picture may be by being well varnished." "It is the duty of a good sauce," says the editor of the *Almanach des Gourmands*, "to insinuate itself all round and about the maxillary glands, and imperceptibly awaken into activity each ramification of the organs of taste; if not sufficiently savoury it cannot produce this effect, and if too piquant it will paralyse instead of exciting those delicious titillations of tongue and vibrations of palate that only the most accomplished philosophers of the mouth can produce on the highly-educated palates of thrice happy *grands gourmands*." The word sauce is derived from the Latin *salsus*, salt. It is understood to mean a liquid or semi-liquid preparation used as a seasoning for food. The French have two sauces, brown and white, and these form the basis of all their meat sauces. The brown sauce is called indiscriminately brown sauce, Spanish sauce, and sauce Espagnole. The white sauce is velouté or velvet down. Plainly thickened with white roux, velouté is béchamel; enriched with eggs, it is Allemande or German sauce; while Dutch sauce, or sauce Hollandaise, and poulette sauce are simply variations of the same idea. These are the fundamental sauces of superior cookery. The English have been contemptuously styled a nation of one sauce—melted butter; but this reproach is less and less deserved year by year. (*See* GRAVY.)

Meat Saws, Choppers, and Cleavers are all used for dividing meat into neat pieces and disjointing the bones. They should be wiped carefully each time they are used, and hung in a perfectly dry situation, as damp will spoil them more than anything, and make them rusty and unfit for use.

Meat-screen. (*See* COOKING-SCREEN.)

Meat Supplies.—A good deal of anxiety has been experienced of late years as to whether the supply of meat for home consumption will keep pace with the increasing demand for the same. That there is cause for this uneasiness is evident enough; for while the population is daily increasing, and the ordinary meat consumers are growing in numbers, in consequence of the improvement in the social condition of the working classes, it has come to be generally acknowledged that home graziers are unable to meet the demand. The Committee of Council on Education have gathered together some interesting statistics as to the supply and consumption of meat which tend to throw a good deal of light on the subject. According to these, it appears that for the daily supply of the metropolis about 4,500 live beasts are sent to the London market, 300 tons of dead meat come by railway from the north, and the amount sold daily in the Metropolitan Dead Meat Market alone is 500 tons. Official returns showed that the annual consumption of meat in the kingdom in 1870 was about 96 lbs. per head; this, at the wholesale price of 8d. per pound, amounted to 64s. for each person, and for the entire population about £99,000,000. A trustworthy authority estimated the average consumption of meat by each person in the United Kingdom at 103 lbs. per annum; for in 1871, 31,700,000 people consumed about 1,500,000 tons. This is equal to a demand for 1,300 head of cattle, sheep, and pigs every day. In 1872 the average consumption of meat had risen to

108 lbs. per head. Upwards of £220,000,000 is said to be invested in live stock in Great Britain and Ireland. The number of cattle and calves in the United Kingdom in 1875 was 10,162,787. Of these, two-sevenths, or about 3,000,000, are supposed to be annually slaughtered, the average weight per head all round (for both cattle and calves) being taken at 560 lbs. To this has to be added the supply of mutton and pork, and other animal food, fresh or cured. Our annual import of beef, salted or fresh, is about 250,000 cwts., besides which there is a further quantity of undescribed meat imported, as shown in the following figures in cwts.:—

	1860.	1870.	1875.
Meat, salted or fresh	15,007	84,300	144,987
„ preserved . .	6,131	80,636	171,746

The foreign food supplies, chiefly derived from horned cattle, received in 1875 were — salt beef, 181,504 cwts.; beef, fresh or slightly salted, 35,000 cwts. Owing to the danger and difficulty of long sea voyages, the importation of foreign live cattle is confined to a few neighbouring states. Besides this, it would appear that from those countries whence we obtain the largest and best supply the exportation has reached its maximum. It was in 1842 that we began to import live animals, when the number of cattle received from abroad was but 4,264. In 1853 the number of cattle received was 125,253, and of sheep 259,420. It then declined somewhat till 1863, when the cattle imported numbered 150,898 animals, and in the three following years averaged about 250,000 head. Since then there have been fluctuations, owing to the restraints arising from examination for disease on landing. In 1875, 263,698 head of foreign cattle were imported.

Meats.—Most of these are referred to in this work under their respective headings.

Meats, Preserved.—The question of the preservation of meat is at the present time one of paramount importance. Owing to the increase of population and other causes, the consumption of butcher's meat has increased yearly, and now the home supply is by no means equal to the demand. At the same time, in other countries, such as Australia and South America, the supply of animal food procurable far surpasses the wants of the inhabitants, and it has been the practice to sacrifice the animals for the sake of their wool and skins and other exportable parts. This being the case, the resources of science have been engaged in discovering means for rendering the supplies of one country available for use in another far distant. Of the methods which have been employed for the preservation of meat, the most important are by drying, by cold, by exclusion of air, and by the use of anti-septics. Simple drying is very effective, and the practice is one of great antiquity, but the flavour and other qualities of the meat are not improved by it. Cold has been extensively used as a preservative, and many improvements have taken place with regard to its use. It would almost seem as if the solution of the problem, how meat is to be preserved and transported so that it shall retain its nutritive qualities as well as its flavour and appearance, and used as fresh food in countries far away from the one where it was grown, lay in the employment of this agency. Much attention is being given to the subject, and a new trade has been established, which has rapidly grown in importance, and promises to prove most valuable to the human race. The preservation of meat by the exclusion of air is that so largely adopted in Australia. (*See* AUSTRALIAN FOODS.) This meat retains its nourishment. The objection to it is that through the heat employed in the process it is cooked too much. It has, however, grown in popular flavour, and as improvements in the processes of tinning are constantly being devised, it will doubtless continue to do so. Anti-septic agents, such as salt, sugar, and substances of a saline nature, are also used to preserve meat. They act by reducing the proportion of water present, and by preventing the development of those lower forms of animal and vegetable life which are a sign of, if they do not originate, decay. The effect of a saline, however, is to depreciate the nutritive value of the article, by extracting the soluble constituents and also to harden the texture, and thus render the meat difficult of digestion. The method of salting, or, as it is called, pickling, meat is also extensively adopted in many parts. It is efficient to a certain extent, but there are many objections to it which will always prevent salted meat being largely used when fresh can be obtained. For one thing, its employment for a lengthened period is prejudicial to health, and its effect on the system is to produce what are called scorbutic affections.

Mechlin or Malines Lace.—Of the many beautiful fabrications of lace, that of Mechlin, or Malines, as it is called in its own country, is considered to be the most delicate, it being specially fine and transparent. These qualities place it among what are termed the summer laces, as best agreeing with the materials worn during that season than other kinds of lace which are heavier in style and workmanship. The delicacy and beauty of Mechlin lace are shown to most advantage when it is worn over a colour. This is a pillow lace made in one piece, in which various fancy stitches are introduced. Its distinctive mark is the flat thread with which its flowery patterns are formed; this gives it the character of embroidery, and at one period the lace was known as *broderie de Malines*. In the seventeenth century this lace became fashionable in England, and increased in favour during the eighteenth century. It was chiefly used for ruffles, cravats, and frills for dresses. Towards the close of the last century the English people became enamoured with French blonde lace, and from that time the fabrication of Mechlin lace gradually and finally declined.

Medallion.—A large medal. In architecture, the word is applied to any circular tablet on which figures, busts, &c., are embossed. Circular pictures are in some cases spoken of as medallions.

Medals.—These bear a general resemblance to coins, but are not intended to pass current as money. They are usually commemorative

of persons or events, and bear appropriate devices and inscriptions. Medals are frequently given as prizes for excellence, or as an honourable distinction. European coins are circular, but medals vary much in their forms. (*See also* COINS AND MEDALS.)

Mediævalism.—Conformity to the style and manner predominant in the Middle Ages, especially the four centuries previous to the Reformation.

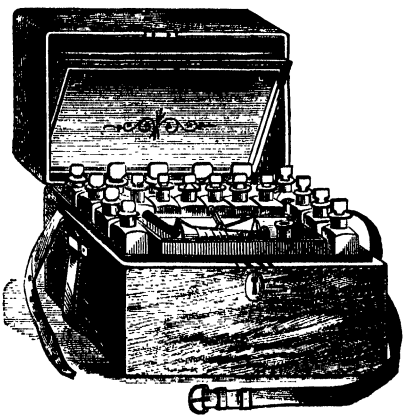
Medical Advice.—The importance of obtaining professional medical advice need not here be urged, as the fact is sufficiently indicated by the articles on various diseases and accidents given in this work. Hospitals, dispensaries, and other institutions exist in abundance for the assistance of the poor in this respect; and private patients are in this country generally within reach of a doctor. There is therefore no need for resorting to quack doctors and their medicines, nor, in any serious case, for trusting to private skill. (*See* DOCTORS' FEES.)

Medical Comforts. (*See* COMFORTS, MEDICAL.)

Medicated Bath.—This is a bath into which some medicinal substance, as sulphur, mercury, &c., has been introduced for remedial purposes. (*See* BATHS AND BATHING.)

Medicine Chest. (*See next paragraph.*)

Medicines, Domestic.—These may be said to embrace all those materials which make up an ordinary medicine chest. For aperient purposes, there should be calomel with sugar, in the proportion of one grain of the former to two grains of the latter, well rubbed together



MEDICINE CHEST.

in a mortar; children take this readily if placed on the tongue and washed down with any fluid, as milk, tea, or water. The dose is three grains and upwards. There should also be powdered rhubarb and jalap, magnesia, Epsom salts, pyretic saline, compound colocynth pill, blue pill, and castor oil. These ingredients, as well as those which follow, should be kept in well-stoppered bottles. For fever-cooling purposes, there should be concentrated acetate of ammonia, spirits of nitre, and James's powder. For coughs and colds, Dover's powder, syrup of squills, paregoric, ipecacuanha wine, and sal volatile. For soothing and sleeping purposes, laudanum and solution of morphia, syrup of chloral, and bromide of potassium. For diarrhœa purposes, chlorodyne, aromatic confection with opium, diluted sulphuric acid, chloric ether, and grey powder. For indigestion, there should be soda, Gregory's powder, tincture of capsicum, and Schacht's solution of bismuth. For tonic and strengthening purposes, tincture of iron, quinine, tincture of calumba, and cod-liver oil. For blistering and counter-irritant purposes, blistering fluids and Rigollot's mustard-leaves. For emetic purposes, sulphate of zinc and ipecacuanha powder. All these medicines should have their respective doses plainly marked outside the bottle or vessel containing them, and should be kept in a dry place. This list of drugs, to be complete, should contain also those mentioned under the heading of SURGERY, DOMESTIC. When it is not practicable or desirable to have such a variety of medicines as those just enumerated, the following will be found useful:—A bottle containing calomel and sugar as previously described, some compound rhubarb and colocynth pills, and a bottle each of citrate of magnesia, Hunyadi Janos water, castor oil, chlorodyne, laudanum, spirits of nitre, syrup of squills, ipecacuanha wine, Gregory's powder, and carbonate of soda. These will be sufficient to meet any ordinary case. Linseed meal and mustard, for poultices, should be always available, and it is as well to supplement these with a bottle of spirits of turpentine.

Medicines, Patent.—These are medicinal agents, some useful, some worthless, the authors or discoverers of which have found it most to their interest to sell as secret medicines, protecting the sale by taking out a patent. All patent medicines sold in Great Britain are subject to an *ad valorem* stamp duty, as follows:—

		£	s.	d.
Retail price not exceeding	1s.	0	0	1½
,, ,,	2s. 6d.	0	0	3
,, ,,	4s.	0	0	6
,, ,,	10s.	0	1	0
,, ,,	20s.	0	2	0
,, ,,	30s.	0	3	0
,, ,,	50s.	0	10	0
,, exceeding	50s.	1	0	0

Medlars.—The plant upon which this fruit grows (*Mespilus germanica*) is a native of various parts of Europe, and is sometimes met with growing wild in the hedges in England. It is very frequently cultivated in gardens. The fruit is shaped something like a top, and is of the size of a small pear. It is not eaten until it is *bletted*, that is, until its tough pulp has become soft by incipient decay. It has a very peculiar flavour, and is not much used. It is in season at the end of the year.

Medoc Wines are varieties of claret, and are named from the district from which they are produced. They are of a rich purple colour, and have a good body and bouquet, and are pure, light, and pleasant to the taste. The best Medoc wines are Château Margaux,

Château Lafitte, and Château Latour. (*See* CLARET.)

Meerschaum. — A silicated magnesian clay, extensively used in the manufacture of tobacco-pipes. It is found in Turkey and other parts of Europe, but chiefly in Asia Minor, in stratified, earthy, or alluvial deposits. The word *meerschaum* is a German compound signifying "sea-foam."

Megrim.—This is the term used to signify a certain giddiness and tendency to fall down, to which many people are subject. It is more generally used, however, in reference to a similar condition which occurs in animals, especially horses, cows, dogs, cats, &c.

Melancholia. (*See* INSANITY.)

Melanite. (*See* GARNETS.)

Melodrama.—A short drama in which music is introduced, the word being derived from the Greek *melos*, song, and *drama*. The music, however, occupies but a minor place in the melodrama, the greater part of the words being recited and not sung. In France and England the word has lost much of its primitive meaning, and a melodrama is now generally understood to be a romantic play, in which sensational incidents are especially prominent.

Melon Pattern.—There are several kinds of melon pattern moulds—viz., the oval melon, the plain melon, and the rock melon, all of which are pudding moulds representing the different fruits mentioned. The ordinary kinds are stamped in copper and afterwards tinned; the more expensive are made entirely of copper.

Melons.—The melon (*Cucumis melo*) belongs to the gourd tribe. It has never been discovered in a wild state, but is supposed to be a native of the sub-tropical parts of Asia, and was introduced into England from Jamaica about 1570. It was originally named the musk melon. The fruit varies in colour and size, and in the character of the rind. In some varieties the rind is smooth and thin; in others it is thin and warty, and cracked in a net-like manner. The flesh, too, is sometimes yellow, sometimes green, and sometimes red. It is properly the fruit of a hot climate, and in our cold land it occasionally upsets the stomach. It is usually eaten at dessert, either by itself, or with sugar, salt, or pepper. It is annual, and can only be grown out of doors in the most southerly parts of England, and the young plants must be raised on a hot-bed. The best soil for growing melons is a strong loam from a pasture, with the turf upon it laid in a heap, and broken down when wanted, but not when it is first put in the frame. This soil should be at least eighteen inches deep, and the plants in the early part of the season should be watered in the morning, but as the weather becomes hot they should be watered half an hour before the sun goes off the frame in the evening. The heat at all times should not be less than 70°. The water-melon of Spain and France (*Cucumis citrullus*), although seldom grown in Britain, is highly prized and much cultivated in warm countries. The fruit is large and round, with a dark-green spotted rind and pink or white flesh. It is less sweet than the melon, but is much more juicy, and has a delicious flavour.

Memorandum Books. (*See* NOTE BOOKS.)

Memory, Aids to.—Many devices have been imagined for assisting in the remembrance of dates, numbers, and facts. Several of the more popular methods consist in the adoption of certain letters of the alphabet to represent the cardinal numbers. These letters are embodied in fictitious or real words, and connected in various ways with the fact meant to be remembered. Thus in one system the date of the deluge is indicated by "delctok," where *del* is the first part of the word, and *etok* means 2348. So "exafna" means that the exodus took place in 1491 B.C. In another system the numeral letters are all consonants, and are to be embodied in a word in which vowels and unnumbered consonants go for nothing. The word adopted should have something in it connecting it with the fact to be recorded; and to facilitate the process single numbers may be represented by more than one letter—*e.g.*, *b*, *w*, *v*, all stand for 8; *c*, *g*, *k*, for 7, &c. Another plan is to fix on certain classes of objects as representing the numerals, and to combine them into a group by an effort of imagination. Another method is to combine certain words which have to be remembered in an arbitrary way, and yet on fixed principles, so that there need be no mistake when the sentence thus formed is recalled to mind. Not to mention other modes, we may observe that memorial lines and verses have been extensively used, and with much success, in impressing facts upon the memory. Exceptional and occasional devices for reminding persons of what they wish to recollect are innumerable, and though they cannot be reduced to a system, frequently answer their purpose.

Memory, Loss of.—This may be due to disease of the brain or to old age, or it may result from want of exercising the faculty. Memory, or, more correctly speaking, recollection, may be either very much developed by practice, or very seriously impaired by the want of it, and by the habit, too much indulged in, of committing everything to paper and trusting little or nothing to its aid. We have distinguished recollection from memory, because we consider the latter a special gift, like music, painting, or eloquence, and possessed only by a few.

Memory of Man.—A legal phrase. The "memory of man" is supposed to extend back to the time of Richard I.; and until the Statute 2 & 3 Wm. IV. c. 71 (which provided that claims to rights of common and other profits were not to be defeated after thirty years' enjoyment by showing their commencement), any custom might have been destroyed by its being shown that such custom had not existed continuously from that date. But though it was essential to the validity of a custom that it should be shown to have existed before the commencement of the reign of Richard I., yet proof of a regular usage for twenty years, *not*

explained or contradicted, was that upon which many public and private rights depended, and was considered sufficient to justify a jury in finding the existence of immemorial usage.

Men of Straw.—A term used to describe a class of persons who in former days hung about our courts of law, and who made their occupation known by a straw in one of their shoes. An advocate or lawyer who required a convenient witness knew by this sign where to find one, and the colloquy between the parties was very brief. "Don't you remember?" said the advocate (the party looked at the fee and gave no sign, but the fee increased, and his powers of memory increased with it). "To be sure I do." "Then come into court and swear it." And "straw-shoes" went into court and swore it. Athens also abounded in these men. The term is now very commonly used to signify a person destitute of capital or of means of his own.

Mendicants. (*See* VAGRANTS.)

Mending. (*See* CLOTHES, REPAIRING; DARN, DARNING.)

Menials.—Strictly speaking, domestics, the followers, retainers, and dependents of a great house. Much has been written upon the origin of this word, but it seems proved that a menial was so called because he formed part of the *meiny* (retinue, servants, &c.) of a feudal lord, who could command the services of his tenants as well as of those regularly engaged in his employment. Perhaps domestic servants of an inferior order are now called menials, because of the little regard formerly paid to the freedom of the individuals constituting a *meiny*. The modern French word *ménage*, signifying a "household," is from the same source.

Meniver. (*See* MINIVER.)

Menstruum.—Any liquid which serves as a solvent for a solid body. The term is derived from the old alchemists, who believed in the state of the moon exercising an influence over such solvents.

Mental Aberration. (*See* INSANITY.)

Mental Reservation.—Hiding one's true meaning by keeping back words necessary to a complete statement of fact or opinion. This is a practical fraud, but is often resorted to by persons who wish to produce a wrong impression, as when a tradesman says an article cost him so much, or that the cost price was so much, when by private arrangement between him and the merchant a large discount has been allowed.

Ménu. (*See* BILL OF FARE.)

Mephitics.—Vapours, exhalations, and gases, which are not merely offensive to the smell, but are noxious, poisonous, or destructive of life. Mephitic exhalations often arise from substances in a state of decomposition. Carbonic acid gas has been called mephitic gas, and is the fatal choke-damp of mines.

Mercery.—This term is applied to wares or merchandise, especially silk or woollen goods, though originally the word meant anything offered for sale. A shoe-mercer is one who deals in the materials used in the shoe trade.

Mercury.—A metal found in various parts of the world, the principal supplies being obtained from Spain, Hungary, Illyria, Italy, and Peru. In its native state, mercury is a bright silvery-white fluid metal, whence its common name *quicksilver*, and its scientific name *hydrargyrum* (from two Greek words meaning "silver water"). Mercury remains liquid at all ordinary temperatures, becoming solid only when subjected to a temperature of −40° Fahr., or 72° below the freezing-point of water. For this reason mercury is of especial value in the construction of thermometers, barometers, and other philosophical instruments. There are several compounds of mercury. It combines in two different proportions with chlorine, forming a subchloride and a chloride of mercury; of these the first is commonly known as calomel, and the second as corrosive sublimate. (*See* CALOMEL; CORROSIVES.) Sulphur unites with mercury, forming sulphide of mercury, or cinnabar. (*See* CINNABAR.) In addition there are the bromide, iodide, cyanide, and fulminate of mercury, the latter being largely used in the manufacture of percussion-caps. (*See* DETONATING COMPOUNDS.) Native mercury is much employed in the production of mirrors and looking-glasses, the silvering of which is effected by covering the polished surface of the glass with an amalgam of mercury and tin. (*See* AMALGAMS; AMALGAMS FOR SILVERING.)

Mercury as a Medicine.—This is without doubt one of the most useful remedial agents we possess. Like its handmaid, bleeding, mercury many years ago was used without judgment or moderation in almost every disease, and consequently after a time fell into disgrace through being given in cases where its administration was not only unadvisable, but was followed by serious results. The experience of the physicians and surgeons of the present day simply confirms the high opinion of the drug formerly entertained, but it has also taught them not to push its effects too far, and that therefore no good but evil results from salivation. It is a curious fact that liquid mercury, or quicksilver, may often be swallowed in large quantities without injury or any bad effect, simply passing out of the body unaltered. This, however, must not always be relied upon, as sometimes a portion may be absorbed and the full effect experienced. Mercurials, as blue pill, calomel, &c., in small doses increase the secretions, and especially, though not directly, that of the bile. They also appear to favour the absorption of morbid products, and assist in eliminating them from the body. They are especially valuable in congestions, inflammations, various dropsies, rheumatism, as well as in certain other diseases. The effects of mercury may be produced by the mercurial vapour bath (*see* BATHS AND BATHING), or by inunction with mercurial ointment, many medical men preferring these modes of administering the drug, as being quicker and more efficacious. When the gums become tender and the saliva increased in quantity, mercury, in whatever form it is being taken, must be at

once discontinued. The most ordinary preparations of mercury are grey powder, calomel, blue pill, and corrosive sublimate. The first three will be found described under their respective headings. Concerning the last-named, already referred to under CORROSIVES, a word or two may be added here. Corrosive sublimate is the perchloride of mercury, and is used in doses of about the twentieth part of a grain, in a pill or otherwise, in skin affections, periosteal rheumatism, and other diseases. Eighteen grains of this form of mercury dissolved in ten ounces of solution of lime constitute the well-known yellow wash. Corrosive sublimate with decoction of bark makes a valuable gargle, most useful in ulcerated throat.

Meridian.—In astronomy and geography, a great circle of the sphere, supposed to be drawn or to pass through the poles of the earth's axis and the zenith of any given place, intersecting the equator at right angles. The *first meridian* is that from which longitudes are reckoned, and the choice of it is entirely arbitrary. (*See* LONGITUDE.) The term meridian is from the Latin *meridies*, mid-day, and it is so applied because when the sun crosses the meridian of any place it is noon at that place. The *magnetic meridian* is a great circle supposed to pass through the magnetic poles.

Merino Sheep.—The sheep so called is large in size, and has wool on its cheeks and forehead; the male has spiral horns, which do not, however, rise above the head. The breed is Spanish; it has been largely imported into other countries on account of the excellence of the wool. In Australia immense flocks of these sheep are pastured for this purpose. By English farmers they are not largely kept, because they fatten very slowly. The fleece bears remarkably soft and silky wool, which hangs in long twisted ringlets; it is impregnated with oil, and for this reason these sheep have always a dingy appearance, owing to the dust clinging to their fleeces.

Merinos.—This particular class of twilled woollen goods was first manufactured early in this century. The Spanish merino sheep, famed for the excellence of their wool, were imported into Germany, France, and England, and the fabrics made of that wool received the name of merinos. Those made in Saxony and at Rheims, in France, were specially esteemed for warmth, lightness, softness, and durability. As they were largely patronised in England, our manufacturers proceeded to produce them, and at Bradford, in Yorkshire, merinos were made; but English merinos do not bear such a high name as French, because they are harsher to the touch. The width of merinos is six quarters, this increased width being considered more advantageous for dresses than the ordinary three quarters. For children's dresses, merinos are most serviceable, because the material, if all wool, is warm, strong, and moreover can be washed and dyed satisfactorily. Socks and vests are also made in Leicestershire of white and grey merino; these take a place between thick woollen and cotton goods, being thinner than the former and warmer than the latter.

Mermaid and Merman.—A mermaid was an imaginary creature resembling a woman down to the waist, and then terminating like a fish. In like manner the merman was half man and half fish. The belief in such things has passed away, but the forms are retained in the heraldry of this country.

Meshes. (*See* NETTING.)

Mesmerism. (*See* ANIMAL MAGNETISM.)

Mess.—A dish or portion supplied at a meal. In the army and navy, a mess consists of a certain number of persons, who take their meals together in accordance with fixed arrangements.

Messuage (from the French *maison*, a house) is, in law, a dwelling-house with some land adjoining for its use. By the name of messuage, a garden, shop, mill, cottage, chamber, cellar, or the like, will pass. In Scotland the term messuage denotes what is called in England the manor-house—viz., the principal dwelling-house within any barony.

Metal. (*See* METALS.)

Metal (Glass).—This word is often used when speaking of glass to denote its quality as a material: thus, "it is excellent metal." Strictly speaking, however, the term is said only to be appropriate to glass in a state of fusion.

Metallic Books are small pocket memorandum books made of specially-prepared paper of an enamelled nature. They are provided with a metallic pencil, and when written on with this article the writing has the advantage of being indelible. They are moderate in cost, the prices ranging from sixpence upwards, according to the binding.

Metallic Pens are generally made of steel, and are said to have been invented in 1822. Although a steel pen is so small an article, the mode of production is somewhat tedious, a well-made pen having to go through no less than fourteen separate processes. The metal when properly rolled is cut into strips; these are put into cast-iron boxes and placed upon a "muffle," where they are then softened by heat. This done, the strips are rolled between metal cylinders, and thus considerably extended and made of the proper thickness. They are then placed in a press, in which are fitted the proper tools for cutting out the "blank." Two pens are cut of the width of the steel, after which the "blanks" are taken to be pierced, and the little central hole and the side slits cut by another press. These semi-pens are placed in a heating-oven to make them softer, after which they are marked by a die, which stamps the maker's name, and then placed in a groove and converted from a flat into a cylindrical form. After this they are heated to a white heat, and suddenly thrown into oil, which renders them brittle. When they have gone through a process of "cleaning," they are "tempered" and "scoured," and then taken to the grinding-room, where each pen is ground at the back, upon which operation the quality of the pen depends. The last process is

the "slitting," which is effected by means of a suitable press. This done, the pens are examined, and are then ready for sale. The first gross of pens manufactured in this country was sold for £7 4s., and these pens were doubtless inferior to those now sold for two or three shillings a gross.

Metals.—There are fifty-one metals known, but many of them are of excessive rarity, so that they can only be of scientific interest. The principal characteristics are their lustre, malleability, ductility, fusibility, and high conducting power for heat and electricity. In all these characteristics, however, they vary considerably from one another, so that certain metals are pre-eminently useful for special purposes. It will be convenient to note those which are of chief importance under each of these heads. *Lustre.* The power of reflecting the rays of light is possessed in a much higher degree by metals than by non-metallic substances; and hence it is commonly termed *metallic lustre.* Silver is pre-eminent in this respect; a polished surface of this metal reflects nearly all the light that falls upon it, and hence would be unrivalled as a mirror were it not that it tarnishes readily, especially in the presence of sulphuretted hydrogen, which is given off by coal fires and gas flames. Palladium, platinum, and aluminium are inferior in lustre, but do not tarnish as silver does. Burnished gold is very brilliant and does not tarnish, but its colour renders it unsuitable for some purposes. Polished steel ranks very high, but is liable to rust. Tin is a brilliant metal, but too soft by itself for ordinary use; when alloyed, however, with twice its weight of copper, it produces a very hard and brilliant substance, which is used for making the mirrors of reflecting telescopes; hence it is often called speculum metal. *Malleability.* The facility with which a mass of metal can be hammered out is a very important property, depending very much upon the tenacity or strength with which its particles hold together. Some metals, however, need to be heated considerably in order to render them malleable. Gold is the most malleable of all, as three grains of it can be beaten out into leaf that will cover a square foot. Silver comes next in order, and then copper. Vessels made of these metals are therefore usually wrought under the hammer. Lead, zinc, and iron are very inferior in this respect, the first-named being deficient in tenacity, and the last two requiring to be heated first. *Ductility* is still more dependent upon tenacity. Gold, silver, platinum, iron, and copper are the best for wire-drawing. One grain of gold can be drawn out into five hundred feet of wire. *Fusibility.* Some of the metals are of special economic importance, because they are capable of being melted at a comparatively moderate temperature, and others because they resist very extreme temperatures. Thus tin and cadmium melt at 442° Fahr., bismuth at 507°, lead at 617°, zinc at 773°, and antimony at about 1150°. Hence these are much used in making solders and numerous small vessels cast in moulds for domestic use, which need never be exposed to any very great heat. Wrought-iron only melts at about 4000°, or perhaps even more, and hence is used for fire-bars and melting-pots. Platinum is of value in scientific investigations, because it will resist a much greater heat still. The high *conductivity* of metals for heat renders them less liable than glass or earthenware to fly when exposed to sudden changes of temperature. Their power of conducting electricity causes some of them to be pre-eminently suitable for making telegraph wires and lightning-conductors, but of course renders them unsuitable for insulators. Silver and copper are nearly equally good as conductors, and then comes gold. Zinc, palladium, platinum, and iron are only about one-fourth to one-sixth as effective as silver or copper. Many of the metals cannot be used on account of their combining with the oxygen of the air, so as to lose their metallic character: thus potassium and sodium can only be preserved in naphtha or some other liquid which contains no oxygen. The following is a complete list. The first group are called noble metals, as they are not affected by the oxygen of the air. The third group contains the metals of the alkalies, and the fourth those of the alkaline earths. Neither of these two small groups are of much value as metals, though their compounds are of great economic importance. In each group the more abundant metals are put first:—

1. Silver, gold, mercury, platinum, palladium, rhodium, ruthenium, osmium, iridium.
2. Iron, copper, lead, manganese, zinc, tin, antimony, arsenic, aluminium, nickel, cobalt, bismuth, tungsten, chromium, titanium, cadmium, molybdenum, vanadium, uranium, glucinum, indium, thallium, zirconium, tantalum, niobium, tellurium, thorium, yttrium, erbium, cerium, lanthanum, didymium, gallium.
3. Sodium, potassium, lithium, cæsium, rubidium.
4. Calcium, magnesium, barium, strontium.

Meteorology occupies an intermediate place between physical geography and astronomy, and embraces the study of all the phenomena affecting the earth's atmosphere, and the changes in it caused by heat, moisture, and electricity, as well as all those due to terrestrial magnetism. It therefore includes the measure and weight of the atmosphere; the disturbances in it which result in storms of wind, rain, and lightning; the accumulation of cloud and fog; the deposition of dew; the distribution of heat and moisture over the earth's surface, and the periodical variations resulting in the changes of the seasons and varieties of climate; and a number of optical phenomena, such as the rainbow, parhelia, halo, mirage, the aurora, and the zodiacal light.

Meteors, or Aerolites, are small bodies circulating through space with such a velocity as to become visible through being raised to a state of incandescence by the resistance of the earth's atmosphere. Hence they suddenly appear as shooting or falling stars, and usually disappear again as suddenly on becoming vaporised. A few of the larger or more refractory meteors are not thus dissipated entirely, and the nucleus comes down to the earth. Star showers, as they are

often called, are most abundant in August and November, as during a portion of those months the earth travels through two zones, in which there are great numbers of these small bodies. The meteoric stones which have reached us are very interesting, on account of their peculiar composition. They are of two kinds—the earthy and the metallic, and all bear evidence of the high temperature to which they have been exposed. The elements that enter most plentifully into their composition are iron, magnesium, calcium, silicon, oxygen, sulphur, and nitrogen; carbon and phosphorus are also common, the carbon frequently in the form of lumps of graphite. Although no element has yet been found in them which does not exist in the earth, the arrangement of the elements is exceedingly different, as they are often combined together in proportions unknown in any of the terrestrial minerals.

Meters, Gas. (*See* GAS-METERS.)

Meters, Water. (*See* WATER-METERS.)

Metheglin. (*See* MEAD.)

Method. — In domestic affairs, method means systematic and orderly performance—a place and a time for everything. The importance of this is evident; and indeed it is essential to the well-being of a house. In business it is the secret of success with many; nor can any one hope to accomplish much, whatever his vocation, who has no regard to method. The training and education of the young should involve everything likely to render them methodical in future life. Method is order; and if, as Pope says, "Order is Heaven's first law," it should not be neglected by man in any condition of life.

Methylated Spirit consists of alcohol mixed with one-tenth part of wood spirit or pyroligneous acid. The latter imparts a peculiar odour and taste, which prevent the use of the methylated alcohol as a drink, though some persons do in time acquire such a craving for ardent spirits as to tolerate even this compound. The principal uses are for burning in spirit-lamps, and as a solvent for resins in the manufacture of varnishes, for which purposes it answers equally as well as pure alcohol. It is free of excise or customs duty, and therefore is so much cheaper as to be always preferred in such cases.

Metre.—In poetry, a regulated succession of similarly-affected syllables. The word is derived from the Greek (*metron*, a measure), and in its classical use a metre was a subdivision of a verse, consisting sometimes of one, sometimes of two feet. English metres differ from the classic, in that while the latter depend on the regular succession of long and short syllables, the former are principally dependent upon the regular recurrence of *accented* and *unaccented* syllables. There are, in fact, three distinct kinds of metres, according as to whether they are similarly affected (1) in their quantities—classic metres; (2) in their sounds, either initial, as in Anglo-Saxon and old English alliterative metres, or final, as in rhymed metres; (3) in their accents, as in blank verse. Sometimes several of these metres are combined, as in alliterative rhymed metres and accented rhymed metres. A rhythmical line or *verse* is compounded of certain units called *feet*, which are not single syllables, but complexes of syllables. Each foot must contain one accented, and either one or two unaccented syllables, and there are therefore five distinct measures possible—two dissyllabic and three trisyllabic. Classic names have been adopted for these, but the wide distinction between the classic and English metres of the same name must not be forgotten. The five English measures, or feet, are as follows:—(1) The *Trochee*, consisting of an accented, followed by an unaccented syllable, as gla'dly; (2) the *Iambus*—an unaccented and an accented syllable, as rele'nt; (3) the *Dactyl*—an accented followed by two unaccented syllables, as wa'nderer; (4) the *Anapæst*—two unaccented followed by an accented syllable, as engineer'; (5) the *Amphibrach*—an accented between two unaccented syllables, as revea'ling. According to the number of feet of which each line or verse of a poem is composed, the composition is said to be in Trochaic, Iambic, Dactylic, Anapæstic, or Amphibrachic — monometers, dimeters, trimeters, tetrameters, pentameters, hexameters, &c. The Iambic rhythm is that most suited to the genius of the English language, and the most important Iambic verse is the pentameter, consisting of five feet, or ten syllables. This is the English heroic measure, and when unrhymed forms *blank* verse; each pair of lines rhyming form an heroic couplet, while four heroics rhyming alternately constitute an elegiac stanza.

Common metre, or *service* metre (the latter name being derived from the fact that it is the measure of the metrical version of the Psalms), is the Iambic heptameter, or verse of seven feet; each verse is, however, commonly divided into two lines of four and three feet, or eight and six syllables respectively. The *long* metre of hymn-books, &c., is the Iambic octometer, or verse of eight feet; as in the case of common metre each verse is usually divided into two lines of four feet, or eight syllables.

Metre (Measure).—The unit of length in the metrical system, being the ten-millionth part of the quadrant of the meridian, and equal to 39·37079 English inches. (*See next paragraph.*)

Metrical System.—A decimal system of weights and measures, first adopted in France, and now in use in most European countries, and in the principal South American States. The great value of the metrical system lies in the fact that it is a decimal system (*see* DECIMAL SYSTEMS), and that it is based upon two data only, the *metre* and the weight of a cube of water the side of which is a tenth of a metre; so that the units of weight, length, capacity, solidity, &c., are all correlated. The system originated in France, where, as also in our country in past times, much confusion existed in the weights and measures in use. Indeed, France seems to have been especially unfortunate in this direction, for in the year 1789, when the introduction of a new system was first contemplated, there were more than fifty descriptions

of *livres* (lbs.) in use in different parts of the country, while there were more than a hundred various modes of measuring land. In 1789 some reform was urgently demanded, and accordingly in 1790 Prince de Talleyrand distributed among the members of the Constituent Assembly of France a proposal for the establishment of a new system of weights and measures on the principle of a single and universal standard. A committee of the French Academy of Sciences, consisting of five of the most eminent mathematicians of Europe, was afterwards appointed to select some natural standard or base. Their choice seems to have wavered between a pendulum beating seconds, a quarter of the equator, and a quarter of the meridian. The latter, however, was at length preferred, and the ten-millionth part of a quarter of the terrestrial meridian was taken as the standard of lineal measure, and called a *metre*. From this standard the system takes its name. It was at the same time determined that the standard of weight and capacity should be the weight of distilled water at freezing-point, measured in a cubic vessel each side of which measured $\frac{1}{10}$th of a metre; this unit was denominated a *gramme*. The length of the quadrant of the meridian was ascertained by French philosophers, and according to their researches the metre is equivalent to 39·37079 English inches; the gramme is equal to 15·432 grains avoirdupois. In both of these units a slight scientific error, when considered in relation to their origin, is said to exist; but such error affects but little the practical completeness and convenience of the system. The units having been fixed, the decimal multiples and sub-multiples were obtained by the employment of four prefixes from the Greek, *deca*, *hecto*, *kilo*, and *myria*, for the multiples; and three prefixes from the Latin, *deci*, *centi*, and *milli*, for the sub-multiples. The metrical measure of length is therefore as follows:—

Millimetre .	=	$\frac{1}{1000}$	metres	=	·03937 Eng. inches.
Centimetre .	=	$\frac{1}{100}$	,,	=	·39370 ,, ,,
Decimetre .	=	$\frac{1}{10}$	,,	=	3·93707 ,, ,,
Metre . .	=	—	—	=	39·37079 ,, ,,
				or	3·28098 ,, feet.
Decametre .	=	10	,,	=	10·93633 ,, yards.
Hectometre	=	100	,,	=	109·36330 ,, ,,
Kilometre .	=	1000	,,	=	·62136 ,, miles.
Myriametre	=	10000	,,	=	6·21382 ,, ,,

From the unit of length are directly derived (1) the unit of superficies—the *are*, a square decametre; (2) the unit of capacity—the *litre*, a cubic decimetre; (3) the unit of weight—the *gramme*, the weight of a cubic decimetre of distilled water at the freezing-point. These units, with their multiples and sub-multiples, constitute the whole of the weights and measures of the metrical system. The relationship of some of the more important to the English weights and measures may be seen from the following table:—

Centiare, or sq. metre	=	10·764 sq. ft., or 1·196 sq. yds.
Are, or sq. decametre (100 sq. metres)	=	119·603 sq. yds.
Hectare, or 10000 sq. metres	=	2·471 acres.
Litre	=	1·761 pints, or ·22 gallons.
Hectolitre	=	22·009 gallons.
Kilolitre	=	3·439 quarters.
Gramme	=	15·432 grns. avoirdupois.
Kilogramme	=	2·204 lbs. ,,

The equivalent values in the metrical system of some of the more important English weights and measures are as follow:—

Inch	=	25·399 millimetres.
Yard	=	·914 metres.
Mile	=	1609·314 ,,
Square yard	=	·836 sq. metres.
Acre	=	·404 hectares.
Square mile	=	258·999 ,,
Pint	=	·567 litres.
Gallon	=	4·543 ,,
Quarter	=	2·907 hectolitres.
Ounce (avoir.)	=	28·349 grammes.
Pound	=	·453 kilogrammes.
Ton	=	1016·047 ,,

Mexican Onyx.—A kind of alabaster, beautifully marked and easily worked. It is made into vases and a great many other ornamental objects; and although a modern introduction, promises to be most popular and useful.

Mezereon. (*See* DAPHNE.)

Mezzo-rilievo. — A term applied in sculpture to a middle point of relief in figures and decoration, between high and low relief. (*See* ALTO-RILIEVO; BAS-RELIEF.)

Mezzotint.—A mode of etching or engraving on copper, by means of which an effect is produced resembling that of a painting in Indian ink. This is obtained by scraping away on a black ground those parts of the picture which are intended to be left light. Mezzotinto (Italian, *half-tinted*) engraving was invented by Ludwig von Siegen in the year 1642. (*See* ENGRAVING.)

Mice.—These little animals, which are now so abundant everywhere, were perhaps not originally British. They belong to the same family as the rats (*Muridæ*). The common or domestic mouse (*Mus Musculus*) appears to be entirely dependent upon man, and is never found far from his dwelling. It accompanies him wherever he goes, and readily adapts itself to every climate, arctic, temperate, or tropical. It is exceedingly destructive, and devours everything edible that it can get to—flour, bread, cheese, butter, and tallow; and its ravages are not confined to the house, for if it can get into the farmyard it enters corn stacks and gnaws away most industriously. It is exceedingly prolific, and if left undisturbed soon increases considerably; for it has several litters during the year, and six or seven young ones in each litter. A great number of methods are adopted for the destruction of mice, and of these none are so effectual as keeping a cat that is a good mouser. Traps are also set and poisons are laid, and of the latter the phosphoric paste of the shops is perhaps the best. It is spread upon bread and laid in the haunts of the creatures, and as it is agreeable both to their palates and noses, they eat it greedily and it soon proves fatal. There are several varieties of mice. There is the field mouse (*Mus sylvaticus*), which is a little larger than the common mouse, and is a great pest in gardens and fields. The pretty little harvest mouse (*Mus minutus*) makes its nest by intertwining leaves and grass together and suspending the curious structure among the stalks of wheat; the nest is nearly

globular. White mice also are not unfrequent. They are kept in cages in a half-tame state, and are fed upon bread soaked in



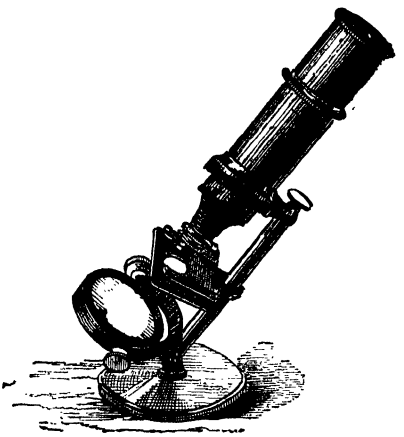
HARVEST MICE.

milk, nuts of all kinds, peas, beans, oats, and similar substances. Mice are eaten in Asia, Africa, Australia, and New Zealand, and are regarded as delicate morsels. The Chinese and the Eskimo also consider that they form dainty food.

Mice, Traps for. (*See* MOUSE-TRAPS.)

Michaelmas Day.—The feast of St. Michael the Archangel, falling on the 29th of September. It is the third quarter-day of the year, and one of the recognised days on which rents, &c., fall due.

Microscope.—An optical instrument, consisting of a lens or lenses, by means of which small objects appear of a larger size than they are naturally to the naked eye. Notwithstanding that the principle of magnifying was known to the ancients, the invention of the modern microscope is considered to belong to the seventeenth century, the first being generally admitted to have been constructed by a Dutchman named Drebell in 1621, although in 1646 Francesco Fontana, a Neapolitan, claimed to have invented it in 1618. Microscopes are either *simple* or *compound*: in the former the object is viewed through the lens directly; in the latter the image or picture of the object is formed by one lens or set of lenses, and that image is seen through another. It would be absolutely impossible, in the short space at our disposal, to describe the various kinds of microscopes or the uses to which they are applied; though we may state that with this instrument we are enabled to discover the development of the embryo in plants and animals, the relation between the symptoms of disease and deranged organic structure, and by its aid we can detect the difference in all substances that have a similar chemical reaction; but as all the sciences —at any rate, anatomy, botany, medicine, mineralogy, geology, and zoology—are deeply indebted to the microscope, the list of its benefits might be continued *ad infinitum*. In purchasing a microscope, the most important consideration is the quality of the glasses; and these can be tested by their power of showing some extremely minute object. In using the microscope, the most necessary things to be considered are—the preparation and adjustment of the instrument; the proper quantity of light, and the best method of adapting it to the object; and the method of preparing the objects so that their texture may be properly understood. With regard to the microscope itself, the first thing necessary to be examined is whether the glasses be clean or not. If they are not, they must be wiped with a piece of soft leather, taking care not to soil them afterwards with the fingers; and in replacing them care should be taken not to place them in an oblique direction. It is also necessary not to let the breath fall upon the glasses, nor to hold that part of the body of the instrument



COMPOUND MICROSCOPE.

where the glasses are placed with a warm hand, because the moisture thus expelled by the heat from the metal will condense upon the glass, and prevent the object from being distinctly seen. The object should be brought as near the centre of the field of view (*which see*) as possible, for it is only there that it will be exhibited in the greatest perfection. The eye should be moved up and down from the eye-glass of a compound microscope till the situation is found where the largest field and most distinct view of the object are to be had; but every one ought to adjust the microscope to his own eye, and not depend upon the situation it has been placed in by another. On the management of the light depends in a great measure the distinctness of the vision, and as in order to have this in the greatest perfection we must adapt the quantity of light to the nature of the object and the focus of the magnifier, it is therefore necessary to view it in various degrees of light. There are different ways in which a strong light may be thrown upon objects, as by means of the sun and a

convex lens. For this purpose the microscope should be placed about three feet from a southern window; then take a deep convex lens, mounted on a semi-circle and stand, so that its position may easily be varied. Place this lens between the object and the window, so that it may collect a considerable number of rays and refract them on the object or the mirror of the microscope. If the light thus collected from the sun be too powerful, it may be lessened by placing a piece of oiled paper between the object and the lens. Thus a proper degree of light may be obtained and diffused equally over the surface of an object, a circumstance which ought to be particularly attended to, for if the light be thrown upon it irregularly no distinct view can possibly be obtained. There are no special rules extant for the preparation of objects, the only thing necessary being to take care that the object be free from any extraneous matter; for instance, near the thorax, shoulder, and on the fringes of the wings of moths or butterflies hair instead of scales will be frequently met with: this may be brushed off the wing upon a piece of paper by means of an ordinary camel's-hair pencil.

Midden is the refuse of a farmhouse, which is collected in a heap or in a yard specially set apart for the purpose, according to the size of the farm. Everything that is worthless is placed here, and when a sufficient quantity has accumulated the midden is used for manure.

Midsummer Day.—The feast of St. John the Baptist, falling on the 24th of June; it is the second quarter-day of the year.

Mignardise.—A French term sometimes met with to denote a certain gentle flattery, a cajolling or wheedling manner; the art of insinuating oneself into the good graces of anybody. It is really not a compliment to say that a person is characterised by mignardise, or practises it.

Mignonette.—This is a French term or word, now used everywhere, to designate the sweet little herb so common in our gardens or growing in boxes in window-sills, and known to botanists as the *Reseda odorata*, natural order *Resedaceæ*. Although now cultivated for its perfume in every civilised part of the world, it was originally a native of North Africa or Egypt. When properly cultivated it grows into a plant or shrub, and is then known by the name of tree mignonette. Mignonette is not difficult to grow. The seed is sown in the spring or early summer months; and if it is wished to have a rotation, it may be sown in the latter end of July, and the plants will be strong enough in September to stand potting, after which they must be shaded for a week, and always protected from frost and heavy rains. They should flower in November, and must then be removed to a greenhouse or taken in-doors, where they will continue to flower all winter. In potting them, see that they are not over-crowded. The spring crop may be sown in a box exposed to the sun in a window-sill. This box should have a glass frame, which, when the weather gets warmer, should be removed. The best time to sow mignonette thus is in February; the box is to be filled with light mould, with which some sand is mixed, and likewise a portion of pounded chalk or whiting. Sow somewhat thickly, then sprinkle over with a little mould, and keep the box inside until they come up, putting it out in March, but looking out for frosty nights. Remember that mignonette requires both sun and fresh air to make it bloom to perfection and be healthy. The plants should be gently watered early in the morning.

Mignotte Netting.—This is a slight variation of plain netting which forms a pretty bordering: soft embroidery cotton has a better effect for this than the ordinary netting cotton. The work is managed in the following manner:—A smaller-sized mesh is taken than that which has been before used; in the first row the cotton is taken once round the mesh, a stitch is netted, then two plain stitches are netted into the same loop into which the first stitch has been put. A repetition of this is made to the end of the row, one long loop and two small ones being put into each succeeding loop. The second row is formed by netting all the long loops in order as they come, and passing over all the small loops. These two rows are repeated alternately until the border is considered to be sufficiently deep: probably half a dozen rows will complete it.

Migraine.—The same as megrim (*which see*).

Milanese Lace. (*See* Lace.)

Mildew.—This mildew is really a species of fungus, of which there are several different kinds. It is often most destructive to all kinds of grain; nor do its ravages cease here, as it attacks not only the best kind of fruits, such as peaches, apricots, &c., but even extends its devastating influence to all kinds of garden produce. Mildew is either intestinal, as the *Uredo fœtida*, which attacks the wheat; the *Erineum griseum*, which cover the leaves of such trees as the mountain ash or the sycamore with its broad brown or grey blotches; the *Puccinia graminicum*, which destroys wheaten straw; the *Æcidium cancellatum*, which is such an enemy to pear-trees in some orchards. The worst of it is that the more vigorous the tree, the more likely it is to fall a victim. Or mildew is called superficial, as the *Cylindrosporium concentricum*, which appears on cabbage-leaves; the *Acrosporium monilioides*, whose innumerable white filaments combine to disfigure the leaves and stems of rose bushes; the *Aspergillus*, seen in the form of a mealy substance on onion-leaves, &c.; and the *Erysiphe communis*, or mildew of peas. These superficial fungi attack the more weakly plants. The cure for intestinal mildew is to have the soil not too rich nor watered too often. Sometimes corn is soaked in lime-water before being sown for ten or twelve hours. Pear-trees may be taken up, their roots washed, and after being pruned transplanted in a healthier soil. For superficial mildew, peas should be abundantly watered, the mildewed leaves and branches of trees should be carefully removed, and probably a tobacco and soap

lotion may kill the fungus if it is freely used on the tree. Mildew often attacks and stains linen or cotton; it may be removed by soaping the parts over, and adding a little salt and the juice of a lemon, and placing the article on the grass for many hours, with frequent watering.

Mile.—A measure of length, which seems to have originated in the Roman *mille passuum*, a thousand paces. The pace consisted of 5 feet, a Roman foot being equal to about 11·62 English inches, the Roman mile being therefore equivalent to 1,614 English yards, or very nearly eleven-twelfths of an English statute mile. The mile was used as a measure of length in almost all European countries until comparatively recently, when it was to a great extent superseded by the kilometre of the metrical system (*see* METRICAL SYSTEM); it is, however, of very varying values, the origin of which it is not easy to explain. Before the reign of Elizabeth a mile of 5,000 feet, supposed to be equal to the *mille passuum* of the Romans, was in use in this country; as, however, the feet were English and not Roman, there was a considerable difference in the two measures. By an Act passed in the thirty-fifth year of the reign of Queen Elizabeth, the English *statute* mile was defined to be 8 furlongs of 40 perches of 16½ feet, equivalent to 1,760 yards or 5,280 feet. This value has been retained to the present time. (*See* WEIGHTS AND MEASURES.) The *geographical* or *nautical* mile employed by all mariners is one-sixtieth part of a degree of latitude, or about 2,025 yards; in Germany, however, the geographical mile is the one-fifteenth part of a degree of latitude, or four nautical miles. The following table shows the relation to the English statute mile of the various miles that have been or are in common use:—

	Statute miles.
Kilometre	0·621
Russian verst	0·663
Modern Roman mile	0·925
English statute mile	1·000
Tuscan mile	1·027
Ancient Scottish mile	1·127
English geographical mile	1·153
Arabian mile	1·220
Ancient Irish mile	1·273
German short mile	3·897
German geographical mile	4·611
Prussian mile	4·680
Danish mile	4·684
Hungarian mile	5·178
Swiss mile	5·201
German long mile	5·753
Hanoverian mile	6·568
Swedish mile	6·648

Miliary Fever.—This is a fever which prevails in some parts of Central Europe and elsewhere, and appears to be due to a specific poison, the exact nature of which is not known. The symptoms are shivering, faintness, oppression of the chest, wandering pains in the limbs, foul tongue, rapid feeble pulse, fetid perspirations, and followed about the fifth or sixth day by an eruption of innumerable minute pimples with white heads, which appear in successive crops chiefly about the neck, trunk, and inside of the thighs. The peculiar offensive perspiration and the eruption are the characteristic features of the disease. The best treatment is to keep the bowels relieved and administer cooling drinks. There is a form of miliary fever which is called malignant, and which is dangerous to life. In this there is always some complication, as, for example, inflammation of the stomach, kidneys, or brain; and it is in this complication more than in the fever itself that the danger lies.

Militia.—In this country the word really includes the whole of the domestic volunteer forces raised for the defence of the nation. They are not liable to foreign service, in which respect they differ essentially from the regular army. In former times, regiments of militia were numerous and important; they were made up of volunteers, or of men who were drawn by ballot to serve, and must serve or find a substitute; they were regularly embodied, and were in many respects like ordinary regiments of the line. The case is now different, and very few bodies of real militia exist, though, if necessary, the laws on the subject may be revived. At present the volunteer corps are a convenient substitute. The old standing militia, named after their counties and cities, and derisively styled "feather-bed soldiers," were not confined to their own county or town, were regularly on duty, were stationed in camps, took charge of strong positions, and had the custody of French prisoners of war.

Milk Adulterations. (*See* MILK TESTS.)

Milk, Artificial.—The attempt has often been made to prepare milk artificially, and various compounds have been proposed as substitutes for it, but they cannot be said to have been really successful. As the composition of milk is well known, it is not difficult to combine the same elements and produce a compound which will be at least as nutritious as natural milk; but when both can be obtained together, the artificial milk does not compare by any means favourably with the natural milk, and it does not please the palate of those who partake of it. The necessity for manufacturing artificial milk is, however, not so much felt as it once was, since means have been discovered and carried out successfully for the preservation of milk. (*See* CONDENSED MILK.)

Milk as Food.—This is one of the most digestible forms of food, and is not only sufficient for all the wants of infancy, but is capable of sustaining life in the adult for an indefinite period. Cows' milk is composed of 86 parts of water, 5 of caseine, 3 of butter, 4 of sugar of milk, and 1 of mineral matter in every hundred parts. Human milk contains more water and rather less of the other constituents. It is therefore usual to add a little water to cows' milk when giving it to infants, in order to make it as like human milk as possible. The value of milk as an ordinary article of diet can scarcely be overrated, and in the sick room it has happily of late years become indispensable. A feverish patient will drink iced milk to any extent, and will thereby not only assuage his thirst, but support his strength at a time when he may not be able to take any

other form of food, and when the incapability of doing so may mean death. Seeing then the importance of milk as food, it is above all things desirable that it should be pure and of natural strength. (*See* MILK TESTS.)

Milk, Asses'.—The chief characteristics of asses' milk as an article of food are that it is so sweet and so easily digested. The latter quality is owing probably to the fact that it contains so little casein, which is the indigestible element. This milk differs from human milk in having a larger proportion of sugar and a less proportion of fat, so that, though it is not quite so nourishing as human milk, it is the best natural substitute for it. For persons who are too delicate to take cows' milk, and in cases of convalescence when the vital powers are very low, this milk has sometimes answered when all other food has failed. Its use is, however, recommended rather in disease than in health, and the objection has been urged against it that it is sometimes apt to bring on diarrhœa. When asses' milk is used for infants, about a dessert-spoonful of cream should be added to each quart of milk, in order to make up for the deficiency in it of casein, as compared with mothers' milk. Unfortunately, this milk cannot easily be procured, except in large towns.

Milk, Condensed. (*See* CONDENSED MILK.)

Milk Fever.—This is not properly a fever, but simply a condition which sometimes arises during the formation of milk in the female breast after confinement, and is characterised by shivering, pain in the part, feverishness, and thirst. When the milk is fairly established and passes off freely, all the symptoms disappear; but if they are more severe than is usual, a little cooling medicine, as the solution of acetate of ammonia and spirits of nitre in camphor-water, may be given, and the bowels should be relieved with a gentle aperient. The diet must be light, and iced lemonade will be refreshing if there is much thirst. The term milk fever is sometimes given to abscess occurring in the breast during nursing.

Milk of Roses.—This is a cosmetic of some repute. The following are the three formulas in use:—1. Sweet almonds five ounces, bitter almonds one ounce, rose-water two and a half pints, white curd soap half ounce, oil of almonds half ounce, spermaceti two ounces, white wax half ounce, English oil of lavender twenty drops, attar of roses twenty drops, rectified spirit a pint. Blanch the almonds, and beat them with the soap and a little of the rose-water. Melt together the oil of almonds, spermaceti, and white wax, and mix with the former into a cream, and strain it through fine muslin; then add gradually the remaining rose-water, and lastly the spirit, with the essential oils dissolved therein. 2. A common kind is made by mixing one ounce of fine olive oil with ten drops of oil of tartar and a pint of rose-water. 3. Bitter almonds six drachms, sweet almonds twelve drachms; blanch, dry, and beat up with one drachm of Castile soap, gradually adding fifteen grains of spermaceti, thirty grains of white wax, and a drachm of almond oil, melted together. When thoroughly incorporated, add gradually six drops of attar of roses dissolved in six ounces of rectified spirit and fourteen ounces of distilled water.

Milk of Sulphur, also called precipitated sulphur, is prepared by boiling sublimed sulphur with slaked lime and water; this is filtered, and hydrochloric acid added, which precipitates the sulphur, which is then washed with distilled water, and dried at a temperature not exceeding 120°. The composition of milk of sulphur and flower of sulphur (sublimed sulphur) is the same, but the latter is obtained from the virgin sulphur by evaporation and condensation in a separate chamber. Milk of sulphur is a most useful medicine in various diseases, especially of the skin; it is a most valuable remedy in piles, and a good aperient for children. The dose for a child of both the milk and flower of sulphur is from five to ten grains or more. A favourite form of administering the drug is the confection, or it may be mixed with syrup. Sulphur ointment is a valuable external application in various skin diseases, especially those of a parasitic origin, as, for example, itch, &c.

Milk Tests.—The most usual frauds practised by milk dealers consist of the addition of water and the subtraction of the cream. It has sometimes been said that chalk, plaster of Paris, the brains of animals, gum, flour, and similar substances are mixed with milk; but these charges have been greatly exaggerated. Some of these articles are too expensive to make their use worth while, and others would so alter the flavour and appearance of the milk that the fraud would be discovered at once. The removal of the cream and the addition of water impoverish the milk and make it look thinner and less opaque than it otherwise would. A very simple instrument is sold for testing the quality of milk, named a lactometer (*which see*). The amount of cream in different samples of genuine milk varies, but it appears on the average to be about 8 or 9 per cent., and it sometimes reaches and even exceeds 20 per cent. If, however, it is below 5 per cent., it may reasonably be concluded that the milk is adulterated. Another instrument for testing milk consists of a small hydrometer, which sinks to a certain mark in pure water, and floats at another mark on the opposite end in milk. This instrument is preferred by Continental chemists.

Milkmaid.—The woman who milks the cows is generally called the milkmaid. Few persons are aware how important it is that this business of milking should be properly performed. For one thing, all the milk there is should be entirely drawn off, partly because the last milk that is taken is the richest, and also because if all the milk is not regularly taken the cow will gradually produce less and less milk. This is evident from the fact that a cow would yield more milk if milked three times a day than if she were only milked twice. A milkmaid should also be most particular in regard to cleanliness. Every vessel and utensil employed, either for the milk and cream, or for

butter and cheese, should be scrupulously clean, and the maid's hands should be washed thoroughly before she commences any of her duties. The cow's udder also should be washed before milking if it is necessary. A cow will not give its milk freely to any one who treats it badly. (*See* DAIRYMAID.)

Milky Way, or Galaxy.—An irregular band of light which stretches across the heavens, the form of which is easily traced by the naked eye on a clear starlight night. It will then be observed that the smaller stars are particularly numerous within this luminous zone; but the whole area will also be distinguished from the rest of the heavens by not presenting so dark a background to the stars as elsewhere, and hence the milky hue of that portion of the sky to which the milky way owes its name. This milkiness is found to be produced by the diffused light of myriads of distant stars not separately visible to the naked eye. Many of these are seen as separate stars by the aid of powerful telescopes; but there is still in the background the same milkiness, indicating the presence of vast numbers more at distances which no instrument yet made has been able to fathom.

Millet.—Called by botanists *Sorghum*. The *Sorghum vulgare* is the representation of the Indian corn (*Zea Mays*), or Indian millet, or Guinea corn. In India it is termed *Joar*, and is largely cultivated as food. It is also cultivated in China and all through Asia. In Europe (the south) it is grown for the purpose of feeding poultry or cattle. The flour is white, and is nearly as rich in the chemical constituents of food as is the maize of commerce.

Milliner.—One who makes or sells the bonnets, hats, and caps worn by women. The term is supposed to have been originally that of Milaner, which signified a dealer in Milan wares.

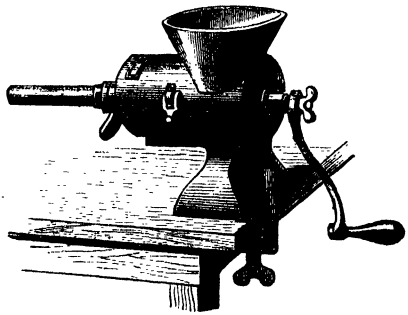
Millinery.—In this is included ribbons, lace, flowers, feathers, and all the various materials of which bonnets, caps, and the headgear generally of women are made.

Mills, Hand. (*See* HAND-MILLS.)

Millstones are large circular stones, by means of which, when put in motion by machinery, corn is ground into flour. The diameter of the common millstones is in general from five to seven feet, and their thickness varies from twelve to fifteen or eighteen inches. They usually last from thirty to forty years; and when they have been employed for a long time so as to be considerably diminished, they are *edged*, or cut anew, in order to communicate to their surface a figure contrary to that which they originally bore; afterwards the upper millstone is made the lower. The ancient millstones were so small that they could be carried by a single individual, several having been found, among other Roman antiquities, which were about twenty inches only in breadth, very different to those in use in England, which have been made so large that the centrifugal force which results from their rotary motion has been known to tear them asunder.

Milt.—A name employed in anatomy to designate the spleen, which lies in the left side of the body under the midriff, or diaphragm. The soft roe of fishes is also so called.

Mincing.—This is one of the operations of cookery, and it consists simply of cutting up meat, vegetables, suet, and other ingredients into very small pieces. The utensils which have been employed for the purpose for a long time have been the mincing knife and block, and they did the work much better than if the ingredients had been merely cut up with an



MINCING MACHINE.

ordinary knife. Of late years mincing machines have been manufactured for domestic use, and they have worked quite a revolution in this department of household work. They save both time and labour, and mince the ingredients very thoroughly. According to modern improvements, the interior of the machine is made of glass, enamelled so that no varnish, paint, zinc, or any objectionable material comes into contact with the meat.

Mincing Knife and Block. (*See* MINCING.)

Mincing Machine. (*See* MINCING.)

Mineral Poisons.—Several of the metals form highly-poisonous compounds. Arsenic, mercury, lead, copper, and antimony are those most liable to be met with. (*See* ANTIMONY, POISONING BY; ARSENICAL POISONING; COPPER, POISONING BY; CORROSIVES; LEAD-POISONING.)

Mineral Waters.—These are obtained from natural springs which hold in suspension certain saline, chalybeate, sulphurous, and acid ingredients, which, when taken internally or used as baths, are found beneficial in a variety of diseases, as rheumatism, gout, disordered liver, indigestion, skin affections, &c. 1. *Saline mineral waters.* These usually consist of various salts of potash, soda, lime, magnesia, and alumina, also of some traces of iodine and bromine, and occasionally carbonic acid or sulphuretted hydrogen gas. These waters act as mild aperients. The Cheltenham, Carlsbad, Pullna, Friedrichshall, and Hunyadi Janos waters are familiar examples of this class of mineral springs. 2. *Chalybeate waters.* These contain a considerable proportion of iron, and are useful in debility, anæmia, and in disorders of the womb. Spa, Rennes in France, Tunbridge Wells, and some of the Harrogate waters are

examples of this class. 3. *Sulphurous waters.* These contain sulphuretted hydrogen gas, and are useful in skin diseases, liver disorders, dyspepsia, rheumatism, &c. Harrogate, Barèges in the Pyrenees, and Aix-la-Chapelle are the best known springs of this kind. 4. *Acidulous waters.* These are, properly speaking, mixed waters, as they contain both free carbonic acid and alkaline ingredients as well. They may therefore be used in those cases mentioned under Class 1, when there is debility. Kissingen, Spa, Vichy, Homburg, Ems, and the Saratoga springs in America are examples of acidulous waters. Some of these mineral springs are hot, as those of Bath, Buxton, Wiesbaden, and Baden; and in certain cases, especially those of a rheumatic character, may prove on this account more beneficial. It may be remarked here, in reference to the several places mentioned under the different classes of mineral waters, that many of them have more than one kind of spring.

Minerals.—This term includes all inorganic natural substances, and also some of organic origin which have become subject to certain chemical changes through being buried under the surface of the earth. They are mostly solids, but are not necessarily so. Such a wide range of substances renders any classification of them difficult; the broadest lines of distinction may be taken as the metallic minerals, the earthy minerals, and those of organic origin. Most of the metals are only found in combination with other elements, though some few of them occur in the native state; the earthy minerals mainly consist of compounds of silica with the alkalies and alkaline earths; the third class includes graphite, coal, petroleum, and other substances both liquid and solid in which carbon is the principal ingredient. The physical characters, the crystalline or other form, and the chemical composition are the chief matters to be considered in the study and classification of minerals.

Miniature Painting.—Having made on paper a careful drawing of the subject selected for your miniature, it may be traced and transferred to the surface upon which it is to be painted in any of the usual ways. (*See* Tracing.) If this surface should be ivory—sold for this purpose by artists' colourmen, and ready prepared—a piece of the required size should be selected, as free as possible from grain, and in colour a creamy white—not a dead chalky white, nor a cold greyish-white. Being very thin, it is first made damp, and then mounted on a piece of white card, with a little gum-water at the corners, on the rough or unprepared side, and placed under a weight to keep it flat while it is drying. The brushes used are the red or brown sable brushes, those being selected which preserve their point when slightly moistened without forking or dividing, and when bent spring back to their original position. A small palette of porcelain or ivory will also be required, and the following colours—Indian yellow, raw sienna, and yellow ochre; rose madder, crimson lake, light red, Indian red, vermilion, extract of vermilion, and madder-brown; cobalt, indigo, emerald green, French ultramarine, gamboge, sepia, Vandyke brown, bistre, and ivory-black. These are for portraits. If you are about to paint a face, a few light touches of pale Indian red will serve to mark the outlines in shadow, and those in light may be more faintly indicated with vermilion or light red. Where the flesh is thin, and the veins give a grey effect to it, indicate this on the ivory with thin washes of cobalt, using the same colour to blend the hair with the flesh, and to give the retiring surfaces of the flesh that peculiar cool grey which they obtain from the presence of down upon the skin when viewed sideways. Where the flesh is tight over bone, it will be most nearly white or yellowish. For the parts where the hue of the blood is most perceptible—in the cheeks, the lips, &c.—use madder-pink or vermilion, or madder-pink and vermilion, as nature may dictate in your sitter's countenance. A tint of light red or vermilion is then laid over the whole of the flesh; the iris of the eye is outlined, and the pupils put in with indigo; the hair painted, the drapery laid in, &c. To work the colours up to the richness and variety of nature, two processes are adopted—viz., stippling and hatching. Stippling is merely applying the colour in dots with the point of the brush; hatching is that of obtaining richness of colour and transparency with that soft blending of colours and tints which is so conspicuous in well-painted miniatures, by short faint strokes crossing each other at acute, but not too sharp, angles in various directions. For the deepest shadows, madder-brown, or sepia with lake, may be used; and this may also be employed for the nostrils, the lines of the eyelids, that dividing the lips, and the hair which shows the flesh through it. Every part of the work must be worked up by slow degrees with stippling and hatching until the object stands out roundly on the card or ivory. The shadows of flesh should be warm in colour, their edges always grey. Sepia or sepia lake and indigo will be found useful for dark-brown or black hair; ochre and burnt umber and raw or burnt sienna may be used for fair hair.

Miniatures.—The word has been traced to the old practice of illuminating books before the invention of printing, when the initial letters were made ornamental with minium or vermilion. The earliest miniature-painters were the *illuminatori*, or illuminators of books. In its modern acceptation, the term is applied to small portraits or other minute pictures painted upon ivory or cardboard or vellum.

Minim (Measure).—The sixtieth part of a fluid drachm. (*See* Apothecaries' Measure.)

Minister.—A servant; one whose duty it is to wait upon others. At present the word is chiefly limited to the two following classes:—1. A person who is chosen by the Sovereign to take a direct part in administering the government of the nation. The ministers collectively, or the Ministry, comprise two divisions—those of the Cabinet, and those not of the Cabinet; the former are twelve in number, and the latter about twenty-seven. 2. A clergyman; one who conducts the services of religion, whether in

church or chapel. It should be added that an ambassador or representative of the government at a foreign court is often called a minister, and correctly so.

Minium. (*See* Lead, Red.)

Miniver, Minever, or Meniver.—A white fur with black spots. In the Middle Ages the robes of noblemen were lined with this fur. There are various suppositions regarding it; the one most generally accepted is that the fur was obtained from a squirrel, of which the back was a bluish-grey and the belly white, and this circumstance was called *varus*. The term miniver is said to have arisen from the French *menu-vair*. In heraldry, this fur, which is one of the eight used, is termed *vair*.

Mink.—The small animal which produces this fur is found in Finland and other parts of North-Eastern Europe; it is allied to the marten tribe. The fur bears a resemblance to sable in colour, but in other respects it is unlike, being much shorter and of a more glossy appearance; it is held in higher estimation than musquash fur. Mink fur is sometimes spoken of as minx, but in reality the minx is a species of bison.

Minnow.—This well-known and tiny little fish is called by naturalists the *Leuciscus phoxinus*, and belongs to the family *Cyprinidæ*. It is an inhabitant of nearly all our clear running streams. It is sometimes taken in sufficient quantities to be used as food, but as a rule it is more employed as bait than in any other way. They may be fished for with a very tiny hook and small worms, or may be taken with nets.

Minority.—The condition of being under age. (*See* Infant—in Law.) The term also signifies the lesser number in a division of votes, &c.

Mint. (*See* Mints.)

Mint.—The place in which the Queen's money is coined. There were anciently mints in almost every county in England, but the only mint at present in the British dominions is that in London. The officers of the mint are:—1. The warden of the mint, who is the chief; he oversees the other officers and receives the bullion (*which see*). This office is now vested in the Chancellor of the Exchequer for the time being, under the Coinage Act, 1870, referred to below. 2. The master worker, who receives bullion from the warden, causes it to be melted, delivers it to the moneyers, and when it is coined receives it again. 3. The controller, who is the overseer of all the inferior officers, and sees that all the money is made to the just assize. 4. The assay-master, who weighs the gold and silver, and sees that it is according to the standard. 5. The two auditors, who take the accounts. 6. The surveyor of the melting, who, after the assay-master has made trial of the bullion, sees that it is cast out, and not altered after it is delivered to the melter. 7. The engraver, who engraves the stamps and dyes for the coinage of the money. 8. The clerk of the irons, who sees that the irons are clean and fit to work with. 9. The melter, who melts the bullion before it is coined. 10. The provost of the mint, who provides for and oversees all the moneyers. 11. The blanchers, who anneal and cleanse the money. 12. The moneyers, some of whom forge the money, some share it, some round and mill it, and some stamp and coin it. 13. The porters, who keep the gate of the mint. By the Coinage Act, 1870, the 33 & 34 Vict. c. 10 (repealing previous Acts), the laws relating to the coinage and her Majesty's mint are consolidated and amended. The "Mint" was formerly the designation of a pretended place of privilege in Southwark, near the Queen's Prison, where persons secreted themselves from justice, under the pretext that it was an ancient palace of the crown. The privilege is now abolished by statute.

Mint Julep.—The word julep is derived from a Persian expression which means sweet drink, and it is generally regarded as being synonymous with mixture. Of these compounds mint-julep is decidedly the most popular in this country. It is a great favourite with the Americans, and was introduced into England by Captain Marryat. In his work on America this writer says:—"I must descant a little upon the mint-julep, as it is, with the thermometer at 100°, one of the most delightful and insinuating potations that ever was invented, and may be drunk with equal satisfaction when the thermometer is as low as 70°. There are many varieties, such as those composed of claret, Madeira, &c., but the ingredients of the real mint-julep are as follows. I learned how to make them, and succeeded pretty well:—Put into a tumbler about a dozen of the tender shoots of mint; upon them put a spoonful of white sugar and equal proportions of peach and common brandy, so as to fill up one-third, or perhaps a little less. Then take rasped or pounded ice and fill up the tumbler. Epicures rub the lips of the tumbler with a piece of fresh pine-apple, and the tumbler itself is often encrusted outside with stalactites of ice. As the ice melts you drink."

Mints.—Mint is one of the herbs most used in cookery. There are many varieties of mint, and the species are distributed nearly all over the world. The one most commonly used is the green mint or spearmint (*Mentha viridis*). This plant, belonging to the natural order *Labiatæ*, is a native of Britain, and is perfectly hardy. The leaves are used in sauces and salads, and to flavour green peas and young potatoes, the flatulent properties of which they tend to correct. When dried and powdered, mint is employed to season soups. Green mint will grow in almost any soil, although a damp soil and a shady border suit it the best. It is easily propagated by planting cuttings or dividing the roots, and it needs to be transplanted every three years. It should be cut and dried for winter use as soon as it comes fairly into flower, and this will be in June and July. If the mint is cut down at the proper time, fresh shoots will be produced, thus affording a supply of fresh mint for the greater part of the winter. Green mint is highly esteemed as an anti-spasmodic. Peppermint (*Mentha*

piperita) and pennyroyal (*Mentha pulegium*) are both referred to under separate headings.



GREEN MINT.

Among other kinds of mint may be named the horse-mint or pungent mint (*Mentha sylvestris*), of which a variety is cultivated in Germany, under the name of curled mint (*Krause-minze*). It is used in medicine and for poultices.

Minuet.—This is a slow, stately, and graceful dance, which was formerly much in vogue, but has ceased to be included in the dance programmes of the present day. It originated at Poitou, in France, and was danced by the court circles during the reign of Louis XIV. The Minuet de la Cour was danced by our English ancestors; it is still sometimes taught by dancing masters in order to give grace to the movements of the pupils. The music is in $\frac{3}{4}$ time.

Minx. (*See* MINK.)

Mirrors are looking-glasses whose uses are to form the images of distant objects by reflection of the rays of light. Mirrors are either plane, convex, or concave. The first kind reflect the rays of light in a direction exactly similar to that in which they fall upon it, and therefore represent bodies of their natural magnitude. The convex ones make the rays diverge much more than before reflection, and therefore greatly diminish the images of those objects which they exhibit. The concave mirrors, by collecting the rays into a focus, not only magnify the objects they show, but will also burn when exposed to the rays of the sun, and hence they are sometimes known as burning mirrors. In ancient times the mirrors were made of some kind of metal; and from a passage in the Scriptures we learn that the mirrors used by the Jewish women were made of brass—a practice doubtless learned from the Egyptians. In connection with this subject we may mention the following remarkable laws and phenomena of plane mirrors:—1. A spectator will see his image of the same size, and erect, but reversed as to right and left, and as far beyond the speculum as he is before it. As he moves to or from the speculum, his image will at the same time move towards or from the speculum also on the other side. In like manner if, while the spectator is at rest, an object be in motion, its image behind the speculum will be seen to move at the same rate. Also when the spectator moves, the images of objects that are at rest will appear to approach or recede from him, after the same manner as when he moves towards real objects. 2. If several mirrors, or several fragments or pieces of mirrors, be all disposed in the same plane, they will only exhibit an object once. 3. If two plane mirrors meet in any angle, the eye, placed within that angle, will see the image of an object placed within the same as often repeated as there may be perpendiculars drawn determining the places of the images, and terminated without the angle. In the manufacture of looking-glass the most important considerations are, first, the perfectly transparent or colourless nature of the glass itself, and, secondly, the perfection of the silvering process. With regard to the latter, the following recipe has been found to be eminently successful, and is extensively adopted in the American manufactories. The solutions are two in number—viz., the *reducing* and the *silvering* solutions. To prepare the first, dissolve twelve grains of Rochelle salts in twelve ounces of water, and boil; add while boiling sixteen grains of nitrate of silver dissolved in an ounce of water, and continue the boiling for ten minutes more; then add water to make twelve ounces. To prepare the second, dissolve one ounce of nitrate of silver in ten ounces of water; then add liquor ammonia until the brown precipitate is nearly but not quite all dissolved; then add one ounce of alcohol, and sufficient water to make twelve ounces. When both these preparations are ready, the silvering is effected by taking equal parts of both solutions and mixing them thoroughly; then lay the glass face down on the top of the mixture while wet, the glass being carefully cleaned with soda and well rinsed with clean water. Distilled water should be used in making the solutions. About two drachms of each will silver a plate two inches square. The dish in which the silvering is done should be only a little larger than the plate. The solution should stand and settle two or three days before being used; it will keep good a long time. A *duchesse glass* is an ordinary toilet-glass attached to a table having the drawers and necessary fittings for dressing purposes. They are usually of a more or less decorative character, and are made in fancy woods, such as maple and mahogany.

Misdemeanour is, in law, an offence or fault. The term is generally used in contradistinction to felony, and comprehends all

indictable offences which do not amount to felony. A crime or misdemeanour, says Blackstone, is an act committed or omitted in violation of a public law either forbidding or commanding it. This general definition comprehends both crimes and misdemeanours, which, properly speaking, are mere synonymous terms; though in common usage the word "crimes" is made to denote such offences as are of a deeper and more atrocious dye, while smaller faults and omissions of less consequence are comprised under the general term of misdemeanour only. High crimes and misdemeanours denote offences of a heinous character, next to high treason.

Misrepresentation.—A cheat or fraud in a material statement, *i.e.*, a statement relating to the substance of any question, whereby any one is misled and injured and a wrong perpetrated. In legal estimation it is immaterial whether the misrepresenter knew the matter to be false, or asserted it without knowing if it were true or false; for the affirmance of that which is not known to be true is as unjustifiable as the assertion of that which is known to be false, as both are equally means of deception. Deeds or documents obtained by misrepresentation will be set aside; but if the misrepresentation were of a trifling or immaterial character, equity will not relieve; nor if it were upon a matter of opinion or fact equally open to the inquiries of both parties, and in regard to which neither could be presumed to have confided in the other. (*See* DECEIT.)

Miss.—This title is affixed to the names of all unmarried women, except those who claim a higher title by birth, such as the daughters of dukes and earls. The daughters of viscounts and barons, and maids of honour, have the title of "Honourable" prefixed to that of "Miss." In olden times the title of "Miss" was bestowed only on the daughters of gentlemen when children; on reaching woman's estate they were addressed as "Mistress." The surname should always be attached to the title of "Miss," both when spoken and written.

Mist. (*See* FOG.)

Mistletoe.—A parasitical plant (*Viscum album*) found growing on apple and pear trees, also on the hawthorn, maple, sycamore, lime, and other similar trees, but very seldom on the oak. It derives its nourishment from the living tissue of the tree on which it is found, and from which it appears to spring as though it were one of its own branches. The leaves are opposite, of a yellow-green colour; the flowers, which are small, grow in small heads at the ends and in the divisions of the branches; the berries, which are full of a resinous juice, are similar in appearance to white currants, and are of about the same size. From the berries as well as the bark of this plant bird-lime is prepared; and if the former be rubbed when fully ripe on the bark of almost any tree, they will adhere closely, and produce plants in the succeeding winter. Fieldfares and thrushes are particularly fond of mistletoe-berries, and sheep eagerly devour this plant, which in severe winters is sometimes cut off the trees for them, it having a medicinal property for these animals which is a preventive of the rot. It grows in most parts of Europe, and is most common in the south of England, where it flowers in May.

Mistral.—A north-west wind, well known at certain seasons, especially on the Mediterranean coast of France. It involves a sudden change from most genial warmth to piercing cold, and its effects are disastrous to man and beast and tree; even the sea is disturbed by it in a dangerous manner. Invalid tourists who visit southern climes in search of winter sunbeams should be warned to avoid places liable to the mistral.

Mistress.—As the mistress is, the house is. Given the character of the mistress, it is not difficult to form an idea of what the home will be. If she is refined and orderly, managing and thrifty, yet liberal, the household will be well conducted, and economy, combined with plenty, will prevail. If she is good-tempered, kindly, cheerful, and charitable, daily duties will be performed and daily annoyances endured in an atmosphere of cheerfulness and contentment, and happiness will seem to pervade and radiate from the dwelling. If she possesses tact and discernment, and the power of influencing others, the domestic machinery will run smoothly. The range of a mistress's duties will vary with the size, position, and means of the family. The first object, of course, must be attention to the wants, needs, comforts, and wishes of the master of the house. If there are children, a great part of the mother's time, care, and thought will be given to them, their health, their requirements, their happiness, and their training. Whatever social duties devolve upon the wife, these must also be duly performed. Whether the establishment be large or small, however, nothing but a regular and intelligent supervision of every department, either by the mistress or her representative, will ensure the maintenance of a high standard of household management.

Mistress (Mrs.).—This title is given to all married women who cannot lay claim by birth or marriage to one of higher grade. If before marriage a lady has borne the title of "Honourable Miss ——," she retains the right, and is styled the "Honourable Mrs. ——," in cases where the husband is only an esquire; but if he possesses a title, she then assumes that title, and is addressed as "Countess" or "Lady," &c. In former times it was the custom for servants to address and speak of their mistress as such; but this usage is no longer prevalent, and now the shorter prefix and the surname are used.

Mistress of the Robes.—This is a post which is in the Queen's household only; it is always held by a lady of high rank. The Mistress of the Robes is not expected to be in constant attendance, but is allowed to have deputies.

Mite.—The common cheese-mite is described in the article so headed, but that is only one of the *Acaridæ* which we encounter or are exposed to. To the same family belong such pests as the itch-insect and the harvest-bug. Speaking

generally, in the words of a popular writer, "myriads swarm around us; they float in our drink, overspread our food and fruits, and if viewed with a microscopic eye would make some loathe the choicest viands and nauseate the most delicious productions of nature. The mites possess great powers of life, resisting for a time the application of boiling water and living long in alcohol." The mites best known in provisions are the cheese-mite already mentioned, the flour-mite, and the sugar-mite—the last two being far more common than most people suspect. The red mite which haunts cages and attacks birds is very destructive. Not to mention more, it may be noticed that what are called *ticks* belong to this class. (*See* Ticks.)

Mitres.—A mitre is the head-dress worn by abbots, bishops, cardinals, and other ecclesiastical dignitaries. There were three kinds of mitres, varying in importance, and used for the different solemn services of the Church. They were known as the *precious*, the *auriphrygiata*, and the *simple* mitre—the first being formed of gold and silver, and ornamented with gems of the most costly nature; the second was less gorgeous in its character; and the third was simply worn to denote the clerical rank of the wearer. The mitre is of Oriental origin, although not used now in churches of the different Eastern rites. It is a high and tongue-shaped cap, terminating in a twofold point, and is made with two flaps, which descend over the shoulders behind—the materials of which they are composed varying considerably in accordance with the nature of the festival for which they are used. The mitre ceased to be a part of the English episcopal costume at the time of the Reformation, but is now placed over the archbishop's or bishop's shield instead of a crest. The bishop's mitre is represented with its lower rim surrounded with a fillet of gold; but the Archbishops of York and Canterbury encircle theirs with a ducal coronet. The pendants attached to the mitre are termed *Infulæ* and *Vittæ*.

In architecture, &c., a mitre is an angle of 45°, or half a right angle; a junction of two pieces of wood, stone, or other material at an angle of 45°.

Mitten.—A kind of glove, having no fingers saving half a thumb. Mittens are made of leather, wool, silk, thread, and cotton; and their length varies, some reaching an inch or couple of inches up the wrist, and others over the elbow. They were much worn at one time in evening dress, the mittens being of white kid buttoned up to the elbow, or of white or flesh-coloured or black silk. Woollen mittens are much used by men in winter, worn over their leather gloves.

Mittimus.—A writ for removing or transferring records from one court to another; also a precept or command in writing directed to the gaoler or keeper of some prison for the receiving and safe keeping of an offender charged with any crime until he be delivered by due course of law.

Mixed Fruit Wine.—As a rule, wine is made from the one fruit from which it derives its name. The grape is of course the best, but there are many fruits growing in our gardens from which excellent wine might be made. When there is a lack of one special kind, different sorts are sometimes mixed together with a very satisfactory result. The three varieties of currants are very frequently put together, and they can be used in equal quantities. Raspberries and strawberries also go well together, and a few cherries may be put with them: the black hearts are the best. Apples, pears, strawberries, raspberries, currants, gooseberries, crabs, rhubarb, lemons, oranges, damsons, and all plums, peaches, elderberries, quinces, and raisins may be used for making wine, either alone or in suitable combinations.

Mixtures.—This term is given to cloths which have different-coloured threads introduced indiscriminately—for instance, that known as "pepper and salt" is a mixture: no pattern is made by the different shades or variety of colours. The term is also given to goods which are made of silk and cotton combined.

Mixtures, Medical.—These are certain medicinal ingredients which are either suspended in water by means of mucilage or otherwise, or are simple solutions only.

Mnemonics.—The art of improving the memory. (*See* Memory, Aids to.)

Mob Cap.—A cap which came into fashion at the end of the seventeenth century. It has a full round crown, which is gathered into a band, at the outer edge of which there is a wide border of frilling. It is usually made of clear muslin, and the broad strings, which are tied under the chin, are of the same material. In Danish it is called *Mop-muts*, from *mop*, a pug-dog, and *muts*, a cap.

Mocha Coffee. (*See* Coffee.)

Mocha Stone. (*See* Chalcedony.)

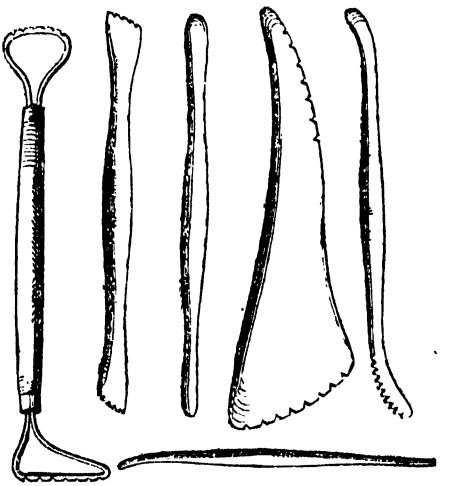
Mock Turtle.—This soup is essentially English. It is usually made of calf's head, though what is sold as mock turtle is more frequently prepared from pig's head or cow's heel. (See "Cassell's Dictionary of Cookery.") Very good soup may also be bought in tins; and if a little stock, pleasantly flavoured with fresh vegetables and herbs, be added to the preparation, it will correct the slight tinny taste, which is the only objection which can reasonably be urged against it. Mock turtle soup is made both clear and thick. A glass of good sherry or Madeira is always an improvement to it. Egg-balls are usually served with mock turtle soup.

Mocmain. (*See* Silk Cotton.)

Modelling.—Modelling is an interesting occupation for leisure hours, productive of numerous pretty objects for domestic decoration. Under the heading of Cork Models we have touched upon the use of this material for modelling. In addition to the cork, small pieces of wood will be required with which to construct the framework to which the cork—old bottle corks, cork sheets, and raspings are usually used—when cut to its proper shapes and sizes, is attached. For imitating ruins, rocky scenery, grottoes, caverns, picturesque cottages, &c.,

different-coloured sands, powdered fluor spar, cinders, glass, moss, lichens, ferns, and dried grasses, with pasteboard, paper, &c., will be required. The adhesive materials used are starch, glue, and gum. A few tubes of oil colour, with a small brush or two, will be required, some varnish, bradawls, chisel, a small hammer, a knife of the kind already described, and a pair of scissors. If a faithful copy of any actual building is to be made, the sizes of its different sections must be reduced—a certain fragment of an inch in your model representing a foot or feet in the original. Gum is used to attach to the walls or rocks moss, previously rubbed to a powder, in imitation of ivy or mosses; the sand will serve to represent gravel on the walks, the rough grain of stone, or the coarse surface of rock, according to its colour and quality. For trees and shrubs, wood and wire are used, painted, and with moss attached to represent foliage; granite is imitated with powdered glass or fluor spar; water with looking-glass, or glass over tinfoil stained with water colours to represent weeds; glass is used for windows; coloured lichens serve for flower-beds; for stalactites, paper or wood, cut to suitable jagged forms and disguised with a coating of the powdered spar, will act; ground glass will serve for ice, white wool for snow, powdered moss for grass, and the same dyed suitably will serve for many other purposes. Modelling in clay is the preliminary process used by the sculptor for casting or copying in marble, and by the designer for obtaining moulds from which the metallic ornaments used for lamps, fenders, gas-fittings, fire-grates, &c., are cast. The figures and flowers in earthenware are also modelled in clay. The clay used is that employed for domestic purposes under the name of pipe-clay, that known as the Devonshire being preferred by sculptors. It may be readily obtained at potteries, or pipe-makers', or from the makers of plaster figures. Modelling is also practised with pasteboard and paper, with which various little ornamental articles for domestic use may be constructed: card-boxes ornamented with ribbons and gilt, or perforated paper in imitation of lace, work-baskets, hand-screens, transparent screens, rustic buildings, castles, &c. Rice-paper of various colours is also used, cut into the forms of flowers to be arranged in groups. For modelling in wax, the wax is procured in sheets of different colours varying in thickness; the colours are used dry in a fine powder, and applied with short stiff-haired brushes and one or two other brushes of camel's-hair. The various tools required are few and simple, and may be cheaply purchased, together with the wooden moulds employed and the wire used for stems. The wax is cut with a pair of sharp scissors to patterns previously cut in clean paper, which are laid over the wax (not on the glossy side), and care must be observed in not cutting against the grain of the wax, or they will not so readily assume the requisite curved forms, which are given with the "curling pin" after it has been moistened in water. Dry moss is used for giving the stem the appearance it has when the moss-rose is imitated; cambric leaves, sold ready for use, are placed between the wax after the latter has been pressed closely into it, and gives the leaf-like texture. The green leaves may be purchased ready for use. Modelling is also practised with leather.

Modelling, Requisites for.—The tools used for modelling vary with the materials adopted. For modelling in clay they are few and simple, and may be procured from the shop of any artists' colourman. About half a dozen, varying in shape, will serve the purpose of a beginner, with one or two wire tools. These cost from sixpence to eightpence each; and the diagrams attached will serve to show the various



MODELLING TOOLS.

forms which are most useful. A few small hog-hair tools, such as are used for painting in oil, a camel's-hair pencil, a pair of compasses, and a good piece of fine sponge, callipers, and a wooden stool called a "banker," which is about three feet six inches in height, and has a top made with two thicknesses of board, about eighteen inches in diameter, will also be needed. For the tools required in other kinds of modelling, *see* MODELLING.

Models, Dress. — Patterns cut out in calico or tissue-paper, and so gummed together as to represent a costume, dress, or outer garment, in the style of the current fashion. Tailors cut their models in stiff brown paper.

Modus Operandi. — A Latin phrase, signifying the "method of working," now almost domiciled in the English language.

Mohair.—The long silky hair or wool of the Angora goat of Asia Minor. A fabric is so named which is manufactured of this material. Mohair yarn is sold in the shops. Fabrics are made composed of mohair, with silk or cotton warps, and characterised by peculiar lustre, equal in many cases to silk, and are remarkable for regularity of texture, softness, and fineness. The fabrication of stuffs from goats' hair was practised by the ancients, and throughout the Middle Ages beautiful stuffs were made from it. The Angora goats are annually clipped after they have completed their first year, and yield

progressively from one pound to four pounds weight, that of the female being superior to that of the male; but both are mixed together for the market, with the exception of the two-year-old she-goat's fleece, which is kept with the picked hair of other white goats for the native manufacture of the most delicate articles. The prohibition against its export from Turkey was removed at the time of the Greek revolution. Its value in Turkey has fallen to one-half, and is chiefly transmitted to this country from Smyrna and Constantinople. Quantities of an inferior kind come from other parts of Asiatic Turkey. Mohair is chiefly spun and manufactured at Bradford and Norwich. In France it is made into lace, the yarn being purchased in England. Various kinds of camlets, and some beautifully watered, decorative, coach, and other laces, plush, buttons, braidings, &c., are made from it; also striped and checked textures for ladies' dresses; as well as fine shawls, selling from £4 to £16 each. Utrecht velvet is made of it abroad, the manufacture of which fabric is now carried on at Coventry.

Mohammedan Calendar.—The Mohammedan is essentially a lunar year, consisting of twelve lunar months, which have therefore no fixed relationship to the various seasons. The Mohammedan era dates from the Hegira, or flight of Mohammed from Mecca to Medina in A.D. 622; and by deducting this from the current year of the Christian era, the solar years that have since elapsed may be ascertained. In consequence, however, of the Mohammedan years being lunar and not solar, some forty years must be added to arrive at the current year of the Mohammedan era. The following are the names of the Mohammedan months:—Mulharram, Saphar, Rabia, Latter Rabia, Gomada, Latter Gomada, Rajab, Schabân, Ramadân, Schawal, Dulkaadah, Dulhagee. (*See also* CALENDAR; ERAS.)

Mohammedan Era. (*See* ERAS.)

Moire Antique.—A superior style of the effect called "watering" produced on silk goods—hence the name given to the fabric so prepared. These silks are made in the same way as the ordinary kind, only much stouter, and weighing several times heavier; they are made of double width, which is indispensable in obtaining bold watering designs. Not only on the quality of the material, but also on the way in which it is folded when subjected to the enormous pressure required, depends the remarkable effect to be produced, for the air between the folds should not easily escape. When the pressure is applied, the air drives before it the little moisture used, and causes the effect called "watering" in its escape. Every thread must be laid perfectly parallel in the folding, for should they lie across one another the watering will be spoiled. The pressure used is from sixty to one hundred tons weight.

Molars. (*See* TEETH.)

Molasses constitutes the viscid brown liquid which drains from sugar during its formation. It differs from treacle in this—that the latter escapes from the moulds in which refined sugar concretes, while molasses flows from moist sugar. Both are used as cheap substitutes for sugar, and, if taken in large quantities, exert a laxative action. The variety which separates from beetroot sugar has a disagreeable taste, and is therefore unfit to be used in the same way as that which drains from the sugar of the cane.

Moles.—These are either patches of imperfectly organised skin, frequently covered with soft downy hair, or they are vascular tumours, of a deep purple colour, varying in depth and extent, and if they occur on the face causing much disfigurement. If they are of such a nature and are so situated as to render their removal desirable, this can be effected in different ways, the best, perhaps, being the ligature. Nitric acid, injection of iron, and excision are also employed in suitable cases. When very small they may be painted with iodine, and they will frequently disappear: this sometimes happens spontaneously.

Moleskin.—This belongs to the class of fustians. Some of these have the pile cut short before being dyed, and when so treated they are called moleskins. Fustians which are dyed previously to being cropped are called beaverteens. This fabric is peculiarly strong, and adapted for the dress of masons and out-door labourers.

Moleskin (Fur).—This is supplied by the English mole, and is extremely soft, fine, thick, and warm. It is used for winter driving-gloves, for waistcoats, muffs, and purses. By some persons the peculiar smoothness of the fur is not admired.

Monarch and Monarchy.—A monarchy is a large state governed by a single person—a monarch or king. Of the three forms of government—viz., democracy, aristocracy, and monarchy—the last is the most powerful, all the sinews of government being knit together and united in the hands of the prince; but where a monarch is invested with absolute power the monarchy is despotic, and there is imminent danger of his employing that strength to improvident or oppressive purposes. As a democracy is best calculated to direct the end of a law, and an aristocracy to invent the means by which that end shall be obtained, a monarchy is most fit for carrying those means into execution.

Money.—The oldest metallic money was probably silver, and perhaps gold was soon added. This was not coined, but reckoned by weight, as shown in the earliest recorded money transaction in Gen. xxiii., with which Gen. xiii. 2 should be compared. From that day to this, silver especially has been popular as a medium of exchange, sometimes, but not always, along with gold and copper or brass. In some cases iron and lead have been used, and a few other materials. Current coins have for many centuries been stamped by authority as a guarantee of weight, quality, and authenticity. These have generally, though not in all cases, been of the value, or nearly of the value, they represent. At present our coins are, in silver and bronze, not intrinsically worth what they pass for.

The current coinage of one state is often not a legal tender in another. Sometimes it is allowed by enactment and authorised by a countermark; but whether current or not, the money of one country can be exchanged at its recognised value for that of another. Under certain circumstances, permission to strike money in silver and copper, under the name of bank tokens, tradesmen's tokens, &c., has been given to banks, corporations, and private individuals. In some of our colonies, liberty has been taken to coin money for a time, but at present all the money of the British Empire appears to be under the direct authority of Government. It will not be needful here to enumerate the coined money which is current in this country. With regard to what we call money of account, that consists of fixed sums which are not represented by any coin in use, though they mostly originated with actual current money. If we reckoned by the noble of 6s. 8d., the mark of 13s. 4d., or the guinea of 21s., and such-like, we should use money of account. The use of money of account is in some countries not obsolete, and is in fact a great convenience. What is called paper money occupies a different position, and is considered separately. (*See* BANK NOTES.) As for the coinage of various countries, the list would be too long for insertion in this work.

Money Orders.—By the authority of the General Post Office, money orders for sums up to £10 are issued at all the local head offices in the United Kingdom, and at such other places as are indicated in the "British Postal Guide." These orders are of two kinds: (1) Inland, between places in the United Kingdom; (2) Foreign and Colonial. Blank forms of application are supplied gratuitously, and a fixed charge is made for each order granted. Orders taken at one office are made payable at such other as may be requested, but explicit details of names, and address of sender, are necessary. These orders can be crossed like cheques and paid through a bank; or they may be made payable ten days after date, if when taken out a receipt stamp is attached and the sender's name written across it in the presence of the postmaster. When presented for payment, an order must bear the signature of the payee, unless paid through a bank, when it may be receipted and crossed with the name of the receiving bank. At the end of twelve months an unpaid order becomes legally void, but if good reason is given for the delay it will be allowed, with some deduction. No order is paid a second time. An order cannot be paid on the day it is taken out. If an order is lost or miscarries, arrangements are made for granting a duplicate, for which certain fees are chargeable. The payment of an order may be stopped, the name of the payee or of the sender may be changed, and the place of payment may be altered. Postmasters must be ready to give information how these things are to be done when requisite. Lists of colonies, British agencies, and foreign countries for which money orders can be granted are to be seen at a post-office. These are subject to some special regulations, as are those issued abroad and payable here.

Money, Paper.—Promissory notes—governmental or other—passing current as money in this country. (*See* BANK NOTES; CURRENCY.)

Moning Tea. (*See* TEA.)

Monkey Fur is jet-black in colour, and formed of long silky hair. Some years ago this fur was fashionable in England and much used for muffs; it is an inexpensive trimming. The particular monkey which supplies it is that known as the Negro, large numbers of which inhabit the forests in Java and Sumatra. The natives of these islands pursue and kill the monkeys for the sake of the fur, which they prepare for use by a simple process learned by them from Europeans.

Monkshood.—This is the *Aconitum Napellus* of botanists, and belongs to the *Ranunculaceæ* family. It is an inhabitant of Europe, and is at times found growing wild on the banks of rivers or small streams. This plant is of very great service in medicine. As an external application in some, or indeed most, forms of neuralgia, it is invaluable, and in rheumatism and dropsy it is given internally. The dose of the tincture is five to ten or fifteen drops; but it should be most cautiously used, and prescribed only by a qualified practitioner. As the root of aconite has often been mistaken for horse-radish, and death has been the result, the distinctive characters of the two roots cannot be too well known. For a mode of ascertaining the difference between them, *see* HORSE-RADISH.

Monochord.—An instrument with one string, used in music for elucidating the doctrine of intervals.

Monochrome.—Paintings executed in the tints, tones, and shades of one colour are said to be in monochrome. The term is also applied to paintings in imitation of bas-reliefs, and to the flat figures delineated in outline on antique vases. Painting in monochrome has special value to the art-student, because, separating colours from their tones, it enables him to realise relief, the relative bearings of the tones, and their general relationship, thereby simplifying his studies and increasing his knowledge.

Monogram.—An abbreviation of a name by means of a character or cipher composed of two or more letters interwoven. The use of monograms is of very ancient date, and abundant evidence exists of their continuous employment from the days of the early Greeks until the present time. Letter-paper and envelopes are now very generally stamped with the initial letters of a person's name, interwoven in the form of a monogram.

Monograph.—A short treatise on a single subject, the word being derived from the Greek *monos*, single, and *graphō*, I write. As an instance of monographs may be cited the memoirs and papers read before learned societies.

Monomania. (*See* INSANITY.)

Monotone. — Sounds having the same pitch played or sung in succession. The prefix mon, or mono, signifying "one," is derived from the Greek *monos*.

Monsoons. — Certain periodic winds in the tropical portions of the Indian Ocean and China Sea, which blow constantly for about five or six months from a south-western direction, commencing in April or May. The time of commencement varies somewhat with the locality, and the direction also is influenced to some extent by that of the coast-line. They are the reversal of the trade winds, which for the rest of the year blow from the opposite point of the compass. The setting in of the monsoons is always accompanied by much rain, which often continues for many days without the slightest intermission, flooding all the rivers and suspending all business.

Monteith.—The material which is known by this name is a Turkey-red twill. There are also handkerchiefs which bear the name: these are also Turkey-red. The cognomen arises from the fabric being dyed by a firm called Monteith.

Month.—This word is derived from the same root as moon, and is so called because a month (lunar) is the period occupied by the moon in making a complete revolution round the earth. A lunar month consists of twenty-eight days, and these appear to have formed the earliest divisions of the natural year. Now, however, the word month is generally understood to denote a *calendar* month, being the twelfth part of our calendar year (*see* CALENDAR), and varying in length from 28 to 31 days as follows:—January 31 days, February 28 (29 in leap-year), March 31, April 30, May 31, June 30, July 31, August 31, September 30, October 31, November 30, December 31.

Moon, Eclipses of the. (*See* ECLIPSES.)

Moonstone.—A variety of felspar, with a *chatoyant* reflection somewhat like that of the cat's-eye, and usually of a pearly-white colour. The best come chiefly from Ceylon, and are often cut into the form of heads and polished, or are mounted in cheap jewellery with a rounded top. The moonstone is sometimes called selenite, Ceylon opal, or water opal. An opaque green variety from Siberia has the name of Amazon stone. Though once popular, the moonstone is now of trifling value and in no esteem.

Moor Game.—This title is applied to the grouse, or, strictly speaking, the red and brown ptarmigan, and also to the variety of grouse called the blackcock and grey hen. These birds are found, like the common grouse, on the moors of the British Islands, especially in the north. They are delicious when well kept and well roasted, but are tough and flavourless when dressed too soon. They should therefore be allowed to hang until they give very decided indications that they are ready to be placed on the spit.

Moorish Stripe.—This name is given to both printed and woven goods. The former are made of wool, and bear printed stripes of Turkey-red with white, or Turkey-red with stripes of yellow, of green, or of both the two latter; one distinction in this fabric being that of the appearance of a Turkey-red stripe with other colours. The woven goods which bear this name are made of cotton: they are striped in like manner as the before-mentioned, but in this instance the colours are dyed in the yarn before the latter is woven.

Mop Fair.—A statute fair at which labourers of both sexes offer themselves for hire.

Mops.—A piece of cloth, or a number of pieces of list or coarse yarn, fastened to a handle, and used for cleaning purposes, form a mop. These articles are generally used for cleaning floors and passages that are covered with tiles. The coarse material of which they are made is capable of holding a good deal of water, and so the process of "mopping"—that is, throwing water down and brushing it off with the mop—can be very quickly performed. Very small mops, with handles about eight inches long, are used for cleaning bottles.

Moquette. (*See* TAPESTRY.)

Mordants.—This (from the Latin *mordere*, to bite) is a term applied by old French writers on dyeing to certain substances, from the idea that their action was of a corrosive, biting nature, and served merely to open the pores in the fabrics or other materials for the reception of colouring matters. It has, however, been ascertained that this notion was inaccurate, though the term mordant is still retained as sufficiently suitable. Mordants form a bond of union between the substance to be dyed and the colouring matter, without which the latter would not adhere to any fabric. For instance, a red dye communicated to cotton by madder would not be fixed unless the material had been previously steeped in a solution of salt of alumina. It has been discovered that cloth has the property of decomposing the salt of alumina, and of combining with and retaining a portion of it and the colouring principle of the madder dye having an affinity for it, combines with it. The alumina being firmly retained by the cloth, and the madder-red to the alumina, the dye becomes fast, and cannot be removed by washing in soap and water, although the application of water alone would remove the colouring matter, were not a bath of the alum mordant previously given to the cloth. Not only do mordants render a dye permanent, but they have likewise a considerable influence on the colour, the same colouring matter producing very different dyes according to the mordant employed. Cochineal dye, applied after an aluminous bath, will give cloth a crimson colour; but after one of the oxide of iron it will produce black. Oil is sometimes used as a mordant in dyeing cotton and linen; but mordants are usually composed of earths, metallic oxides, tannic acid, or all of these. Of earthy mordants, the most important and generally used is alumina, either in the state of common alum or of acetate of alumina. The latter consists of the acetic acid and alumina, and

answers best as a mordant; the former is composed of sulphuric acid, alumina, and potash. Only two of the metallic oxides—those of tin and of iron—are much employed, but nearly all of them have an affinity for cloth. That of tin is very valuable, and enables moderns greatly to surpass the ancients in the brilliancy of their colours. By means of it alone scarlet is produced. Tannic acid is chiefly obtained from sumach and nut-galls, and has a strong affinity for cloth. The acetate of alumina is made by a double decomposition of alum and sugar of lead. The oxide of tin is employed in the state of nitro-muriate called "protochloride." The principle of fixing colours by means of combination with mordants is not altogether a modern invention, but was known to the Egyptians and other nations of antiquity.

Moreen.—A very stout stuff made for furniture, chiefly for window-curtains. It is made both plain and watered. Some moreen is very rich in quality, and almost resembles silk damask; it may be purchased at from 8d. to 3s. a yard, the width varying from twenty-six to twenty-seven inches.

Morel (Fungus).—This edible fungus is called by botanists the *Morchella esculenta*. It is from an inch to three inches in length of stalk. The cap is spherical, of a pale brown or grey colour, hollow, and varying in size from that of a pigeon's egg to a swan's. The surface is pitted all over, and this appearance gains for it the name of latticed mushroom. The odour of the mushroom is somewhat faint, but in taste it is very excellent. It is commonly cooked by being stuffed with forcemeat and stewed. It is not very common in this country, but in Germany it grows plentifully in woods and orchards, and especially on or near cinder walks. It used to be the practice in Germany, until the law interfered and put it down, to set fire to woods in order to obtain a good supply of the favourite latticed mushroom. This fungus may also be obtained in a dried state, when it is used to give flavour to soups or sauces.

Morel, or Morelle (Plant).—This is the tree that bears the well-known Morello cherry. It is a cultivated kind of *Cerasus Avium*, or wild cherry. The flowers and leaves appear together, and the branches are somewhat weak and spreading. The fruit is round and rich in flesh, and rather acid in juice. Morello cherries are much used in the preparation of cherry brandy. For this purpose the cherries must only be gathered when fully ripe; they are then bruised and the juice pressed through a horsehair sieve, and after being allowed to settle it is strained through a flannel bag. Now for every pint of juice add a pint of good brandy and six ounces of powdered sugar-candy, dissolved in a very little water. It must next be placed in a jar, along with a portion of thinly-sliced rind of lemon, and after being kept for two months in a warm room it may be bottled, but it should always stand for at least twelve months ere it is used.

Morganatic Marriages.—These, also called "left-handed marriages," although not recognised by our law, are not infrequent in some Continental countries. They may take place between a man of elevated rank and a woman of lower degree, and they neither raise the wife to the level of her husband nor the children to the rank of their father; hence, wife and children do not participate in any of the privileges of legitimacy as regards titles and estates. The term left-handed refers to the fact that the husband gives his left hand, and not his right, when pledging his troth. It is worth observing that marriages in our royal family, when not previously approved under the Great Seal (if the princes contracting them be under the age of twenty-five, or if such marriages are not approved by Parliament), are almost reduced to the rank of morganatic.

Morning Calls.—In the upper circles of society the term morning is generally applied to all the hours which precede a late dinner, hence calls are often thus spoken of which are, strictly speaking, made in the afternoon. Further information on this subject will be found under the heading of CALLS, ETIQUETTE OF.

Morning Dresses are so called in contradistinction to those worn in the evening. Morning dresses for cool weather are of thick woollen materials, such as homespun, tweed, serge, linsey-woolsey, camel's hair, and all those mixed materials to which various fancy names are given; while for the summer, printed cottons, holland, linen, ticking, and thick muslin are suitable. The style of making is plainer, and the trimmings are less elaborate, than that of a dress worn in the afternoon or evening for visiting or receptions at home. In the country the morning dress of both winter and summer is sometimes worn all day until changed for dinner; but in town, where there is much visiting, this is impossible.

Morocco, French.—In Paris, morocco leather is tanned by agitation with a decoction of sumach in large casks made to revolve upon a horizontal axis, like a barrel-churn, and white galls are sometimes substituted for sumach, a pound being required for each skin. (*See next paragraph.*)

Morocco Leather.—This is a fine kind of leather, usually prepared from goat-skin, tanned with the leaves of the sumach (*Rhus coriaria*), and imported into this country from the island of Sicily. An inferior kind is made from sheep-skin. Morocco leather is said to have obtained its name from the fact of its having been first so prepared by the Moors. It is dyed in various colours, and is chiefly employed for bookbinding, furniture, pocket-books and cases, and shoes. The specimens of morocco imported from Turkey, Tunis, and Egypt show the manufacture in its origin, and no alteration in the mode of dyeing appears to have taken place since the period when Western Europe was indebted to them for it. The red morocco of Turkey and Egypt is both brilliant and permanent. The imitation morocco is prepared by splitting the sheep-skin, and so making two thin skins out of one, by means of a machine designed for that purpose. About two minutes are occupied in this process, during which time the knife is moved to and fro nearly two

thousand times. Even three skins of equal thickness can be cut out of one by this machine. (*See preceding paragraph.*)

Morone.—A deep crimson colour resembling that of the unripe mulberry.

Morphia. (*See* Opium.)

Morris Dance.—This is of a grotesque character, and during the Middle Ages was performed in England by the peasantry. It is supposed, from its name, to have originated with the Moors, but their present performances do not resemble those practised in this country. This peculiar exhibition which is still to be witnessed in some country places, was thus arranged:—The body of the principal performer was encased in a wicker-work frame, a pasteboard head and neck of a horse enclosing the upper part, and this was called a hobby-horse. Different characters were personated by other members of the company—a clown, a fool, Robin Hood, Friar Tuck, &c. Bells were fastened on the ankles, swords and staves were held, and rude music was made by the jingling of bells and clashing of weapons.

Mortar.—The mortar is a strong kind of bowl in which hard or brittle substances are pulverised by percussion or grinding with what is called a pestle. The same word is applied to the mixture of lime, hard gritty coarse sand, and water free from organic matters, used for cementing stones or bricks in building, the quality of which depends alike upon the ingredients and the method of mixing them; and to a species of cannon of a wide short description, which has a powder chamber less than the size of its bore, and is intended to throw bombs and shells into fortified places.

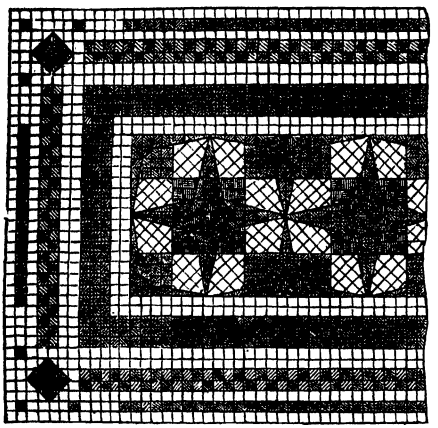
Mortgage, Mortgagor, Mortgagee.—A mortgage may be defined as a conveyance of lands from one person, termed the mortgagor, to another, termed the mortgagee, as a pledge or security for the repayment of a sum of money lent by the latter to the former. Mortgages of freehold estates are of two kinds: such estates are either conveyed to the mortgagee and his heirs in fee-simple, *i.e.*, for an estate of inheritance, subject to a proviso that on payment of the amount lent on a certain fixed day the mortgagee will re-convey the estate; or else the estate is demised (*i.e.*, leased) for a long term of years, with a proviso that if the money lent is repaid on a certain day the term shall cease and become void. A Welsh mortgage, which is another kind of mortgage, allows the mortgagor to repay at any indefinite time. Mortgages of leasehold estates may also either be by way of assignment (where the whole of the mortgagor's term is assigned), or by under-lease, in which case the mortgagee does not become liable to the rent and covenants of the lease. In both cases there is the usual proviso for redemption, as it is called, *i.e.*, a proviso for re-assignment or surrender by the mortgagee, on repayment of the principal money lent, interest, and costs. Mortgages of copyhold lands are usually made by surrender without admittance, subject to a proviso making void the surrender on repayment of principal, interest, and costs. A mortgagee is sometimes content (especially where the copyhold is only part of his security) with a covenant to surrender, which he takes from his mortgagor, subject to a similar proviso. A mortgagee may proceed to realise his security, either (1) by foreclosure, which consists of an action or suit brought by him against his mortgagor, and under which the latter is ordered by a certain day (usually six months from the date of the decree *nisi*) to repay the mortgage money, &c.; failing this, the mortgagor is for ever thereafter foreclosed, *i.e.*, debarred and prevented from so doing, and the final decree in a foreclosure suit gives the mortgagee an absolute title to the property mortgaged. (2) By sale, *i.e.*, by exercising the power of sale usually contained in mortgage securities. In the absence of such a power, however, a statutory power has been conferred on mortgagees by 23 & 24 Vict. c. 145; but in exercising the same the mortgagee must very carefully comply with the provisions of the statute. The mortgagor's remedy against his mortgagee for recovery of his estate is by redemption, for which purpose an action or suit lies at the instance of the mortgagor. We have necessarily given but an outline of this subject, the law on which, and the numerous distinctions engrafted thereon by the decisions of the courts, are of a most abstruse and technical nature, and quite beyond the scope of this work.

Mortification. (*See* Gangrene.)

Mortmain (from *mort*, dead, and *main*, hand) signifies an alienation of lands and tenements to any corporation and their successors, as bishops, parsons, vicars, &c., which is restrained in Magna Charta, and cannot be done without the Sovereign's licence. Various enactments have been made to prevent the influence of priests and crafty men from taking advantage of the last hours of the lives of weak devotees by obtaining gifts in mortmain or perpetuity. The chief of these is the Statute 9 Geo. II. c. 36, known as the Statute of Mortmain. It enacts that no lands shall be given to charities unless the following requisites be observed:—(1) A deed sealed and delivered in the presence of two witnesses; (2) the deed should be indented, (3) and executed at least twelve calendar months before the death of the grantor, (4) and enrolled in the Court of Chancery within six months from its execution; (5) the grant must take effect in possession immediately upon the execution of the deed; (6) such grant should be irrevocable, and without any equivalent whatsoever in favour of the grantor. The following among other qualifications of these rules have been in modern times allowed:—1. A donor in mortmain may by deed or will make a gift of land for a public park not exceeding twenty acres in extent for any one such park. 2. He may make a gift of land for an elementary school not exceeding in extent one acre for any one such school. 3. He may give land not exceeding two acres in extent for a public museum. See Public Parks, Schools, and Museums Act, 1871 (34 Vict. c. 13). See also the Literary and Scientific Institutions Act, 1854 (17 & 18 Vict.

c. 112), and the Recreation Grounds Act, 1859 (22 Vict. c. 27).

Mosaic.—An assemblage of very minute pieces of glass, marble, or precious stones, of various colours, carefully shaped and inlaid on a ground, generally of metal, so as to represent designs and pictures of natural objects. This



MOSAIC WORK.

art was practised at a very early period, and has especially flourished in Italy, where it is said to have been introduced by the Byzantine Greeks. In architecture, mosaic work is the inlaying of walls, pavements, &c., with small dies of variously-coloured stone and glass.

Mosaic Gold. (*See* GOLD, DUTCH.)

Mosaic Wool Work.—The work which bears this name is executed at Halifax, in Yorkshire. Rugs are there made which exhibit on their surface representations of pictures; animals are chiefly chosen for these delineations, and the effect obtained is clever and life-like. A picture is drawn the required size, and it is then ruled over in a set of squares as for Berlin work. The whole is then divided into small sections, wools corresponding to the colours in each section being selected with great attention to the shades. The threads of wool are then arranged for the whole in proper order; they are fastened on a steel bar, run parallel, and are stretched very tightly to another bar, where the ends are bound. When the surface picture is completed, a layer of india-rubber solution is laid on; after three repetitions of this, carpet canvas, previously covered with the same solution, is laid on the wool work, and the two adhere so firmly that, although in time the threads of wool may be worn off, they will never be torn off or become loose.

Moselle.—The wines produced on the banks of the Moselle share some general resemblance of flavour with hocks and Rhine wines. They are slightly less acid in taste than Rhenish wine and have less body, and will not keep so well, but they are very pleasant and wholesome. A trustworthy authority on the subject of wines says that these light wines are more refrigerant than any others, and are excellent for persons in low fevers, and when there is great nervous exhaustion. The peculiar characteristic of Moselle wines is their delicate aromatic bouquet. This is imparted to the inferior varieties artificially. The most esteemed among the Moselle wines is Scharzhofberg, made from selected grapes. Grünhaüser (the nectar of the Moselle), Scharzberg, and Braunеberg are also highly esteemed.

Moss-agate. (*See* AGATE.)

Moss, Carrageen. (*See* CARRAGEEN MOSS.)

Moss Rose. (*See* ROSES.)

Mosses.—These are called by the botanist *Musci*, and are cryptogamic or non-flowering plants, of very singular structure. They are composed entirely of cellular tissue, lengthened into tubes, and are quite destitute of vessels of any kind. Although never exceeding an inch or two in height, many of them are even microscopic in size, but nevertheless they are furnished with leaves and with a wonderful reproductive system. One method of reproduction is by means of what is called the *sporangium*, or urn. These urns grow from stalks, and are at first covered by a cap, or *calyptra*. They are closed by a lid, which, when the sporules are ripe, separates, and the spores may then be seen arranged in the cavity around a central column, called the columella. From these spores are developed the moss-plant, with its roots, its branches, and leaves. The question of the sexuality of mosses has greatly engaged the attention of the muscologists since the discovery of the existence of two sets of organs in mosses—namely, the *antheridia* and *pistillidia*; and the view usually entertained is that the former are male organs, and fertilise the *pistillidia* to the development of perfect fruit. Much of the reasoning, however, on this subject is merely analogical, but is strongly circumstantial nevertheless. For instance, it is found that in those mosses in which the *antheridia* and *pistillidia* occur in separate plants no fruit is produced from those bearing *antheridia*, nor from the mosses on which the *pistillidia* grow, unless the so-called male mosses are found in the immediate vicinity. Mosses are freely distributed all over the globe, and like a humid atmosphere and a not too high temperature. They grow in winter as well as summer, and their examination forms much pleasant study for the botanist at a time when flowers are scarce. Many genera of mosses are admitted, being chiefly distinguished by the position of the urn, the shape of the calyptra, peristomes, &c.

Mosses, To Dry, &c.—Very little trouble is required to make these fit for table decorations. The process is that of separating the fibres from the roots, of pulling the moss to pieces, and then leaving it to dry. Fern moss is exceedingly pretty for this purpose. Stag's-horn moss, when dried, makes an artistic decoration for picture-frames. A very large collection can be made of mosses, as the family is more numerous than it is generally known to be. Specimens of these should be carefully separated as above named, and then arranged between leaves of blotting-paper like dried flowers (*which see*).

Moth, Clothes. (*See* CLOTHES MOTH.)

Moth Preventatives. (*See* CLOTHES MOTH; INSECTICIDES.)

Mother-of-Pearl.—The natural white, partially-transparent enamel forming a part of the oyster-shell, and composed of coagulated albumen and carbonate of lime, bears this name. That chiefly in use is derived from a species of shell belonging to what is known as the "pearl oyster."

Mothers' Meetings. (*See* MATERNAL OR MOTHERS' MEETINGS.)

Moths, To Preserve. (*See* BUTTERFLIES, TO PRESERVE, &c.)

Mould. (*See* MOULDINESS.)

Mould Candles. (*See* CANDLES.)

Mould, Iron. (*See* IRON-MOULD AND STAINS.)

Mouldiness, sometimes called hair-mould, consists, in reality, of very minute forms of fungi. It would seem that absence of light and a damp condition of the air are favourable to the growth of these fungi, the spores of which float in the air and speedily take root when they find a likely soil. The commonest kind, perhaps, is the *Ascophora mucedo*. This grows upon articles prepared from flour, as bread, stale paste, &c. From a cobweb-like bed spring millions of hair-like branches, forming a downy pit. Each branch is terminated by a rounded or button-shaped expansion, to which the spores are attached. Another is called the *Penicillium*, springing from the same kind of bed, but instead of ending in an expansion the branches end in a tuft of jointed fibres, each of which produces a chain of round sporules. There are many other species that grow, some on the excrement of various animals, others on plants and paint, while one form attacks the silkworm, and another the common house-fly.

Moulding.—Anything cast in any description of mould is commonly called a moulding, and the term is further extended by its ordinary application to many things which have not been cast in moulds, but merely have the appearance of having been so cast, one being necessarily exactly like another in virtue of their production by an unvarying process. In architecture, the word is employed to describe the unvarying ornamental projections, of which there are eight descriptions, which are known as the *ovolo*, the *talon*, the *cyma*, the *cavetto*, the *torus*, the *astragal*, the *scotia*, and the *fillet*. The ovolo and talon are intended to support other important mouldings; the cyma and cavetto are never used alone; the torus and astragal are supposed to represent a rope-like band, and to be used where such a member would appear to be in its proper place, and usually above the eye only; the fillet and scotia also have their proper places, the latter being always placed below the level of the eye. The former, when wide and used under the cyma of a cornice, becomes known as a corona. A good moulding of a coin or medal may be made with equal parts of red-lead and flower of brimstone, melted in a ladle and run into the mould.

Moulds, Culinary.—Among the moulds used in cookery, the most usual are moulds for cakes and puddings, moulds for jellies and blancmanges, and moulds for raised pies. Cakes are best baked in tin moulds; puddings are either boiled in moulds or in plain pudding-basins with a rim. Jelly-moulds are of all shapes and sizes, and some of them are exceedingly pretty and artistic. The superior varieties are made of copper, and are intended for the preparation of jellies of different colours. Some are provided with movable linings, which can be filled with jelly of a different colour to that which occupies the outside space, and the effect thus produced is exceedingly artistic. Moulds for raised pies are made to open, and this renders it a comparatively easy task both to form the pie and to turn it out when it is baked.

Moulds for Casting.—Moulds vary in form and description with the species of manufacture in which they are employed. In making paper they are a kind of frame; in bullet-making the moulds are of iron, and resemble in their general form a pair of pliers. Moulds are used by glaziers for casting the strips of lead they sometimes employ. Moulds are also used for the candles which derive their name therefrom. The shipwright's mould is a thin flexible piece of wood used for cutting the curves of timber. In short, the term mould is one of general application to the different tools employed for producing form either by casting or compression. Moulds for casting are made of gutta-percha softened with heat, and afterwards plunged into cold water to harden (suitable for making casts from coins), of clay, gelatine, wax, sulphur, plaster of Paris, starch, a mixture of glue and treacle, &c. &c. (*See also* CASTS, TO TAKE.)

Mountebank.—Originally a man who mounted a bench or stage in public, proclaimed his skill in curing diseases, and offering infallible remedies for sale; a quack doctor. The word is also applied to acrobats and performers of tricks for the entertainment of the populace. In common parlance, any showy pretender is styled a mountebank.

Mourning Customs.—The usages regarding the manifestation of grief on the loss of friends or relations by death have varied at different periods and among different nations. Amongst the Hebrews the term of mourning was seven days, and this was sometimes extended to a month. The bereaved usually tore their hair, rent their garments, threw ashes upon their heads, smote their breasts, cut off their hair and beards, and went bareheaded and barefooted. Among the Greeks the mourners retired into solitude, wore a coarse black dress, cut off their hair, threw ashes on their heads, and never appeared in public without a veil. With the Romans the forms of mourning did not differ greatly from those of the Greeks. Under the Republic, black or dark blue was the dress of the bereaved. Under the Empire, black was still worn by the men, but the women wore white. In Turkey the colour of mourning dress is blue or violet; in Egypt, yellow; in China and Japan, white; and in Ethiopia,

brown. In modern Europe it is black, and its depth and the time that it is worn vary with the degree of relationship to the deceased. When members of the royal family die, court mourning is ordered, and the time that it is to be worn and minute directions as to detail are usually given. On the death of the Sovereign or a very popular member of the reigning house, mourning is worn very generally all over the country. When the Prince Consort died, in 1861, mourning was worn almost universally throughout the British Empire. (*See also* FUNERAL CUSTOMS.)

Mourning Dresses.—The materials for a widow's mourning are barathea, paramatta, crape-cloth, and for wealthy persons the expensive silk called "widows' silk," which may also be employed for less degrees of mourning. The over-dress should be entirely of crape, the bodice being likewise so covered and the cuffs of the sleeves. The veil is usually a double one, but the shape, as that of the bonnet, and the wearing of white lisse frillings and "weepers," &c., are decided by the fashion of the day. The other degrees of mourning are changed as to depth and duration every few years; and all necessary information can be obtained from the various publications on the subject of dress. The shortening of the periods of mourning, as compared with years gone by, has proved a great boon to many, as well as to trade in general. The very best materials within the reach of the purchaser should always be selected for mourning, these being by far the most economical in their wear.

Mouse. (*See* MICE.)

Mouse-traps. — There are one or two varieties of mouse-traps, but perhaps the best is the common one so well known to every one. The only objection to it is that it is rather cruel, and keeps the poor little prisoner for a long time tremblingly awaiting its doom. As an improvement, therefore, on this, another kind of trap is made, which is furnished with a sharp spike which drops into the neck of the mouse as it presses forward to seize the bait, thus causing instant death. When, however, mice have once determinedly taken up their abode in a place, traps are not of very much good. They catch a straggler here and there, and the rest learn wisdom from the misfortunes of their friends. A good cat is the only real remedy for the evil. A first-rate mouser will soon diminish the number of the mice, and those that are not caught will take up their abode somewhere else, for fear of sharing the fate of their companions.

Mousseline de Laine.—This material is woven with fine thin wool, and, as its French name indicates, it resembles muslin made of wool. Patterns of various colours are printed on its surface. This pretty material was much worn by the upper classes some years ago; it was specially used for children's dresses, on account of its lightness, warmth, and cheerful appearance.

Mousseline de Soie. — A thin soft silken fabric made of very fine silk, so called from its resemblance to muslin. It is used chiefly for dresses for evening toilettes.

Moustache. — That portion of a man's beard which grows upon the upper lip.

Mouth, Ailments of. (*See* FACE, AILMENTS OF; GUMS, AILMENTS OF; RANULA; TEETHING; THRUSH.)

Mouth Washes. (*See* GARGLES; GUMS, AILMENTS OF; THRUSH; &c.)

Mucilage.—Usually a solution of gum in water, &c. It is the form in which gum arabic, tragacanth, and other kinds are ordinarily used.

Mucous Membrane.—This is the membrane which lines all the internal parts of the body which communicate externally as well, as, for example, the digestive tract, which begins in the mouth and ends in the anus; the respiratory tract, which commences in the nose and terminates in the air-cells of the lungs; and lastly, the urinary tract, which ends in the kidneys. Mucous membranes secrete a thin glairy fluid called mucus, which is very much increased in quantity and altered in character under the influence of irritation or inflammation, as in catarrh, bronchitis, &c.

Mucus.—This is a glairy alkaline fluid secreted by the mucous membranes of the body. (*See* BRONCHITIS; CATARRH; MUCOUS MEMBRANE; &c.)

Muffatee, or Muffetee.—A small muff; a sort of cuff worn to protect the wrist from cold. It is made of wool or silk, with or without a thumb, or an aperture for the thumb to pass through, sometimes combined with a sleeve of the same make, and worn by gentlemen when out shooting and the like. The simplest of all is made thus:—Set on forty stitches, and knit three rows plain and three rows turnstitch till wide enough; then sew it up, leaving a hole for the thumb. Use finest wool of any colour, and fine pins.

Muffins are light, round, spongy cakes made of flour, water, and yeast. They are usually served at the less substantial meals, toasted, torn in halves, and soaked in butter. Though popular favourites, they are generally regarded as very indigestible. Owing to the peculiar way in which they are baked they are not easily made in private houses, but they can generally be bought of any respectable baker.

Mufflers. (*See* COMFORTERS.)

Muffs.—These are usually made of fur; when other fur is worn, that of the muff should match it. Should adherence to this rule not be practicable, the muff should at any rate match in colour if not in kind: thus a muff of chinchilla or ermine fur would not agree with sable or musquash fur trimmings, and *vice versâ*. An economical muff can be made by having black silk or velvet round the middle of it, and bands of fur round each end. When fur muffs look shabby they can be renovated by the abstraction of worn pieces of fur and the insertion of new, also by having new lining and fresh wadding. In many towns there are women who make a trade of this kind of work. The sizes of muffs vary with the fashion; those used some years ago were enormous compared with the present display. When shawls are in fashion, muffs are laid aside.

Mufti.—*In mufti* means in plain clothes. The term is used of the ordinary dress of a civilian when worn by an officer who is not on duty, and who wishes to appear *incognito*.

Mugs.—Mug is a familiar name for an earthen or metal drinking-vessel, or a vessel for holding liquid for drinking. In the eighteenth century an ale-house was called a mug-house. The customers used to assemble in a large tap-room, the ale being served to them in their own mugs. The place where the mug was to stand was marked on the table with chalk.

Mulberry.—The common or black mulberry (*Morus nigra*) is a native of Persia, and is supposed to have been brought to the south of Europe more than a thousand years ago by the Romans. It was well known in England even in Saxon times, and trees still exist in this country which are known to be more than three hundred years old. The black mulberry is a low tree, much branched, with a thick rough bark. It is late in putting forth its leaves, but the fruit forms very quickly. It requires no pruning, and indeed needs very little care at all. The fruit, which is often produced in large quantities, falls off as soon as it is ripe, and therefore it is usual for the tree to be planted in the middle of a lawn, so that the berries may not be crushed as they fall. The fruit is of a purplish-black colour, with dark juice, and it possesses a highly aromatic flavour and sweet taste. It is wholesome, cooling, and rather laxative. It is exceedingly delicate, and will not keep good off the tree more than a day or two. Like the strawberry, it does not undergo the acetous fermentation, and may therefore be safely partaken of by gouty and rheumatic persons. When eaten to any great extent, however, it is apt to disorder the stomach and bowels. The most favoured mulberries attain maturity about the end of August, but the fruit may be said to be in season in September and October. An excellent preserve and a syrup good for colds and sore throats is made from the mulberry. The leaves of the black mulberry are not good for silkworms, and neither are those of the red mulberry. In England, lettuce-leaves should be substituted for this purpose. The white mulberry (*Morus alba*) is the tree on which the silkworm lives. It has been grown in China from time immemorial for the sake of its leaves, and has been cultivated for the same purpose in the south of Europe since 1540. It is grown also in North America, but it cannot stand frost. The red mulberry (*Morus rubra*) is a native of North America. It is harder than either of the preceding varieties, and is therefore occasionally preferred for cultivation. The fruit is a deep red, but it is not quite so pleasant as that of the black mulberry. Other varieties of the species grow in different parts of the world. Of these, *Morus dulcis*, a native of the north of India, is said to surpass all the others in the delicacy of its flavour.

Mulberry Wine.—A very choice and agreeable wine is made from ripe mulberries, but it is not advisable to make it in cold seasons, when the fruit has not fully matured. The wine, after it has been bottled, should be kept in a moderate temperature. When mulberry juice is mixed with the juice of apples, it forms a beverage of a deep port-wine colour called mulberry cider.

Mulching.—By the term mulch is understood the half-rotten straw and moist stable litter used in gardening; and the application of this in manuring plants is generally known as mulching.

Mule Twist.—A kind of twist or fine yarn made by a machine called a mule or mule-jenny, used for spinning cotton. The word "mule" is in this case a corruption of the German *mühle*, a mill.

Mull. (*See* Muslins.)

Mull. The word mull is supposed to be derived from the Welsh *mwll*, to warm. In cookery it signifies to heat and sweeten wine, or ale, and enrich the beverage with spices. In mulling wine great care must be taken that the vessels employed are scrupulously clean, otherwise an unpleasant flavour may be imparted to the preparation. When mulling wine with eggs, the boiling liquor should be stirred briskly into the eggs. If the eggs are poured into the liquor, the yolks will curdle.

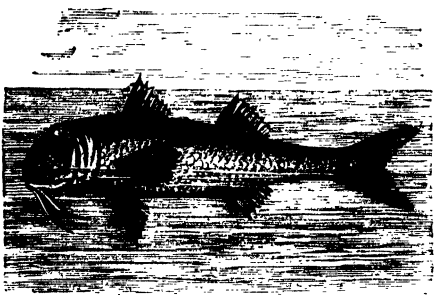
Mullagatawny is, strictly speaking, a soup made of a fowl which has been cut into pieces, mixed with rice, and made "tawny" with some ingredient—either saffron or curry powder. It is, however, very frequently made with rabbit, breast of veal, or calf's head, instead of fowl. Good pieces of meat, curry powder, rice, and strong stock are, however, indispensable for its preparation.

Muller.—A stone held in the hand, and used by painters for reducing their colours to powder. It is also employed for the purpose of grinding various substances by apothecaries.

Mullet, Grey.—The grey mullet (*Mugil capito*) is an entirely different fish to the red mullet (*see next paragraph*). It is generally found on the western shores of Europe, is fond of shallow water, and frequents the mouths of rivers. It is seldom offered for sale in this country, and is regarded as much inferior to the red mullet. The roe of the grey mullet is preserved in Italy and the south of France in the form of a sausage, called *botarcha*, and is sometimes taken by wine-drinkers for the sake of the thirst which it induces.

Mullet, Red.—This fish (the *Mullus barbatus* of Linnæus) was more highly esteemed among the ancients than it is with us. It was a proverb amongst the Romans that he who took it never ate it, for the price that could be obtained for it made him hurry with it to the nearest market, where it would fetch its weight in silver. The larger the mullet, the more highly it was valued. It is said that a sum equal to £240 was once given for three mullets of unusual size which happened to be in the market just before the time fixed for a magnificent banquet. The red mullet is of a brilliant red colour, intermingled with silvery tints upon its sides and belly. The flesh is

white, firm, and well flavoured, but its beauty is the chief cause of its celebrity. Seneca and Pliny both tell us that the rich patricians of Rome took pleasure in watching the mullet die, and delighted in noting the various shades of purple, violet, and blue which succeed each other in the course of its dying agonies. "The great rival of Cicero, the advocate Hortensius, had an inordinate passion for this kind of enjoyment. These little inhabitants of the waters were led by a small canal, which was carried under the festive table, and his great enjoyment was to witness the agonies of the dying fish just taken from its native element and carried to the table, palpitating with its dying convulsions, as it perished beneath his eyes, he in the meanwhile enjoying a sumptuous banquet."



RED MULLET.

The fish is now no longer sought to afford gratification of this kind, but it is valued both for its beauty and its excellent table qualities. It is taken along the whole length of the southern coast, although the best used are caught at Weymouth. Hastings and Jersey are also noted for it. The red mullet is sometimes called the woodcock of the sea. This is because it is supposed to be dressed without being gutted, under the idea that the trail is a delicacy. The fact is, that it is the liver that is so highly esteemed, the trail being decidedly objectionable, owing to the nature of the food upon which the mullet feeds. The liver, therefore, ought to be left in the fish; and in cleaning it this can be easily accomplished by drawing as much of the viscera as ought to be removed through the gills. The fish may be had all the year round, but is in perfection during the heat of summer. The best red mullet are those which are very red and short. Unlike other fish, red mullet is better for being kept a short time. Owing to the tenuity of the skins, it is best cooked in paper cases.

Mum.—A sort of strong beer named after the first brewer of it, and introduced originally from Brunswick.

Mummer.—A man in disguise who practises various antics and buffoonery for the amusement of others. Mummers were once a very common feature of Christmas revels and the like. Hence the word mummery for show and parade calculated to amuse or deceive the weak and ignorant.

Mumps.—This is an affection of the parotid and submaxillary glands of the neck, characterised by considerable swelling of these glands, with some feverishness and pain, especially in opening the mouth. The disease is usually confined to one side of the face, but may attack both causing much temporary deformity. Mumps are highly contagious, and are frequently epidemic in schools. The disease usually disappears in a few days, the swelling gradually subsiding, and seldom going on to suppuration. The treatment consists in warm fomentations, and, in severe cases, the application of leeches, in keeping the bowels well relieved, and in a farinaceous diet. Flannel or cotton-wool should be kept applied to the swollen parts for a few days.

Mundungus.—Bad and ill-flavoured tobacco, and the like.

Mungo.—Old broadcloth disintegrated for use in new fabrics. As an adulteration it lowers the price and the quality of the articles in which it is present.

Muniments.—By this term is understood deeds, documents, and writings in general, whether the property of public bodies or private parties. There is in most well-appointed offices a strong room or compartment provided for the keeping of muniments relating to the property of the proprietor or his clients, and termed a muniment or strong room. In cathedral and collegiate churches, castles, and colleges, a room of this kind is usually devoted for keeping deeds, charters, &c.

Murder.—The act of killing another with violence and malice. The word comes from the Saxon *morth*, signifying "death," which some will have to signify a violent death. Among popular errors is the notion which has prevailed that the dead body would bleed in the presence or upon the touch of the murderer. The crime of murder is punished with death in almost all nations. The punishment of murder and that of manslaughter were formerly one and the same, both having the benefit of clergy (*see* BENEFIT OF CLERGY); so that none but unlearned persons who least knew the guilt of it were put to death for this enormous crime. But now by several Statutes the benefit of clergy is taken away from murderers through *malice prepense*, their abettors, procurers, and counsellors. Murder is a felony, and punishable with death under the Statute 24 & 25 Vict. c. 100, s. 1 (see also the Capital Punishment Amendment Act, 1868, 31 Vict. c. 26, passed for regulating the carrying out of capital punishment in prisons), but the following circumstances must concur to establish the crime: —1. The person committing the offence must be of sound memory and discretion; for children and insane persons are incapable of committing any crime unless they evince a consciousness of doing wrong and a discernment between good and evil. 2. It must be an unlawful killing by any means which superinduces death within a year and a day after the cause of death administered. 3. The person killed must be a reasonable creature in being, and under

the queen's peace. 4. The killing must be with malice aforethought. (*See* MANSLAUGHTER.)

Muriatic Acid. (*See* HYDROCHLORIC ACID.)

Muscatel Raisins. (*See* RAISINS.)

Muscatel Wine.—This name is given to many varieties of wines, both white and red, which under their own names are comparatively little known in this country. Some of the red wine partakes of the character of port, and a good deal of it is sold and used in England as port. The seat of production of these wines is the south of France and the neighbourhood of the Pyrenees. The wine of Rousillon and Masdeu (which is the name for God's field), the white Rivesalt and the Lunel, from the Pyrenees, furnish examples of wines of this class.

Muscles.—These are the organs without which the body could neither move nor breathe. They are divided by anatomists into two classes, viz., the voluntary muscles and the involuntary. 1. *The voluntary muscles.* These are dependent upon the will, and can be put into motion at pleasure. They are called the muscles of animal life and striped muscles. They consist of bundles of fibres enclosed in a delicate network of areolar tissue. The muscles of the arms, legs, chest, &c., are the best examples of this class. 2. *Involuntary muscles.* These are also called the muscles of organic life and unstriped muscles. These consist of flattened bands of pale spindle-shaped fibres connected by areolar tissue. They are found in the alimentary canal, sphincter of the anus, bronchial tubes, bladder, womb, pelvis of the kidney, gall-bladder, and in all those parts where motor power is exercised without any control of the will.

Muscular Rheumatism. (*See* RHEUMATISM.)

Museums, Amateur.—Gentlemen of taste, leisure, and sufficient means sometimes set apart a room or rooms as a museum; and the practice is one which is much to be commended, as it is often the only means of preserving local curiosities and antiquities, and if in the country and not too exclusive is an excellent way to benefit people intellectually. Sometimes local gentlemen combine to form a temporary museum, under the name of an exhibition, usually with a benevolent object. This also is most laudable. It is not possible for us to give directions in detail for these collections, but we may say that the contents should be regularly arranged and classified; that they should be shown to the best advantage; and that descriptive labels, legibly written, should be affixed to all the objects as far as possible. (*See* EXHIBITIONS.)

Mushroom Beds.—In order to cultivate mushrooms properly, procure some good horse-manure, which collect in a heap, so that it may ferment and collect heat. This heat at first will be somewhat fierce, and therefore to mitigate it, and at the same time to let all portions of the heap be about the same temperature, it must for about a fortnight be frequently turned. The spot for the bed should be dry and sheltered, and on the space marked out for it—say five feet broad by ten or twelve long, and running north and south—a trench about six inches deep is to be dug. The earth may remain to serve to top the bed. First lay the bottom of the bed, composed of ordinary horse-manure, in the trench; then on this lay the prepared manure in layers a few inches thick, beating each layer well down, till the bed is about five feet high, and with sloping sides like the ridge of a house. It must then be left for nearly a fortnight, till a good heat is gained, when the bed is ready for spawning, *i.e.*, producing the filaments from which the mushrooms originate. The spawn, when it appears, must be broken into pieces about two inches square; the pieces are to be placed in the dung in lines about eight inches apart, on the sloping sides of the bed, beginning about six inches from the bottom of the bed. The spawn is not placed very deep. The bed is then levelled and beaten down with the spade, and subsequently covered with two inches of mould, and beaten closely down. The bed must next be covered with straw and old matting. In a few days examine the bed for heat, and if this be increasing the straw must be moved off a little, but not entirely. In about a month, or rather over, you may look out for the young mushrooms. When gathering them, do not use a knife, for if part is left in the ground it decays and affects the succeeding crop.

Mushroom Ketchup. (*See* KETCHUP.)

Mushroom Powder.—When fresh mushrooms cannot be obtained, mushroom powder is a valuable addition to sauces and gravies. It is made from the large edible mushrooms, dried by a gentle heat, and mixed with white pepper, pounded cloves, and mace and cayenne. It should be kept in small bottles which are perfectly dry, and should be closely corked down, and stored in a dry situation. Under favourable circumstances it will retain its flavour a long time. When mushroom powder is used, it should be added to the ragout or gravy for which it is intended almost at the last moment, when it will only need to boil up once.

Mushrooms.—The term mushroom is used generally to designate various kinds of edible and poisonous fungi, but more commonly the former. The genus to which they belong is *Agaricus*, and there are over a thousand known species, chiefly confined to the more temperate regions of the earth. They are found growing principally in meadows or heaths, in woods, and upon tree-stumps and heaps of decaying matter. Probably far the largest number of species are wholesome eating; botanically, however, we cannot divide the poisonous from the non-poisonous; and it is somewhat singular that the same species of mushroom may be edible in one country and quite poisonous in another. For instance, our commonest mushroom in this country (the *Agaricus campestris*) is forbidden to be sold in Rome; and in many other parts of Europe species are freely and fearlessly used for food which in this country could not be eaten without a fatal issue. But more and above this, a mushroom which in certain circumstances may be very wholesome, may, if found growing in some situations, be decidedly

poisonous. This should prove to us how much danger there is, on the whole, in using wild mushrooms indiscriminately. Nevertheless, considering what a wealth of succulent and even delicious food may be found growing almost everywhere out of doors during certain months of the year, we think it a pity that the study of esculent fungi is not more commonly pursued. The *Agaricus campestris* is that which is most commonly eaten in this country and oftenest cultivated. At first they are found as round snow-white bulbs, peeping through the ground or grass. Afterwards the *pileus*, or cap, is distinct from the stalk, and now the gills are a delicate pink or flesh-colour. When older they are called *flaps*, are flat on the top, and have the gills dark brown or almost black. The *Agaricus oreades*, or fairy-ring mushroom, is another common edible kind, and the *Agaricus Georgii* a third; the latter has the gills very pale, and is inferior in many ways to the others. Although practice and experience are the only safe guides for collecting good mushrooms, poisonous ones may at times be known from their rank odour or bitter taste. Those should be avoided, too, that grow in dark damp woods or that turn blue when cut, those in which the stalk grows from the edge of the *pileus* instead of from the centre, those that have a thin instead of a fleshy cap with large gills, those whose gills are of unequal length, milky-juiced mushrooms, and those that quickly deliquesce or run to water. (*See* CHAMPIGNON; FUNGI.)

Mushrooms, Pickled, are generally considered exceedingly delicious. They are made from small young button mushrooms preserved in vinegar. Like ketchup, they should be prepared from the beginning of September to the middle of October. If closely tied down in stone jars and kept in a dry place, pickled mushrooms will keep good for a long time.

Music.—It is not very generally realised that music was the earliest of all the accomplishments acquired by primitive man. We find it so in our own day. In visiting some remote barbaric tribe we find that, though they can neither read, write, nor draw, they can always play and sing. As the civilisation of the tribe progresses, we find that their music improves, as well as the popular appreciation of the art. Music, in fact, appears to be the only accomplishment in which progress, as far as we are concerned, seems to be infinite. In writing, we attain "copper-plate" perfection, and nothing better can be done; in drawing, our cubes are mathematically correct, and cannot be improved upon. In music, however, the simplest melody of a compass of four notes can be made to bear an infinite variety of light and shade, even if unaccompanied by harmonies; or the harmonies of the same melody can be varied in many ways, giving with each variation a totally different complexion to the melody. "Music" has now become one of the stock accomplishments taught at our superior and middle-class schools. At least every girl is expected to be able to sing or play. Nearly every girl is placed at the piano and taught "her scales," generally without the parent or teacher first ascertaining whether she is naturally fitted for that instrument. Now this should not be. There are other instruments besides the pianoforte and that cruelly-used instrument the harmonium. And there are other accomplishments besides music, which is the most distressing of all if badly exhibited. First, then, ascertain whether your child has a musical ear and taste (one generally goes with the other, but not always); then consult your child, and afterwards a well-qualified musician, as to the instrument to be attempted. After a short trial, the pianoforte may prove a mistake. Try the violin (violin playing amongst ladies is now becoming fashionable) or the English concertina; or, as a last resource, the guitar, which is about the easiest of all instruments. In olden times English ladies even played upon the tenor and bass viols, and there is no reason why they should not revive the practice. A word of advice as to the teacher. 1. Select him, if possible, as the result of private recommendation, taking care that evidence is given of his success as a teacher. 2. Failing this, be sure he is a well-known professor, or that he possesses a diploma which certifies to his ability to teach in the required subjects. 3. Pay fair terms, neither too high nor too low. High fees are no guarantee of special excellence, while exceptionally low fees are in many cases a mark of inefficiency. As to the importance of the cultivation of the art of music, as it has been man's first accomplishment, so is it destined to be his last.

Music-cases are of two kinds. The one has stiff leaves like a portfolio—this is not so much used as formerly for pianoforte music, being inconvenient to carry: there are smaller-sized cases of this description, with spring backs, which are very convenient to hold and keep together small unbound pieces, such as glees and part-songs. The other kind consists of a piece of leather, which is rolled round sheets of music to keep them together and prevent injury in transit. For these, dull soft leather is better adapted than the enamelled kind.

Music, Copyright in.—The [illegible] of copyright in music is in all respects similar to that in books (*see* COPYRIGHT), and is governed by the Act 5 & 6 Vict. c. 45. [illegible] dramatic compositions, there is a two-fold property in a musical composition: there is the copyright in the composition, regarded as a literary production; and there is the right of public performance. These two rights may be separately assigned by the composer, and thus be held by two different persons. In the words of the 22nd clause of the Act above mentioned, "No assignment of the copyright of any book, consisting of or containing a dramatic piece or musical composition, shall be holden to convey to the assignee the right of representing or performing such dramatic piece or musical composition, unless an entry in the said registry book (at Stationers' Hall) shall be made of such assignment, wherein shall be expressed the intention of the parties that such right should pass by such assignment." In the strict interpretation of this Act, therefore, no copyright song may be sung, nor may any piece of instrumental music be played, publicly, without the

permission of the owner of the right of performance.

Music in Streets, Law concerning.—By the 27 & 28 Vict. c. 55, repealing a former enactment on the subject (the 2 & 3 Vict. c. 47, s. 57), it is provided that any householder within the metropolitan district may personally, or by his servant, or by any police constable, desire any street musician or singer to depart from the neighbourhood of the house of such householder, on account of the illness or on account of the interruption of the ordinary occupations or pursuits of any inmate of such house, or for other reasonable or sufficient cause; and every person who shall sound or play upon any musical instrument, or shall sing in any thoroughfare or public place, near any such house after being so required to depart, shall be liable to a penalty of not more than 40s., or imprisonment, at the discretion of the magistrate, for not more than three days; and it shall be lawful for any constable of the metropolitan police force to take into custody, without warrant, any person so offending. The person making the charge must, however, give the offender into custody, accompany the constable who takes him to the nearest police-station, and sign the charge-sheet. If the police-court be shut, the person making the charge must enter into a recognisance, as provided by 2 & 3 Vict. c. 47, s. 72.

Musical Glasses. (*See* GLASSES, MUSICAL.)

Musk.—This powerful and peculiarly odorous scent is obtained from the male musk-deer, an inhabitant of Tonquin, Thibet, and Siberia. The secretion is found in an abdominal bag, which contains from two to three drachms; when dry it is black or dark brown in colour. So powerful and insupportable is this perfume, that the hunters, when on the chase, take the precaution of placing folds of linen over the mouth and nose, the full effect of the scent causing insensibility or violent bleeding of the nose. Musk is imported in its natural state and in grains; for the former the price averages two guineas per ounce, and for the latter nearly twice that sum. The best kind is that from Thibet; it is imported in small boxes, which are usually encased in bright-coloured silk. This perfume has a remarkable pungency and subtlety: a grain of true musk is sufficient to impregnate a room, and its strength will remain undiminished for many months; but this scent is very frequently adulterated, both in this country and in those from which it is brought.

Musk Plant.—This is a species of *Mimulus*, an order of herbaceous plants which grows in America. This particular kind is a native of Oregon, in North America; it has received its name owing to the strong scent of musk which pervades its leaves. It grows freely and spreads quickly in pots and gardens, provided that it can imbibe plenty of moisture; in dry situations it soon dies away. The pot in which it is planted should be placed in a saucer of water, and then the plant will flourish and give forth its scent. The flower is a small yellow one.

Musk-rat Fur.—A dark-brown, close thick fur, obtained from the North American musk-rat (*Fiber zibethicus*). This fur is used for imitation sable and mink, and is sometimes dyed to resemble other furs. Musquash—a name by



MUSK-RATS.

which this fur is also known—is the native name for the musk-rat. This animal is about the size of the rabbit; large numbers frequent the rivers and swamps of North America, and many thousand skins are yearly sent to Europe. The fur is used in making hats, as well as for ornamental purposes.

Muslins.—These are made of cotton threads more or less fine or closely woven. That called book muslin is the most transparent, and of this class India book muslin is considered superior to Swiss and English book. Of mull muslin there are two kinds: the "starched mull" is similar to coarse book, and is used for lining the hems of skirts; "soft mull" is not so clear and transparent as book muslin, and is employed chiefly for infants' gowns. Lawns and cambrics (*which see*) are other varieties of muslins. The name is derived from Massalia, now known as Masulipatam, a town in India, whence this fabric was first imported. Until this century all muslins came from that country, and were famed for the fineness of their tissue. The muslins of Dacca have been described as "webs of woven wind." Muslins are now largely manufactured in Scotland, France, and Switzerland.

Musquash. (*See* MUSK-RAT FUR.)

Mussels.—The common mussel (*Mytilus edulis*) is abundant on the British coast. These shell-fish are consumed largely in England, chiefly by the poorer classes. In France they are more highly esteemed than in England, and besides taking an honourable place in sauces and stews, they constitute one of the chief attractions of the favourite Normandy matelote. It is generally believed that the little tongue-like, hardish, dark-coloured mass which belongs to them is poisonous, and it is usually picked out under this supposition. But no proof of the fact exists; and many persons eat the mussel whole without

experiencing any injurious consequences, although others may suffer from the same dish. It is, however, generally acknowledged that of all shell-fish, mussels are the most frequently found to exert deleterious effects, but it has not been clearly ascertained to what these results are attributable. Dr Christison, in his work



PILES COVERED WITH MUSSELS.

on "Poisons," refers to an instance which occurred at Leith in 1827, in which no fewer than thirty people were severely affected, and two persons died, from eating mussels. Some authorities declare that there is no danger in eating mussels if, according to the rule which holds good with regard to oysters, they are avoided in those months which have the letter *r* in their names.

Must is the expressed juice of ripe grapes and of various fruits and vegetables before fermentation. As long as the juice is contained in the grape there is no fermentation, but when it is expressed and exposed to an appropriate temperature, fermentation sets in. The duration of the fermenting state depends upon the degree of warmth. In cold localities it lasts much longer than in hot ones, and the dissimilarity between the wines of different countries is owing partly to this circumstance. Must that has been boiled to 2-3 drs. is called carenum; when boiled to one-half it is called sapa. When must is boiled, the natural leaven which the fruit contains is impaired, and therefore it is necessary to adopt artificial means for the purpose of promoting fermentation. It is on this account that cream of tartar and yeast are so frequently used in the manufacture of home-made wines.

Mustard.—The flour of mustard in common use is ground from the seed of black mustard (*Sinapis nigra*) and white mustard (*Sinapis alba*). The latter kind is sown in gardens and forced in hothouses, and frequently used as small salad. It possesses an agreeable pungency, and it may be grown with great ease. A little seed spread on wet flannel in a saucer will grow very readily. Black mustard grows wild in most parts of Europe. It is cultivated in Bohemia, Italy, Holland, and England, in the rich alluvial soils of Yorkshire and Lincolnshire. Wisbeach, in Cambridgeshire, is also noted for the cultivation of this mustard. The seeds are about a quarter the size of those of white mustard, and contain a volatile oil, to the presence of which the pungency in mustard is due. Besides being used at table, mustard is employed in medicine for poultices, and it is valued as a remedy for torpor and coldness of the digestive organs. As it is at present used, mustard was not known in England before 1729. It is said to have been the invention of an old lady, Mrs. Clements, of Durham. She ground the seed to powder, sold the mustard thus produced, and made a little fortune out of it. It is very usual to mix mustard with boiling water or vinegar. Authorities tell us, however, that this tends to check the development of those principles on which the pungency of the preparation depends; and that it is best to use lukewarm water only, and to defer the introduction of any flavouring matter until the paste is made. In flavoured mustards, which are more popular on the Continent than they are in England, the mustard is mixed with vinegar, flavoured with different substances, or with walnut or mushroom ketchup. The celebrated German mustard, or *moutarde à l'estragon*, is only black mustard ground to powder, and mixed with tarragon vinegar and a little salt. When mixed with hot water, mustard is a strong emetic.

Mustard, Adulteration of.—Of late years a false taste has arisen for having mustard of a fine colour, and this has led to the inner portion only of the seed being used, the husk being separated as bran is from wheat. As the volatile oil on which the flavour of mustard depends is found chiefly in the husk, this causes a loss of flavour, and hence cayenne, to give pungency, and turmeric, to impart colour, are now very frequently added to mustard. Wheaten flour is also very often mixed with it; but if this is the case the mustard, when mixed with water, does not readily form a smooth paste, but is very tough and sometimes stringy in appearance. The seeds of wild mustard, or charlock, are also mixed with those of the cultivated species, and the seeds of inferior varieties of mustard are substituted for those of the true black mustard. In 1872 no less than 790 tons of a particular kind were imported for this purpose into the United Kingdom from British India. The constituents of the mustard sold in the shops are so uncertain that it can only be regarded as an elaborately compounded condiment, prepared according to the particular recipe of the manufacturer. (*See also* ADULTERATIONS OF FOOD, &c.)

Mustard Pots and Spoons.—Mustard-pots are made of silver, electro-plated metal, or glass. As the mustard is likely to tarnish the metal, the spoons are generally made with gilt bowls. Spoons tarnished with mustard should be rubbed with salt which has been moistened with water. It is best to make mustard in small quantities, as it is much better when freshly mixed.

Mustiness in wine may generally be removed by shaking the liquor for some time with a little sweet olive oil. This will mix with the essential oil, which is the cause of the mischief, and the mixture will rise to the surface and can be skimmed off. Freshly-burnt and coarsely-powdered charcoal, when introduced into the wine, has frequently the same effect. Mustiness in beer may be removed by racking the liquor into clean casks with a mixture of freshly-burnt and coarsely-bruised charcoal, toasted bread, and hops boiled in a little of the liquor.

Mutes. (*See* DEAF AND DUMB.)

Mutton.—Mutton is the flesh of sheep. It is one of the most wholesome of the red meats, and commercially considered is second in importance to beef only. It is at its best, and the largest amount of nourishment is to be obtained from it, when the animal is from three to six years old. Owing to the large demand which exists for it, it is rarely to be obtained above three years, and too often the sheep are killed before they are two years old. When the sheep has attained the right age its flesh is firm and succulent, dark-coloured, and full of rich gravy. When the sheep is only two years old the flesh is flabby, pale, and savourless. The age of mutton may be known from the colour of the breast-bone at the place where it is separated. In a lamb or a sheep that is less than one year old it will be quite red; from one to two years old the upper and lower bones will be changing to white, and a small circle of white will appear round the edge of the other bones, and the middle part of the breast-bone will yet continue red; at three years old a very small streak of white will be seen in the middle of the four middle bones, and the others will be white; at four years old all the breast-bones will be of a white or gristly colour. The quality of mutton, and the proportion of fat belonging to it, vary with the breed of the sheep. Mountain sheep have the least fat, and mountain mutton loses the least in cooking. The Leicestershire breed produces a very large proportion of fat and causes the greatest loss in cooking. The mixed breed of the Lincolnshire and Leicester sheep is much approved in the midland counties, and the South Down is preferred in London and the neighbourhood. The nature of the pasture on which the sheep feed also influences the flavour of the meat. The flesh of sheep which have been fed on dry sweet pastures is delicate and wholesome; those which have been reared on salt marshes, or on farms near the sea-coast, afford mutton of excellent quality, the saline particles which abound in situations of this kind imparting both firmness and fine flavour to the mutton. Flocks, also, which have grazed on thymy heaths are believed to possess unusual flavour. It may be accepted as a general rule that the *larger* the frame of the animal, the coarser will be the meat, small bones being a sign of superiority of breed and delicacy of flesh. In male sheep the flesh is tougher and more difficult of digestion than in the female, the lean being closer in fibre, deeper in colour, firmer in texture, and less juicy. In cool dry weather the flavour of mutton is improved when the meat is hung for a week or two before it is dressed.

Lamb in its general qualities closely resembles mutton. The principal varieties are house lamb and grass lamb. House lamb is lamb born in the middle of winter, reared under shelter, and fed to a great extent upon milk. It is considered a great delicacy, and is to be had from Christmas to Lady Day. Grass lamb, or lamb fed out of doors and brought up upon grass, comes into season at Easter. Lamb should always be cooked fresh, and its flesh, like that of all young animals, should be very thoroughly dressed, or it will be exceedingly unwholesome.

Mutton as Food.—Mutton is popularly believed to be lighter and more easy of digestion than beef. It is certainly more delicate in flavour and looser in texture, and many people can eat it with comfort who find that beef rests heavily upon the stomach. It is not so well fitted as the stronger meat to sustain great exertion, and is rather the food for people of sedentary and quiet habits and for invalids than for the strong and active. It is said that the actor Kean suited the kind of meat which he ate to the part which he was to play; and that while he selected beef for murderers, and pork for tyrants, he considered mutton was the proper food for lovers. The time required for the digestion of mutton is from three to three and a quarter hours.

Lamb is a younger and more delicate kind of mutton. It possesses, however, a larger proportion of water and a smaller proportion of nitrogenous matter. It is excellent as an occasional article of food, but it is not adapted for frequent use. It is not to be compared with beef or mutton for sustaining the powers under great exertion. The time required for its digestion—two hours and a half—is less than that of the mature sheep; and it is a meat that should be avoided in cases of dyspepsia.

Muzzles for Dogs.—The old-fashioned plan of muzzling dogs by binding the mouth tightly up with leathern straps is now almost entirely given up. It is cruel in the extreme, for the poor animal is thus deprived not only of the power of drinking water, of which in hot weather he needs a constant supply, but even of obtaining a sufficient quantity of pure fresh air, without which he cannot live in health. If it be absolutely necessary for a muzzle to be worn, let it be neither the leather strap muzzle nor the leathern box with holes in it, but a light iron cage of the kind which may be seen in any saddler's shop.

Myosotis.—There are over fifty of this genus of plants described by botanists, all belonging to the natural order *Boraginaceæ*, of which eight species are common to the British Islands, and the others plentifully distributed throughout Europe, Asia, Africa, and America. The beautiful and somewhat romantic *Myosotis palustris*, or great water scorpion grass, is best known to us under the name of forget-me-not, and is looked upon as being emblematical of true love or affection. It grows very freely, and its bright blue corolla and yellow

eye are well known. (*See* FORGET-ME-NOT.) This plant has never been used in medicine.

Myrobalans.—Although Lindley gives this name to the family *Combretaceæ*, we restrict its use to the fruit of the trees that belong to that natural order. They are the kernels of a dried fruit not unlike a plum, of which there are many different varieties, as the *Terminalia citrina*, *Terminalia bellerica*, *Terminalia angustifolia*, &c. They are somewhat larger than almonds, and are bitter and astringent to the taste. Large quantities are annually imported into Liverpool, Hull, and other large towns, from Bombay or Calcutta or Ceylon. They are used for the purposes of dyeing and tanning. The fruit of some of the *Terminalia* trees is used in medicine as an astringent tonic, while from the bark of others the Indians make ink.

Myrrh is a gum resin which exudes from the bark of a tree, the *Balsamodendron Myrrha*, which grows in Arabia and Eastern Africa. Dr. Tristram says that, like most of the balsam-tree family, it is a low, thorny, ragged-looking tree, something like an acacia, with small, bright, trifoliate leaves. Both wood and bark emit a pungent aromatic odour. The gum occurs in tears or rough lumps, is of a reddish-yellow tint, nearly opaque, brittle, easily powdered, bitter, and slightly aromatic in taste; it is infusible, and is not easily set on fire; it is



SPRIG OF MYRRH.

heavier than water. Water will partly dissolve it, and alcohol takes up the remainder, forming a tincture. Alkalies dissolve it; and when distilled a heavy fixed oil is obtained from it. In medicine, myrrh is regarded as anti-spasmodic and tonic, and is used, as powder, chiefly in pills; as a tincture, diluted; and as a watery infusion. Myrrh enters into the composition of certain dentifrices both dry and liquid. As a domestic drug the diluted tincture is useful in gargles and as a wash for sore and spongy gums. When taken internally it is usually as an ingredient with other medicines.

Myrtle.—This is the *Myrtus communis* of botanists, belonging to the order *Myrtaceæ*, of which it is the recognised type. There are several varieties of this beautiful plant now cultivated, such as the broad-leaved, the orange, and box-leaved. The myrtle is indigenous to the southern shores of Europe, growing wild about Marseilles and along the sea-coast to Genoa, and on all the Italian shores, where it forms thickets and groves, often quite close to the sea. It is easy to cultivate, either out of doors by sunshiny paths, or in pots in houses, and in the greenhouse. If grown out of doors it requires protection in winter. This plant was used in days gone by as a stimulant medicine; but although the berries, steeped in wine, are still at times administered in foreign countries as an antidote to the diarrhœa of children, it has not found its way into the British Pharmacopœia. The bark is used in France and Italy in tanning.

N

N. or M., and M.—N.—The first of these is best known by its occurrence in the Church Catechism, where the form "N. or M." only means that the child shall give his or her name or names. Divers explanations have been offered, but probably the N. stands for the Latin word *nomen*, a name, and the M. (instead of NN.) for the plural *nomina*, names. Elsewhere in the Prayer Book, under the marriage service, we have "I publish the banns of marriage between M. of —— and N. of——." Here the explanation is precisely the same, though the M. (for double N.) comes first. How little importance attached to the matter appears from the fact that, in the actual marriage ceremony, the "curate," according to some editors of the Prayer Book, addresses the man as M., and according to others as N. The same difference appears in the responses to be made by the parties to be married, and also when they "give their troth." The pre-Reformation "uses" of Hereford, Salisbury, and York do not employ the M. in any case.

Nadir.—The point in space exactly under one's feet; the zenith of the Antipodes. Hence the nadir and zenith stand in the relation of poles to the horizon.

Nævus. — Nævus, called also mother's mark, from the popular idea that it is caused by some impression received by the mother during pregnancy, is a vascular tumour composed of a network of blood-vessels, either arteries or veins, and which may be either very slight and superficial, resembling a strawberry in its outline, or large and prominent. When formed of arterial vessels, the tumour is a much brighter red than when composed of veins; it also pulsates and is more tense. This form of nævus frequently receives the name of aneurism by anastamosis. The most frequent seat of the affection is the skin and subcutaneous cellular tissue, especially about the head. *Nævus* is the Latin word for mole (*which see*).

Nag.—A term somewhat familiarly applied to a horse, especially one that is small and used for riding. Probably, however, the word originally meant simply a horse, and hence some writers use it of a horse which is driven in harness, or of a horse in general.

Naïf and Naïve.—These are the masculine and feminine forms of a French adjective, denoting natural, artless, unpretending, or simple in manner. The substantive naïveté, therefore, signifies an artless and unaffected manner, and in itself is not derogatory to the person of whom it is spoken, though it is not always meant as a compliment.

Nail (Measure).—An old measure of length, much used for cloth, and equivalent to 2¼ inches, or a sixteenth of a yard. (*See* Weights and Measures.)

Nail Brushes. (*See* Brushes.)

Nails, Ailments of.—Of these the two most important are ingrowth of the nail and malignant ulcer:—1. *Ingrowth of the nail*, so called, takes place most frequently in the great toe, and is usually the result of a badly-fitting boot. In the first instance the skin at the side of the nail swells a little, and as it does so becomes irritated by the sharp edge of the nail. After a time, if this is neglected, an ulcer forms, with a good deal of proud flesh, in which the nail becomes embedded, so to speak, and occasions intense pain and discomfort. The treatment in the stage of irritation, with slight swelling only, is soaking the part well in hot water, paring or scraping the nail as far as is practicable, and introducing a tiny piece of cotton-wool, moistened with pure olive oil, between the overlapping skin and nail, and resting for a day or two. If ulceration, with proud flesh, has occurred, the latter should be touched with caustic, and the toe dressed with a cooling lotion, as Goulard's lotion. This, with perfect rest for a few days and paring the nail, may effect a cure. If it does not, the nail will have to be cut by introducing the blade of a sharp pair of scissors underneath, and boldly cutting and then tearing away the offending part. This is a very painful operation, and therefore the part should be rendered insensible by means of the ether-spray before attempting it. 2. *Malignant ulcer* (*onychia maligna*). This usually occurs in persons of a scrofulous or syphilitic habit of body, and begins as a deep red swelling at the root of the nail, from which soon oozes a thin unhealthy discharge. After this a foul and painful ulcer forms, which in time loosens the nail and throws it off. The best treatment for this affection is the occasional application of lunar caustic, and dressing the part with some mercurial lotion, as black or yellow wash (*which see*). A ragged and semi-inflamed condition of the skin at the root of the nails is very common, and very often indicates a feverish and debilitated state of the system, requiring a little cooling medicine and a tonic. The application of a little glycerine or zinc ointment at bedtime will be useful in healing this condition, and when healed the daily use of the nail-brush will in all probability prevent its recurrence.

Nails, Biting of.—This is an unsightly practice in which some people indulge. Like other habits, it can only be broken off by resisting with perseverance. Wearing gloves night and day for a week or two will probably help to check the habit.

Nails, Care of. (*See* Finger-nails, Care of; Toe-nails, Care of.)

Nails (in Carpentry, &c.).—Small pointed pieces of metal, of various shapes and sizes, used in carpentry, joinery, &c., to bind or fasten different parts together. The most common form of nails are those known as "cut" nails: these are flat pieces of iron, pointed at one end and with a head at the other. "Cut" nails being wedge-shaped, as regards the edges of their two flat sides, should always be driven with their wedge side in a line with the grain of the wood, otherwise the wood, if at all thin, will be sure to split. Brads (*which see*) are small thin nails of a much slighter kind. Round nails, with a large flat head, known as "clouts," are much used in all cases where a broad holding surface is required. The tack is a reduced form of this last, and is perhaps the most useful nail for household purposes—for nailing down carpets, fixing blinds, &c. Wall-nails are made of cast-iron, and are consequently very brittle; as their name implies, their special use is for nailing trees, creepers, &c., to walls. French pins are long iron tacks made of wire, flattened at one end into a head, and sharpened at the other to a point.

Nainsook. (*See* Jacconet.)

Names, Change of. (*See* Surnames.)

Nankeen Dye.—The aluming process for the dyeing of nankeen is effected by dividing a certain quantity of saturated alum, free from iron, into two portions, dissolving the first by itself in hot water, reserving the second portion for the galling-bath. Galling is given with finely-ground oak-bark, divided likewise into two parts, a second and longer bath being given after the first. A large bath of lime-water follows, composed of fresh-slaked quicklime; and a bath of strong nitric acid, diluted with water, till the specific gravity is 26° Beaumé, combining with it sal ammoniac and nitre. Into this solvent (contained in a bottle set in cold water) grain-tin, granulated, should be successively introduced in very small portions, the mixture being kept in a well-stoppered bottle. Three coppers are required for scouring the cotton—one round and two rectangular, tinned inside; two cisterns of white wood, respectively for the lime-water and the solution of tin; and between the two a plank, having twenty-two pegs, for the wringing of the hanks when removed from the bath. After boiling the cotton in the round bath, it is "winced" in one of the tinned rectangular coppers, containing the alum dissolved in water, at a temperature of 165° Fahr., and then drained over the copper, exposed for some time on the grass, rinsed in water, and wrung. The galling follows in the second rectangular copper, the ground oak-bark being

introduced into the water tied up in a bag of open canvas, and there boiled during two hours. The bag being withdrawn, the cotton yarn is then winced through the boiling tan-bath for a quarter of an hour. While set to drain, the alum is dissolved into the bath, and the yarn again winced through it as before, is drained, wrung, and exposed to the air. The liming process follows. The yarn, suspended on a series of wooden rods, is dipped well three times into the fresh-made lime-water in rapid succession, and each hank moved separately in the bath by the hand, till the carmelite shade appears. Brightening is produced by passing the hanks through a dilute bath of solution of tin, after the squeezing, rinsing, and airing. The colour then resembles the buff of genuine Chinese nankeen. Bablah may be substituted for oak-bark, and a weak soda lye for lime-water.

Nankeens.—A species of cotton cloth, taking its name from a town in China called Nanking (a European corruption of Kyang-ning, the capital of the large province of Kyang-nan), where the fabric is chiefly produced. The manufacture is wholly confined, in the East, to China. The colour is buff, though sometimes of a blue tint. The broad pieces called the "company's nankeens" are of a superior quality to the narrow. The colour is produced by dyeing, and comes to this country under the general denomination of "piece-goods." An imitation is manufactured at Manchester and elsewhere, but it is inferior to the Chinese, neither lasting as long nor retaining the colour as well. Formerly it was much employed for summer waistcoats and trousers and women's pelisses; it is now almost exclusively used for children's dress, and its importation has nearly ceased.

Nankin China.—A beautiful fine kind of china, the specimens of which are usually blue designs, frequently of birds and flowers, on a white ground; the blue is of a medium depth of colour: the glaze on this china is also considered of superior excellence. The clay of which this china is made is composed of kaolin, a particular kind of earth found on a hill in China called Kaouling, and petuntse, a silicious stone which resembles Cornish granite.

Nap.—The knots and pile observable on the surface of cloth. Rough cloth is that kind which has not been divested of the flecks and knots which arise in the weaving of the material: this kind is considered to be the warmest. Smooth cloth is that which has had the nap or down taken from its surface. At one period such cloth was more extensively used for general purposes than is now the case. Women who were employed to smooth the surface were called nopsters.

Napery.—This term applies strictly to linen in general, but of late years, owing probably to the fact that calico has superseded linen in other departments, napery has been used to signify table-cloths, serviettes, &c. The price of napery is partly regulated by the patterns, according to their simplicity or elaborateness; the gloss on its surface is greater or less, according to the quality of the flax threads. Napery should be carefully folded in the same creases when taken from the table, and if possible it should be placed under a press, and kept there until again required. Crumpled and creased napery always disfigures the appearance of a table.

Naphtha.—One of the numerous products of the distillation of coal. The coal-tar, which is one of the residues in the gas-works, yields about one-fourth part of an oily liquid—naphtha, or coal oil—which is used for burning in out-door lamps and as a solvent for india-rubber. In burning it emits a great deal of smoke and an unpleasant odour, which bar its general use notwithstanding its cheapness. Many of the mineral oils found in different parts of the world also pass by the name of naphtha; they have essentially the same chemical constitution. (*See also* COAL-TAR; PETROLEUM.)

Napier's Bones.—So named after the inventor; an ingenious contrivance, once much in use for certain arithmetical processes, such as multiplication, division, and the extraction of roots. The inventor, John Napier, of Merchistoun, died in 1617. The bones were strips of bone, ivory, metal, or wood, bearing a peculiar arrangement of figures. They were used in sets, and when properly placed showed the results required; but they were superseded by the more important invention of logarithms (*which see*).

Napkin-rings.—These are small broad rings, made of ivory, white or coloured; of wood, plain or carved; and of silver, plain, chased, or embossed; they can also be made of canvas and beads, stiffened with cardboard. They are marked with initials, with monograms, or with numbers, so that each person may readily recognise the napkin they themselves have in use. For this particular reason these rings are desirable.

Napkins, Dinner.—These are of larger size than those used for breakfast; they are usually sold in sets of dozens, but half dozens can be bought. All those used at the same time should be of the same pattern, and some housewives make a point of the napkins matching the table-cloth in pattern. The price of napkins is regulated by the style of pattern as well as by the quality of linen. Spots are the least expensive design; borders and variations of flowers, ferns, and leaves increase the cost. Serviettes soon crumple and look soiled and rough if the linen is of inferior quality, or has cotton threads mixed with those of flax. When they are placed on the table they should be arranged in form, in that of a mitre, of a cocked hat, &c. With some people it is the custom to have them folded in such-like designs every day; other persons prefer the napkins being placed on the table in rings after the first day's usage.

Naples Soap. (*See* SOAPS.)

Naples Yellow.—This is a fine yellow pigment which is said to be prepared by calcining about twelve parts of metallic antimony with eight parts of red-lead and four

parts of oxide of zinc in a reverberatory furnace, the mixed oxides being well rubbed together and fused, and the mass thus fused reduced to a very fine powder. Naples yellow is chiefly manufactured in Italy. The chrome yellows have almost entirely superseded it.

Narcissus.—A genus of hardy plants bearing sweet-smelling and beautifully-coloured flowers, and consequently great favourites in the garden. They are bulbous plants, and for the most part found wild only in the warmer portions of Europe. They belong to the natural family *Amaryllidaceæ*. To this genus belong the daffodils, the jonquils, and the tazettas. Some of the species, such as the *Narcissus poeticus* and the *Narcissus biflorus*, are found growing wild in England or Ireland, on heaths or in sandy fields. Narcissus, classically speaking, was a youth who fell in love with his own image in the water, and pined away into a flower—hence the name. The plant may be propagated by seed, but great care is needed to bring it to maturity. The offsets from the bulbs grow best in a rather rich, light, loamy soil, and in winter the beds require protection.

Narcotics.—These are certain medicines which, however they may differ in their mode of action, have a common tendency either to produce sleep or to allay pain. The former are called soporifics (*which see*); the latter anodynes, of which the most important are belladonna, henbane, and stramonium.

Nard. (*See* Spikenard.)

Nasturtium. — Nasturtiums, as usually known by gardeners, are the well-known gorgeously-flowered plants that sometimes (the dwarf kinds) take the place of geraniums in beds, or (the trailing sort) are useful and beautiful climbers. In warm countries, such as Italy, the nasturtiums are perennial, but here they are annuals, being unable to stand the winter's cold. They grow anywhere. The trailing ones may be placed near a tree or a wall, but do not care for too rich a soil. The leaves are added to salads, and the seeds, gathered before they get hard, are good when pickled, and are often used instead of capers. There is also nasturtium vinegar made from the flowers. The *Nasturtium officinale* of the botanist is the common watercress, formerly used in medicine; it is now only consumed as an article of diet. There are some plants very like it that are far from wholesome, so gatherers of the cress should know the difference.

National Debt.—The National Debt of Great Britain dates back from the year 1672, when Charles II. seized the banker's deposits in the Exchequer, amounting to £1,328,526. Interest on this sum was promised at the rate of 6 per cent., but nothing was ever paid till the year 1699, when a composition was made, by which 3 per cent. interest was secured on the debt, with the option of repayment of half the principal. By this means the capital sum of the debt was reduced in that year to £664,263, and the principal thus formed was the origin of our Funded Debt. There was a gradual growth of the debt during the reigns of William III., Anne, George I., and George II.; but it was in the reign of George III. that the greater portion of the National Debt was incurred, as may be gathered from the following table, which shows its growth from the peace of 1763 to the year 1877:—

Debt in 1763 (three years after accession of George III.)	£138,865,430
Decrease during peace, from 1763 to 1775	10,281,795
Debt at commencement of American War in 1775	128,583,635
Increase during American War	121,267,993
Debt at termination of American War in 1784	249,851,628
Decrease during peace, from 1784 to 1793	10,501,480
Debt at commencement of French War in 1793	239,350,148
Increase during French War, 1793 to 1817	601,500,343
Total Funded and Unfunded Debt on February 1, 1817, when the English and Irish Exchequers were consolidated	840,850,491
Decrease from 1817 to 1854	85,538,790
Debt at commencement of Crimean War	755,311,701
Increase during Crimean War, 1855 to 1859	68,623,199
Debt at conclusion of Crimean War	823,934,900
Decrease from 1859 to 1877	48,061,187
	£775,873,713

During the eighteenth century the vast additions to the National Debt were negotiated in a number of stocks—consolidated annuities, at from 3 to 5 per cent., and *long* or *terminating* annuities. The gradual extinction of these last has afforded a considerable relief to the revenue of late years. At present the total of the national liability is made up of a Funded Debt and Unfunded Debt, and of Terminable Annuities. The Funded Debt consists principally of 3 per cent. Stock (*see* Consols; Public Funds); the Unfunded Debt is constituted by a series of securities, known as Exchequer and Treasury Bills, bearing interest, but redeemable by Government at certain specified and generally short dates. Almost from the commencement of the National Debt, various schemes have been proposed for its gradual extinction, and at all times the establishment of a permanent Sinking Fund has received the attention of statesmen. For many years past it has been the custom to apply all surplus revenue to the decrease of the debt, this surplus being handed over to the Commissioners for the Reduction of the National Debt, who lay it out in the purchase of stock at the current market price. Further reductions have also been made, as before stated, by the creation of annuities for terms of years. At present a certain fixed sum per annum is set aside for the service of the debt from the national income, the surplus beyond that required for the payment of interest and annuities being devoted to the purchase and consequent extinction of stock.

National Education.—National education, *i.e.*, State provision for the education of the masses, is of comparatively recent introduction in this country, and even now little more than mere elementary education is attempted. True it is that certain of the institutions devoted to higher education, such as the universities and endowed schools, are to some extent recognised by the State, and are

liable to have their statutes amended from time to time by Act of Parliament. Further than this, some of these bodies—the University of London, for example—are assisted by grants from the public exchequer. Nevertheless, their administration is not in any way subject to the control of the State, and all such institutions have been, and still are, dependent entirely for their origin on private enterprise or endowment; so that in the event of any widely-felt want of further institutions of a similar nature, no State machinery exists by means of which the deficiency may be supplied.

The first step taken towards the foundation of a system of national education was the establishment of Government grants in aid of existing private and voluntary schools which should conform to certain regulations. This system remained in force until the passing of the Education Act of 1870, and still holds good in all places where a sufficient amount of accommodation in public elementary schools is already provided. Public elementary schools within the meaning of the Act are, by the 7th section, defined to be those in which no kind of religious observance or instruction is compulsory; which are open to Government inspection; and which are conducted in accordance with the conditions as to fees, &c., required to obtain a Parliamentary grant. The principal part of the education given must be elementary, and the fees must not exceed ninepence a week. In case of an insufficiency of the requisite accommodation in any borough or parish, and the neglect of the inhabitants to supply such deficiency, the Act of 1870 provides that a school-board shall be formed to supply the wants of the district.

School-Boards.—The Education Department may cause a school-board to be formed in any district, (1) after being satisfied by inquiry that the supply of public elementary schools is deficient, or (2) after application made to them by the ratepayers of a borough or parish, or (3) after being satisfied that existing elementary schools, necessary to the educational wants of the district, cannot be maintained on the voluntary system. Eventually, therefore, in every parish where efficient elementary schools do not exist, school-boards will be formed, so that no child in the country may remain uneducated. School-boards are corporations with perpetual succession, consisting of from five to fifteen members, elected triennially by ballot by the burgesses in a borough and the ratepayers in a parish. Each voter has a number of votes equal to the number of members to be elected; but the voting may be cumulative, *i.e.*, the votes may be either divided or concentrated on one candidate only, at the will of the voter. By this expedient the representation of minorities is fully provided for. School-boards are empowered to take all necessary steps for the purpose of supplying a sufficiency of public elementary education in their district, such as purchasing land for sites, building new or improving existing schools, providing school apparatus, &c. The schools provided by the boards must, however, comply with the regulations as to size, &c., laid down in the Act. School-boards are also empowered to fix the fees to be paid by the children, to remit fees altogether in cases of poverty, and even to provide free schools, when the Education Department is satisfied that the poverty of the inhabitants renders them necessary. The expenses consequent on the carrying out of the various powers and duties of the school-boards are paid from a school-fund, constituted by the fees of the school-children, grants from Government, loans on account of school-buildings, and rates levied on all the ratepayers of the district. By the Elementary Education Act of 1876, the principle has been laid down that it is incumbent on parents to cause their children (between the ages of five and fourteen) to receive efficient elementary education in reading, writing, and arithmetic, the efficiency being tested by certain standards of proficiency, contained in a schedule to the Act. This duty of parents is enforced by various penalties, specified in the Act. In case of the disability, by reason of poverty, of any parent to pay the school-fees, the 10th section of the Act provides that application may be made to the guardians of the parish, "and it shall be the duty of such guardians, if satisfied of such inability, to pay the said fee, not exceeding threepence a week, or such a part thereof as he (the parent) is, in the opinion of the guardians, so unable to pay." The selection of the school is, notwithstanding such payment, left in the hands of the parent. In Scotland, school-boards, similarly constituted to those in England, exist in every parish or burgh, as defined by the Education (Scotland) Act of 1872. In Ireland, national education is based on the system in vogue in England previous to the passing of the Education Act of 1870, and aid is granted to vested and non-vested or private schools by the Commissioners of National Education for Ireland.

A review of the system of national education of the country would not be complete without some mention of the grants, in aid of higher education in science and art, made annually to National Schools, Working Men's Institutes, &c., by the Science and Art Department of the Committee of Council on Education. Every year a sum of money is voted by Parliament for instruction in science and art, and this sum is administered by the Science and Art Department. The grant is specially intended "to promote instruction in science, especially among the industrial classes, by affording a limited and partial aid or stimulus towards the founding and maintenance of science schools and classes." Aid is given in the form of building grants, grants towards the purchase of fittings and apparatus, scholarships and exhibitions, prizes, and payments on results of examinations, held annually at all places complying with certain conditions.

Nativity.—When astrology was believed in, it was customary to pretend to foretell a person's future fortune by means of calculations based on the position of the heavenly bodies at the time of his birth or nativity. A sort of diagram divided into compartments was drawn, and various symbols were introduced into the compartments. Everything had a meaning

assigned to it; the construction of the plan was called "casting a nativity," and the astrologer interpreted it. The word horoscope has the same sense in general, though it may apply to other events than births, as may be seen by reference to some old almanacs. This utterly erroneous practice was once in favour with men of great scientific attainments, and is not even yet quite extinct.

Natron.—Carbonate of soda occurs in considerable quantities as a crystalline mineral in the district of the natron lakes of Egypt, and in Hungary and other parts. It was called natrium by the ancients, from which the present name is derived. Trona is another form of the same mineral, containing different relative proportions of soda, carbonic acid, and water. It is found in Northern Africa.

Natural Affection.—That love which one is supposed to have for his children and relations or kindred. It is deemed, for certain purposes, a good consideration in contracts. (*See* CONSIDERATION.)

Natural Days and Years. (*See* CALENDAR; DAY; YEAR.)

Naturalisation.—The act of placing an alien in the position and investing him with the rights and privileges of a natural subject, as regulated by the Act 33 Vict. c. 14 (the Naturalisation Act, 1870). (*See* ALIEN.)

Nature-printing.—The ingenious process which bears this name was at first so called because it was limited to the production of fac-similes of leaves, ferns, sea-weeds, feathers, and other natural objects. It is now much used for mutiplying patterns of lace and other figured materials. The object to be copied is placed between a smooth sheet of copper and one of lead, and subjected to an immense pressure, the result of which is that the lead receives a perfect impression, like an engraved plate. But as lead is too soft for printing many copies, a fac-simile is taken in copper by electrotype, and from this the copies are struck off in any colours which may be chosen, every line or fibre being beautifully embossed upon the paper when it leaves the press. This embossing is effected by laying the paper on an elastic surface or bed in order to be printed.

Nausea.—This is the Latin word for a feeling of sickness, which may or may not terminate in vomiting. Nausea is a prominent symptom in affections of the brain, stomach, liver, kidneys, and womb.

Nautilus. — A genus of cephalopodous molluscs, many species of which are common in the warm seas, notably those that wash the shores of Asia and Africa and the islands of the Pacific. The commonest kind is the *Nautilus pompilius*. The nautilus is termed *Argonauta* by Linnæus, and is remarkable not only for its curious shape, but for its strange habits. In fine weather it may be seen afloat on the smooth waves, using its shell as if it were a boat, and apparently two of its membranous tentacles as if they were sails. It in reality progresses by drawing water into the body and forcibly ejecting it again, meanwhile the other tentacles are trailed behind so as to afford but little resistance. If the weather becomes rough it draws in the tentacles, which capsizes its little boat, so to speak, and so it sinks to the bottom.

Nave.—An ordinary wheel consists of three chief parts—namely, the hub, nave, or centre; the spokes, or radii; and the periphery, or outer ring. The blocks which form the naves of wooden wheels are roughly cut, usually out of elm wood, to the required size, in which state they are received by the wheelwright. They are first turned in a lathe with neat mouldings upon the surface. The next process is that of cutting the mortises, in doing which the skill of the workman is severely tested, although the expert artisan performs the task with surprising rapidity and accuracy. The mortises should be cut square and clean, and so that the square tenon made to fit them bites tightly and firmly in every part.

The term *nave* is also applied to that part of the church west of the choir allotted to the congregation. Where the edifice is an extensive one it usually consists of a central division, with two or more aisles.

Navvy.—A contracted form of navigator, denoting a labourer employed in cutting and excavating canals, railways, earthworks, &c.

Navy Blue.—A dull indigo colour, universally worn by the officers and men of English and foreign navies; the fine broadcloth, the rough pea-jacket, and the navy-serge of which sailors' shirts and trousers are made, are all dyed the same deep blue. This colour has been much in fashion of late years for ladies' dress.

Neap Tides. (*See* TIDES.)

Neapolitan Lace. (*See* LACE.)

Near-sightedness.—This is a condition in which objects have to be brought close to the eyes before they can be clearly observed. Near-sightedness, or myopia, as it is called, may be either congenital, or it may be acquired by too close application to some calling, as watch-making, in which the sight is severely strained. In this affection the parallel rays of light are brought to a focus before they reach the retina, and this may be caused by either the refracting power of the eye being too great, or its antero-posterior axis too long. When myopia is congenital, suitable spectacles must be worn; when due to overwork, rest from employment in which the eyes are much used is essential.

Neatness. — This fairly deserves to be regarded as an important domestic and personal virtue. It is needless, perhaps, to say that a slovenly and untidy habit is not conducive to comfort, and prevents a person from winning respect. But neatness means more than this: it involves good order and proper arrangement, and the absence of tawdry finery and display. It is the golden mean between the showy and the shabby, and despises gewgaws as much as tatters and dirt; it is propriety, order, and good taste, in opposition to disorder, incongruity, and empty show. Children and servants should be trained in habits of neatness, and that in whatever they do; but this training will

be accomplished more by the power of example than by mere lectures and lessons. A room kept with neatness, work done with neatness, and a person dressed with neatness, are a pleasure to contemplate, and a honour to those to whom they are due.

Neat's-foot Oil.—This oil is obtained by boiling down the feet of oxen in water and skimming off the oil. It is prepared by tripe-dressers and others; and as it remains liquid below 32° and does not thicken with age, it is in great request. It is a useful lubricator, and is employed to clean fire-arms, to soften leather, to oil machinery, church clocks, &c. Large quantities of it are made in London, Paris, New York, and other large cities. Ten feet yield about a quart of oil. Neat's-foot oil that requires purification should be placed in the sun's rays, with a few strips of lead in the vessel with it, when it will be found that the pure oil rises to the surface and can be taken off, and the impurities remain at the bottom. It is said that this oil is exceedingly valuable for promoting the growth of the hair. When it is employed for this purpose it should be mixed with an agreeable perfume, in order that its strong natural scent may be disguised.

Neat's Leather.—The old Saxon word *neat* is employed to denote cattle, as bulls, oxen, and cows. It is generally used in conjunction with some other word, as neat's tongue, neat's foot, and neat's leather, which is simply leather made from the skins of cattle. The skins of cattle vary in texture and substance with the sex and age of the animal. The skins or hides of bulls are thicker than those of oxen, and these again are stouter and stronger than those of cows. The ox at maturity furnishes the stout hides which are used to make the soles of boots. The skin of young cattle is chiefly used to make the uppers of boots.

Nebula.—A name given to small cloud-like patches of diffused light that are seen on surveying the heavens through a telescope. As the power and definition of the telescopes employed have from time to time been increased, not a few of these nebulæ have been resolved into clusters of distinct stars. Many, however, have resisted all such attempts; and from the spectroscopic observations of Dr. Huggins it would appear that some of these, at all events, consist of collections of glowing gaseous matter, hydrogen and nitrogen being the principal constituents.

Necessaries are, in law, considered to be food, raiment, and other things suitable to a person's rank and condition in life, and are not restricted to what are absolutely necessaries. While a husband and wife live together the law presumes assent on the husband's part to the furnishing of necessaries to the wife, and makes him liable therefor. If he omits to provide them, he impliedly constitutes his wife his agent to procure them.

Neck, Ailments of.—Of these the most important are goitre, wry neck, king's evil, and rheumatism, which will be found referred to under their respective headings.

Neck-chains.—Especially in silver and gold, neck-chains have been almost as long in use as necklaces. Among us they are often furnished with pendants or other appendages, and when long enough are supplied with hooks for attaching to a watch. Some of the neck-chains of gold produced in India are singularly fine and beautiful, and many made in Europe are, as is well known, exquisite pieces of work. The chains worn by mayors, sheriffs, and other high officials are frequently splendid and massive and elaborately wrought.

Neckerchief, Neck-cloth, Neck-tie.—The first-mentioned are worn by women more than by men; the form is that of a square doubled corner-ways, or a half square, the points of which are visible before and behind. The second term applies to a square or half square which is folded into a band, the points of which are concealed, the folding being commenced at the corner. This kind is worn by men more than by women. The term neck-tie is given to bands of material, cambric, or silk, which are usually folded narrow, such as those worn by gentlemen.

Necklaces.—Strings of beads and the like, usually worn round the necks of women. They are made of all possible materials, such as glass, jet, ivory, coral, amber, precious stones, pearls, and even metal. The beads vary as much in shape as in material. As personal ornaments they have always been popular in almost all ages and nations. The usual fastening of the ends by means of a snap is probably the best that has been devised.

Necklets.—Small neck-chains, ordinarily of gold, and having a locket attached to them. Some of them are really necklaces of several rows, in silver, amber, wax, jet, &c., worn like a collarette.

Necromancy.—Properly, the art of revealing future events by consulting the dead. Necromancers pretended, by means of secret devices and charms, to be able to hold communication with the souls of the departed, to summon them into their presence, and to compel them to reveal what it was desired to know. This belief has been held from a remote period in China, where it still prevails, and in many other countries; nor has it ceased in Europe, for whatever objection may be made to the name, the belief and practice of spiritualism, as it is called, embody all the elements of necromancy. In the Scriptures, necromancy is strongly condemned, because it was not simply a deceit, but was usually associated with idolatry and unbelief, and was an assumption of power which man really does not possess, and has no claim to.

Necropolis.—The necropolis (or city of the dead) was anciently a place at some distance from the outer walls of the city in which the living dwelt, and was set apart for the burial of the dead, to keep the air breathed by the living in a pure and wholesome condition. The old Jews and Greeks, as well as the Romans, all buried at a distance outside the walls of their cities. Tradition mentions the year 596 as that in which the first Christian burial-place

was established. In 742 the dead were allowed to be buried within the walls of a city, the earliest examples of this practice being the erection of a church or chapel over the bodies of saints and martyrs, and the transference of such remains to the interior of churches as holy relics. Then kings and royal personages were privileged, and their bodies interred in the church porch or atrium. In 750, Gregory the Great granted permission for burial in churches and in the enclosed grounds connected with churches, on the ground that relations and friends of the dead passing these graves on their way to worship would not forget to offer up prayers, or institute the performance of masses, for the benefit of departed souls—a reason which was afterwards transferred into the body of the canon law. The principle thus established by the Romish Church was soon after adopted in this country by Cuthbert, Archbishop of Canterbury; and in process of time burials took place in consecrated ground set apart for that purpose close by the church, then in the yard adjoining the church, and finally in the church itself. The first burial vaults erected in chancels were made at Canterbury in 1075. A tax on burials was imposed in 1695 (4s. for a common person, £50 for that of a duke), and again in 1783; the Acts relating to metropolitan burials were passed in 1853, 1854, 1855, and 1876. The Parisian necropolis, "Père la Chaise," was instituted in May, 1804. In 1832, on the 2nd of November, Kensal Green Cemetery, containing fifty-three acres of consecrated ground, was opened as a public burial-ground to do away with burial in the overcrowded pestilence-creating churchyards of the metropolis. This was followed, in 1837, by the opening and consecrating of a cemetery, embracing twenty-two acres, at Highgate; and in 1840 three other large cemeteries were opened—namely, that at Stoke Newington (the Abney Park), the West London, in the Kensington Road, and the picturesque cemetery at Nunhead. The City of London and Tower Hamlets Cemetery was consecrated in the year following; and this was followed, in the January of 1855, by the London Necropolis, at Woking, in Surrey, with an area of two thousand acres. Others have since been opened, and their number will doubtless steadily increase with the population and the extension of the metropolis by the rapid growth of its suburbs.

Necrosis.—This is the term used to signify the death or mortification of bone. It is generally the result of inflammation or injury, and is usually found in the bones of the leg and thigh. It sometimes, however, occurs in the lower jaw of persons engaged in the manufacture of lucifer matches, from inhaling the fumes of the phosphorus employed. The dead or necrosed part is frequently enclosed in a case of new bone, which has to be penetrated before the dead part can be removed. The symptoms of necrosis are swelling of the bone at the part affected, and the appearance of little apertures called cloaca, discharging matter, which are found to communicate with the bone. The only treatment is the removal of the dead portion by surgical operation.

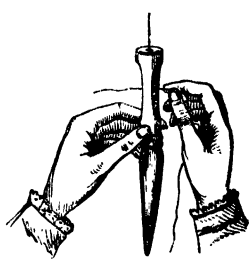
Nectar.—In ancient fable, nectar was the favourite drink of the gods. In modern times the term has been applied to wine sweetened with honey, and to certain liqueurs. These last, like all liqueurs, consist of spirit sweetened and flavoured.

Nectarine.—This is a variety of the peach, the *Amygdalus persica*, of the natural family *Amygdaleæ*, to which also belongs the common almond. Nectarines are more downy than the peaches, which are smoother in the skin. (*See* PEACH.)

Needle Books and Cases.—These are for the reception of needles not in use, needles being liable to rust when left in their papers. The former are made like miniature books; the outer covers are stiff, and ornamented in some fashion; the leaves are of flannel, the innermost leaves being made less in size, and the edges of the flannel are gimped in a regular manner. Cases are strips of ribbon, silk, or satin, lined with flannel; this is marked into divisions by silk embroidery, and the numbers signifying the different sizes of the needles are marked at the top of each section. At one end of the strip a little cushion should be made, round which to roll the length; the other end should be pointed, and have a loop at the point; a button should be placed on the outside of the case to meet the loop. Cases are of older date than books for the reception of needles; the former were more convenient to place in the pocket, in which it was formerly the custom to carry all implements for needlework.

Needle, Magnetic. (*See* COMPASS, MARINER'S; MAGNETISM.)

Needle-threaders.—These were invented to enable people having imperfect or weak eyesight to thread needles expeditiously. The implement is of coloured ivory. One-half of it is round, and serves for a handle; the other half is flat, and on this part a minute metal plate is fixed, in which a hole is pierced; there is a corresponding hole in the ivory, and through this the thread is passed, the aperture being more distinct in the ivory than in steel. The eye of the needle is put over the hole in the plate, and thus the thread passes at once through the three holes without difficulty.



NEEDLE-THREADER.

Needles.—The qualities desirable in *sewing needles* are that they should be well tempered and highly polished, and that the eyes should be oval and smooth; these qualities distinguish the good from the bad, for the latter bend and snap, and are difficult to thread. Gold-eyed needles are by some considered superior—they are more readily threaded; these heads of these are dipped in ether which contains a gold solution. English needles are considered to be the best in the world. Redditch, in Worcestershire,

is the seat of their manufacture. Needles pass through a hundred and twenty hands before they are ready for use. From ancient times, needles of bone, ivory, wood, and bronze have been used; in Queen Elizabeth's reign, steel needles were introduced into England, and were called Spanish needles. Of the different kinds now in use, *chenille needles* are thick, and have wide eyes to admit the chenille without injury. *Crochet needles* are of wood, ivory, and steel; the first two are used when working with wool, the last-named when cotton thread is used. *Elliptic needles* have eyes egg-shaped. *Embroidery needles* are short in size, and are called "betweens." *Knitting needles* are of steel, and are used for circular knitting. *Netting needles* are long and flat, are split at each end to receive the thread, and have an eye at one end through which the thread is passed and fastened. *Rug needles* are thick, with large eyes and blunt points. *Tambour* and *tapestry needles* are similar to rug needles, but have sharp points.

Needlework.—This term comprehends every description of work executed by the ordinary needle; for instance, knitting, netting, and crochet work would not be included, although done by the aid of needles. It is curious to note that the plural of this word is very rarely used. On the first introduction of sewing machines, the art of needlework was in a great measure neglected, but the practice of it has been revived in every branch, for the fact has been discerned that hand-needlework possesses certain peculiar excellences. One instance of its superiority is that materials such as linen, calico, and cambric wear longer when sewed by hand; also, embroidery worked by the needle looks richer, and has not the flat appearance of that done by machine. Neat needlework will always be useful and find appreciation; for darning, seaming, patching, and gathering require it in the lower branches, and its finer and more skilful productions will always hold the foremost rank.

Negligée.—A loose and easy dress or dressing-gown, worn by ladies, was at one time so called; the name has also been given to a long necklace, especially one of red coral.

Negligence.—Acting carelessly. It is, in law, usually considered to be of three kinds—viz., (1) ordinary, which is the absence of ordinary diligence; (2) slight, the absence of great diligence; (3) gross, the absence of slight diligence. The question of negligence is one of fact for the jury to determine, except where it falls within some settled rule or principle, when it becomes one of law. The onus of proving negligence rests on the plaintiff; but where the accident would not probably have happened if the person causing it had used proper care, and the instrument causing the accident was solely under the defendant's management, it has been decided that the mere occurrence of the accident is sufficient *primâ facie* proof of negligence to impose on the defendant the onus of rebutting it. Where the plaintiff has been guilty of what is known as "contributory negligence"—in other words, where with the exercise of ordinary care he might have avoided the accident—he cannot recover. A master is responsible for his servant's negligence if it occur in the execution of the master's business. (*See* MASTER AND SERVANT.) The representatives or next of kin of any one killed through negligence can also claim damages for the indirect loss which has been sustained thereby. (*See* CAMPBELL'S, LORD, ACT.)

Negotiable Instruments.—Documents upon which (contrary to the ordinary rule) a right of action passes with their assignment. Bills of exchange and promissory notes are negotiable instruments in this sense.

Negus.—This well-known beverage is made either of port or sherry, mixed with hot water, sweetened with sugar, and flavoured with lemon-juice and grated nutmeg, with a very small portion of lemon-rind. It is said to be named after Colonel Negus, its originator.

Nem. Con.—An abbreviation of the Latin phrase *nemine contradicente*—i.e., no one speaking against. When a resolution is proposed, and no one speaks or votes against it, it is said to be passed *nem. con.* Very frequently this is much preferable to saying "passed unanimously," because a resolution may be passed without opposition simply because some who do not approve of it do not happen to vote against it.

Neology.—Correctly speaking, this is the introduction of new words, and in that sense the word and its allies are sometimes used. But very commonly "neology" means what are called rationalistic views in theology; and a neologist is a rationalist, or one who either depreciates or excludes the supernatural from his ideas of religion or from his explanation of the Scriptures.

Neophyte. (*See* NOVICE.)

Nephrite. (*See* JADE.)

Nepotism. — Undue favour shown to nephews, grandsons, &c. One of the faults of some men in power is to confer honours, dignities, and offices upon their near relations, and this is nepotism. Although a common vice, it is a vice, because it leads to the neglect of men who are often better qualified in every way.

Neroli, Essence of. — Another name given to the essential oil of orange-flowers, procured by distillation in water in the same way as most other volatile oils. Since in distilling water from neroli a scent is obtained differing from that of the orange-flower, it has been concluded that it owes its aroma to some principle different from an essential oil. (*See* ESSENCES.)

Nerves.—These are the organs which control motion and sensation. Without their agency no muscle can move or feeling be experienced. They have been compared to telegraph-wires, whose duty it is to convey messages to and from the brain and spinal cord to the several parts of the body. (*See* CEREBRUM.) Nerves present the appearance of flattened cords of varying size, frequently

uniting, and forming what is called a plexus. There are two great classes of nerves—viz., (1) the cerebro-spinal, which proceed from the brain or spinal cord, and are distributed to the muscles, skin, and the organs of the senses—these are also called the nerves of animal life; and (2) the sympathetic nerves, which proceed from certain ganglia, or nerve-centres, and are distributed to the viscera and blood-vessels—these are called the nerves of organic life. Nerves, like the brain, are composed of grey and white matter, the former conveying sensation, and the latter motion. The sensitive nerves are frequently called afferent, because they carry impression to the nerve-centres, and through them to the brain. The motor nerves are called efferent, because they convey impressions from the brain and nerve-centres to the parts where they are distributed, exciting muscular action, or influencing secretion and nutrition.

Nervine.—This term is generally applied to certain remedial agents, as strychnia, phosphorus, mountain air, &c., which are presumed to exercise a specific influence upon the nerves, and are hence called nervine tonics.

Nervous Affections.—This term includes a host of nondescript ailments for which no better name can be found. There are, however, very many important diseases in which the nerves play a prominent part, such as paralysis, insanity, neuralgia, tetanus (lockjaw), and hydrophobia, which will be found referred to under their respective headings.

Nervous Fever.—Correctly speaking, there is no such fever known in the science of medicine as nervous fever. The term, however, is sometimes used to describe a condition somewhat akin to hysteria, which is characterised by alternate fits of excitement and prostration or depression, with some feverishness, indicated by a heightened colour and rapid pulse. This state is usually due to overwork or worry; and as food and exercise of a healthy kind are as a rule neglected, and stimulants too often made to take their place, indigestion and over-stimulation are not unseldom a marked feature of the complaint. The treatment consists in rest from work, whether of brain or body, in change of air, in a course of nervine tonics, as strychnia, or the phosphate of iron, quinine, and strychnia, and in strict moderation, if not total abstinence from alcoholic drinks. Extract of meat will be found a most serviceable agent in restoring the nervous energy.

Nervous Headache. (*See* HEADACHES.)

Net (Lace).—This is made of threads of flax or silk; when of the former it is known as Brussels ground, when of the latter as wire ground. This net is made by hand labour on a cushion, aided by bobbins and pins. Pins are placed at equal distances to form the desired size and form of the meshes, of which there are several varieties, such as hexagonal, octagonal, and diamond-shaped holes. Usually four threads are used; these are on separate bobbins, and the worker twines and twists the threads round the pins and round each other in such a manner as to form regular holes; in doing this the worker proceeds from one side to the other of the tissue.

Net (Woven).—The manufacture of this by machinery was begun early in the present century, prior to which time this fabric had been made by hand. In the formation of it three threads are employed: one proceeds from right to left, a second from left to right, while the third takes a serpentine course, the intertwisting of these threads in a regular manner forming the regular interstices observant in net. The best qualities of it may be discerned by the holes being somewhat elongated in the direction of the selvage. Cotton net is the cheapest kind; it is used for common purposes, such as stiff linings and foundations. Brussels net holds a higher place; it is an imitation of that made by hand. For dresses it may be obtained two yards in width.

Nets.—These are made of silk, hemp, flax, cotton, and of rope. The first-named is used for hair-nets (*which see*). Nets required for fishing, snaring, and gardening purposes are made of hemp, flax, or cotton. Formerly these were made by hand; now they are extensively made in Scotland by machines, which are closely allied in construction to those by which stockings are woven. The selvages of nets so made are subsequently strengthened by the addition of several thicknesses of twine. Nets made of rope are used for naval purposes.

Netting.—This work is very strong and useful; it is one which was practised by the ancients in all parts of the world before and after the art of weaving was known. By a peculiar arrangement of a single thread, meshes are formed, and secured at each juncture by a knot, which prevents the enlargement or diminution of the holes or meshes. In the making of a secure knot lies the one difficulty of netting, but a little practice will soon enable the worker to overcome the difficulty. The implements required are ivory meshes of various sizes and a netting needle. (*See* NEEDLES.)

Nettle-rash.—This is an affection of the skin characterised by the appearance of a number of little solid bumps, or wheals, on certain parts of the body. These wheals, which are pale in the centre and reddish at the margin, burn and tingle sometimes severely, and bear a close resemblance to the eruption which results from the sting of nettles—hence the term nettle-rash. The disease is for the most part due to indigestion after taking certain forms of food, especially shell-fish, as mussels, periwinkles, crab, oysters, &c.; but some persons are so susceptible that indigestible matter or functional disturbance of any kind will produce the eruption. The treatment in the acute stage is, if possible, to get rid of the offending matter by an emetic; this should be followed by a purgative, and attention to diet for a day or two. This is really all that is required. If the rash tingles and pains very much, a warm bath and the application of a little cooling lotion, as Goulard water, will prove beneficial.

Nettle-tops.—The young shoots of the common stinging nettle (*Urtica dioica*), which grows by way-sides and in hedgerows, were once much used at table. They were gathered in spring and boiled, and then served up like spinach and such things. Other and better vegetables have supplanted it, though the dish is said to be neither unwholesome nor unpalatable.

Nettles, Sting of.—The leaves of some nettles—among others of the common nettle (*Urtica dioica*)—are, it is well known, covered with a series of hollow, sharp-pointed, tapering bodies called stings; each sting is perforated at its point, and has at its base a little bag full of



COMMON STINGING NETTLE.

fluid. When the stings penetrate the skin, which they readily do when grasped, the little bags are ruptured, and the fluid, which is of a very irritating character, is injected into the apertures made, causing in a very short time a peculiar whealy condition of the skin at the part stung. The burning and tingling sensation which accompanies the eruption soon passes away; but in the case of sensitive persons, and when the part stung is of considerable extent, it may be very much alleviated by gently rubbing with olive oil or glycerine, or by the application of eau de luce or sal volatile.

Network.—Net and netting can be ornamented by the introduction of silk or cotton threads into the tissue when completed. The plan for embroidering net is as follows:—The outline of the pattern is traced on tissue-paper, each flower or leaf being marked in the colour in which it is to be represented. The net is placed over the paper and tacked down. The whole design is then darned on the net with floss-silks, not in outline only, for that mark serves merely as a guide. Black net embroidered in this manner has a rich and foreign appearance. White net can be enriched by having the outlines of a design run with white floss-silk or fine flourishing thread. Netting is ornamented by having designs darned on its surface with thick soft cotton. The patterns are printed for the purpose; these are placed before the worker, who produces a thick representation by closely darning those meshes marked in the pattern.

Neufchâtel Cheese. (*See* CHEESE.)

Neuralgia.—This is an exceedingly painful affection, recurring in paroxysms, which usually attacks the nerves of the face, especially the supra-orbital, infra-orbital, and inferior maxillary branches of the trifacial. In this locality it receives the name of tic-douloreux. The sciatic nerve of the leg is often similarly affected. The cause of neuralgia is not definitely known, but when not due to a decayed tooth or some irritation, it is now generally believed to arise from want of tone or energy in the nerve. No symptoms of inflammation or other morbid condition of the nerve have as yet been discovered. With regard to the remedies recommended for neuralgia, their name is legion. Belladonna, stramonium, the various preparations of iron, opium, quinine, chlorodyne, hot tea, bleeding, cutting the nerve, &c., have each their advocates, and it is sometimes hard to say whether the cessation of pain is simply spontaneous or the result of medicine taken. The following treatment has been found very successful with adults during the paroxysm:—Bromide of potassium twenty-five grains, syrup of orange one drachm, tincture of nux vomica ten drops, pure water one and a half ounces; this draught to be taken three times a day. A pill containing two and a half grains of quinine should be taken with each draught except the first, when it is advisable to take two pills (five grains). The painful part may be gently rubbed with chloroform liniment or aconite ointment, and in some cases may be painted with blistering fluid. After the attack has passed, the general health must be attended to, and tonics, especially iron, must be administered for a considerable period. Change of air will be often beneficial. When there is any irritation from a tooth, the latter must be removed; and it may be remarked here that it must not be always inferred that a tooth is sound because no decay is visible. The source of irritation may be there all the same, in the form of decay or exostosis, and the neuralgia will not yield until the tooth has been removed. The term neuralgia is derived from two Greek words signifying "nerve-pain."

Neutral Salts. — Acids combine with many bases in more proportions than one, and the resulting salt will be either acid or neutral, according to whether the former is in excess or only just equivalent to the latter, or, in the case of the alkalies, sufficient to neutralise their alkalinity.

Neutral Tint is a factitious grey pigment composed of blue, red, and yellow in various proportions, and is employed by painters in water-colours.

Neutrality.—A state of indifference—of neither friendship nor hostility. The state of

a third country when two others are at war. (*See* FOREIGN ENLISTMENT.)

New Style. (*See* STYLE, NEW AND OLD.)

New Trial.—A new trial is granted in a variety of cases, the principal of which are—(1) The mistake of the judge in directing the jury as to the law, &c., or the improper reception or rejection of evidence; (2) default or misconduct of the jury; (3) absence, &c., of counsel or solicitor (though the cases are rare in which this ground of application succeeds); (4) default or misconduct of the opposite party; (5) default or misconduct of the witnesses; (6) discovery of new evidence; (7) error in pleadings; (8) where a party has been taken by surprise.

New Year's Day.—The first day of the year. Considerable variety has in all ages prevailed as to the time of commencement of the new year. In the Jewish and Mohammedan calendars, indeed, the date of New Year's Day of necessity varies yearly. (*See* JEWISH CALENDAR; MOHAMMEDAN CALENDAR.) The Roman year anciently began in March, but an alteration was afterwards made in favour of the 1st of January. Since the establishment of Christianity, various days have at different times opened the new year, Christmas Day, Easter Day, March 1, and March 25 being among the number; and it was not until the end of the sixteenth century that the 1st of January became universally established as New Year's Day. But although various nations have differed in their choice of the first day of the year, the custom of celebrating it with ceremonies and feasting seems to have been universal. Among the Romans, New Year's Day was a holiday dedicated to Janus, and it was celebrated by a series of congratulatory visits and presents; in later times the emperors even received new year's gifts from their subjects. From the Romans, probably, has come our custom of giving new year's gifts, although it seems that some such custom existed also among the Saxons, who celebrated the festival of the new year with much merry-making and feasting.

New Year's Gifts.—Among the ancient Romans, presents called *strenæ* were exchanged on New Year's Day, and the custom still continues. In France, where new year's gifts are very popular, they are called *étrennes*, from the Latin name, and are often of a costly nature. Bonbons, which are frequently enclosed in elaborate and valuable boxes, form a leading feature. In this country the custom is not unknown; but new year's cards are usually made to do duty as expressions of friendly sentiment. The extent to which new year's gifts are given is to some degree limited among us by what goes on under the names of Christmas gifts, Christmas-boxes, and Christmas cards.

New Zealand Flax.—The plant (*Phormium tenax*) which yields this valuable fibre is a native of New Zealand. Its cultivation has been attempted in various parts of Europe, but the winters are for the most part too cold for it. It is imported into Britain for making twine and ropes. Before New Zealand was discovered by Europeans, the New Zealanders used the flax for making dresses, twine, and mats. New Zealand flax is quite different to common flax; it is obtained from the leaves of the plant, and these are from two to six feet long and two or three inches broad. In order to obtain the fibre, which is fine and very strong, the leaves are cut down when they have reached their growth, and soaked for a few days in water. When cut near the root a thick juice flows from the leaves, and this is used as gum. The flowers of the plant are of a brownish-yellow colour, and are numerous, though not very beautiful. They grow on a tall branched stem. The New Zealanders make a sweet liquor from them. The roots are used medicinally. They are aperient and expectorant, and afford a substitute for sarsaparilla.

Newel.—The central column round which the staircase of a circular Gothic turret or tower winds is architecturally known as the newel. It is sometimes carried up beyond the staircase to the roof, where, being attached to the ribs of the vaulting, it assumes a palm-like form.

Newfoundland Dog.—This is one of the noblest and most intelligent of the canine race, and probably there are more anecdotes told regarding him than about any other species of dog. These dogs came originally to this country from St. John's and from Labrador, where they are often used as beasts of burden, and fed for the most part upon fish. The true Newfoundland is a very large dog, in shape not unlike a St. Bernard, some of the best specimens measuring thirty inches from the shoulder. He ought to be all black, only a star in the chest being cared for. The hair is very long, especially on the shoulders, and should be strong and straight, a partially curly coat showing a cross with the retriever. The eyes are a very dark chestnut; he ought to stand very straight on his legs, and be possessed of plenty of bone and substance. There is another species which grows sometimes even taller—namely, the black-and-white Newfoundland. Out of compliment to the great painter, this has been called the Landseer Newfoundland, and the name is now generally adopted. In points these dogs should be the same as the black, and the colours or patches ought to be equally distributed. In character the Newfoundland is celebrated for his extreme sagacity, his great love for his master, and his partiality to women and children. He is extremely fond of the water, and his daring and prowess have been the means of saving many a valuable life.

Newspaper.—Newspapers are publications usually consisting of single sheets, printed and distributed at short and stated intervals, for the purpose of conveying intelligence of public events. They are said to have originated in the *Acta Diurna* of Rome, a kind of gazette containing periodical notices of passing events, which were posted up in prominent positions through the city, and by means of which the citizens were furnished with a sufficiently full account of the day's doings at home and throughout the foreign possessions of Rome. In modern times the earliest sheets of intelli-

gence seem to have appeared in Germany in the fifteenth century, and at Venice in the sixteenth century, where they were published at the price of a *gazetta*, whence the name of *gazette*. (*See* GAZETTE.) The first genuine English newspaper is said to have been *The Certaine News of the Present Week*, published in 1622. After this date, and during the struggles between Charles I. and his Parliament, a flood of news-sheets deluged the country, having for their main object the furtherance of the interests of the one side or the other in the conflict. So altogether unlicensed became the press thus started, that in the reign of Charles II. a censorship of the press was considered necessary. At this time appeared the *London Gazette* (*see* GAZETTE), published under authority. From the Restoration to the present time, newspapers have multiplied apace, a great impetus to their production having been given in the year 1859 by the repeal of the stamp duties. It is almost impossible to estimate too highly the vast influence—political and social—of the newspaper press of this country; and we have reason to be proud and thankful that this influence is exercised in the main wisely and beneficially to the nation at large.

Newt.—A well-known, small, batrachian animal, not unlike a salamander. The principal species is the *Triton palustris*, belonging to the natural order *Amphibia*. When full grown it is about five or six inches in length, and may be met with in stagnant pools in marshy and shady places, where it feeds upon insects of various kinds. It is black on the back, the sides are spotted, and the under parts are of a bright yellow colour. It possesses a small head, bright yellow eyes, and a somewhat flattened tail. The legs are four, the fore-feet having four toes and the hinder ones five. After rain or on dewy evenings they leave the water and crawl abroad. The *Triton aquaticus* is the common water-newt, and is like the former not only in appearance, but in all its habits.

Next Friend.—The legal designation of a person in whose name an action is commenced and carried on. Where the party is under disability, &c.—for instance, an infant—he sues by his next friend, and defends by his guardian *ad litem*. A married woman, having an interest which conflicts with that of her husband, sues by her next friend, making her husband a defendant. The name of the next friend is always mentioned in the title of the cause or matter, and the consent of the next friend must, under the Judicature Acts, be obtained in the first instance. The next friend is responsible for the costs of the suit. Lunatics and persons of unsound mind sue by their committee or next friend, and defend by their committees or guardians appointed for that purpose.

Next of Kin.—Relation either of consanguinity or affinity. It is of two degrees—either in the lineal or direct line, or in the collateral or indirect line. The former is again subdivided into what is known as the ascending and descending lines—the ascending (of consanguinity) comprising the father, mother, grandfather, grandmother, great-grandfather, great-grandmother, and (of affinity) the father-in-law, mother-in-law, or step-father or step-mother, and so on; the descending line (consanguinity) comprising the son, grandson, granddaughter, and so on, and (of affinity) the son-in-law, daughter-in-law, step-son or step-daughter. Of collateral consanguinity are the brother, sister, brother's children, sister's children, uncle, aunt, &c.; and of affinity, the brother's wife, sister's husband, uncle's wife, aunt's husband, &c. The right of representation of kindred for the purposes of distribution of personalty in the descending line reaches beyond the great-grandchildren of the same parents, but in the collateral line it does not reach beyond brother's and sister's children. Our law agrees in its computation with the civil and ecclesiastical laws as to the right line, and with the civil as to collaterals in computing who are entitled to administration and distribution of the personal estate of intestates. The next of kin of a deceased soldier is in some cases allowed to receive his share of prize money—where not exceeding £50—without taking out probate or letters of administration (27 & 28 Vict. c. 36). By the 9 & 10 Vict. c. 93, commonly known as Lord Campbell's Act, the executor or administrator may (within twelve months) sue in the name of the husband, wife, parent, or child of any person killed by such neglect as would have entitled him to sue if he had survived, although the neglect amount to a felony. If the executor does not sue within six months, the party beneficially interested may sue.

Next Presentation.—The right to present a clerk (*i.e.*, a clergyman) to the ordinary (*i.e.*, the bishop) on the next avoidance or vacancy in a benefice, in contradistinction to the advowson, which is the perpetual right of presentation to such living. (*See* ADVOWSON).

Nib.—In its general sense, the point of anything. The word is, however, applied more particularly to the point of a pen; and now that metallic pens are so widely used, it has come to denote the renewable part of the pen, *i.e.*, the pen itself as distinct from the holder.

Nicene Creed.—The creed called by this name in the eighth article of the Church of England is introduced into the Communion Service. It is named after the Council of Nice, or Nicæa, held in A.D. 325, under Constantine the Great. The creed then adopted was based on older ones, and was altered nearly to its present form in A.D. 381, at the council held that year in Constantinople. The Constantinople Creed is still received by the Greek and some other churches in an unchanged state; but in A.D. 796 the Latins added to it "Filioque"—"and the Son"—hence called the Filioque clause; which also the Church of England has adopted. This difference between the forms of the creed admitted by the churches of the East and of the West has led to a vast amount of controversy, and has been a chief cause of their separation for nearly eleven centuries. One main intention of the Nicene Creed was to establish or assert the doctrine of the Trinity against Arius and his followers.

Niche.—A niche, or recess, semi-circular or square, let into a wall to receive a statue or vase or other object, and occasionally having a small pediment over it, supported on columns or consoles placed at the sides. Amongst our ancestors of the Middle Ages they were often called tabernacles. In the Decorated style we often find them with ogee or triangular projecting canopies, and others of varying shapes. Many old niches have buttresses surmounted with pinnacles and crockets; finials and other architectural ornaments are frequently used for their enrichment.

Nickel Silver, or German Silver. (*See* GERMAN SILVER.)

Nicotian.—This is a word used to signify that which belongs or appertains to tobacco, and is derived from *Nicotiana*, the genus to which the different kinds of tobacco belong.

Nicotine is an alkaloid of a very acrid and bitter taste, and highly poisonous, obtained from tobacco. The word is derived from the name—Nicot—of a man who was the agent in Portugal for the King of France, and there obtaining the seeds of tobacco from, it is said, a Dutchman, first sent them to his own country in the year 1560. (*See* TOBACCO.)

Niello.—Niellos was the name given by the goldsmiths of Italy, in the sixteenth century, to the designs cut with the graver into the metal, when an oxide of silver was used to bring out the ornamental work with more telling effect. The art was, however, practised before their time. Maso Finiguerra, a Florentine goldsmith, was famous for the production of elaborate niellos, and to test their effect was in the habit of taking impressions therefrom in a species of ink, in which fact the art of engraving on metal for printing had its origin. Consequently the earliest specimens of copper-plate printing now in existence are still known as niellos. Niello was largely used for the embellishment of church plate, watches, snuff-boxes, sword-sheaths, buttons, &c., and was practised by artists of considerable eminence. Amongst others, Baccio Baldini and Sandro Botticelli practised niello work.

Night-cap.—In the last century this covering for the head was worn by the young and old of both sexes. The form differed: that worn by men was conical, and adorned with a tassel; that worn by women was close-fitting, and tied under the chin. The idea became prevalent that caps were unhealthy, and in the present day they are used by a minority of women. This class of cap is made of Scotch cambric and of netted cotton; the latter kind is to be commended in preference to the former, for whilst it affords a degree of warmth, the interstices allow ventilation.

Night-dress.—Various shapes are used; each pattern has its advocates. The majority give preference to that which has a yoke across the shoulders. In cases where much ornamentation of embroidery and tucks is desired, the wisest plan is to buy that portion of the garment ready prepared, viz., with the embroidery marked and the tucks arranged. These fronts and cuffs are obtainable, and always prove more satisfactory when worked separately, and then inserted, than when any attempt is made to arrange them in the whole piece of material. The simplest form of night-dress, and one that is very comfortable, is that known as the Turkish. A wide width of calico is required; the necessary length of the dress is doubled, and then shaped, the whole width being left at the top to form part of the sleeves. A small piece is cut out for the neck, and small gussets inserted to add width. Straight pieces of calico are seamed on to the portion of sleeves already there, to which cuffs are not put. Bands of Turkey-red twill are put round the neck, down the front, on the shoulders, down and round the sleeves; these bands are fastened down by feather-stitch in white cotton. Longcloth is the most suitable calico for night-dresses.

Night-lights.—These useful little articles are sold in boxes, and may be purchased at a trifling cost. They are so useful in case of sudden illness that a store of them should always be kept on hand; and they should be preserved in a dry place, as a damp condition would prevent them burning steadily. The varieties are named after their respective makers. In households where strict economy prevails they may with very little trouble be made at home. The small ends of candles are very often thrown away and wasted. These should be put aside in an old jar set apart for the purpose. When a goodly quantity of tallow has been thus collected, boiling water to cover the candle-ends should be poured over them, and the jar should be tied down with brown paper and put in the oven. A little fine cotton should now be prepared, waxed with white wax, cut into the requisite lengths, and fastened into the centres of some pill-boxes. When the fat is melted, it should be taken out and allowed to get cold. The impurities which will have settled at the bottom may then be cleared away; the tallow can be re-melted and poured into the pill-boxes, and when it is once more cold, the night-lights will be ready for use. If a little wax is melted with the tallow, so much the better. When wanted, the pill-box should be put in a saucer holding a spoonful or two of cold water, and the wick should be lighted.

Nightingale.—The nightingale is by far the sweetest and most melodious singer in our groves. It is called by naturalists the *Philomela luscinia*. It is a small bird, being only about six inches in length, and by no means gaudy in appearance, the head and the upper parts of the body being brown, with a reddish chestnut tinge, while the under surface is a dull grey white, and the under tail-coverts a pale reddish-white. The nightingale arrives in this country about the end of April, the male bird coming before the female. It is most common in the southern counties, frequenting groves, and building a nest that can hardly be distinguished from a mass of dead leaves and twigs at the foot of hedgerows or in banks, and usually containing five eggs. Speaking of its song, Isaak Walton says: "He that at midnight should hear,

as I have very often, when the very labourers sleep securely, the clear airs, the sweet descents, the natural rising and falling, the doubling and re-doubling of her voice, might well be lifted above earth and say, 'Lord, what music hast thou provided for the saints in heaven, when thou affordest bad men such music on earth!'" With a little care the nightingale thrives well in confinement. As soon as the nestlings are fledged, the nest is to be taken and placed in a warm basket, and the young birds very frequently fed upon mealworms, small caterpillars, and a little white bread, grated and moistened. When they can feed themselves, place them simply in proper cages lined with dry straw,



NIGHTINGALE.

and let each have a tin bath to wash in. (*See* CAGES.) Fresh ants' eggs and two or three mealworms daily form the best food in summer, or roasted ox-heart grated with a little carrot, mixed with dried ants' eggs; and in autumn, dried ripe elderberries mixed with ants' eggs. Water must always be supplied to them for drinking or bathing, and be fresh every morning. Keep very clean and dry. If very ill at moulting-time, give occasionally a spider or two, and place a little saffron in the drinking water. If very weak, give a little fig, and put a rusty nail in the water. If the bird suffers from sore feet, they must be carefully washed twice a day, and anointed with butter or lard.

Nightmare, otherwise called Incubus, is a peculiar distressing sensation connected with frightful dreams. A person imagines himself in some dreadful danger from wild beasts, demons, &c., and is unable either to resist or to escape, or even to speak, notwithstanding the utmost desire and effort. Naturally enough, the sufferer usually awakes, though in a state of alarm and agitation, and perhaps perspiring more or less. By some the phenomena are connected with previous thoughts and impressions; but if this is the rule, it is not without exceptions. There is more reason to believe that the evil can commonly be traced to the amount or quality of food that has been recently taken, and to consequent pressure upon the digestive functions, or some derangement of them. To such an extent is this true, that it is said persons have voluntarily induced an attack of nightmare by intentionally partaking freely of an indigestible supper before going to sleep. In such a case, to know the cause is to possess the remedy. (*See* DREAMS.)

Nightshade. (*See* DULCAMARA.)

Nimbus. (*See* CLOUDS, NAMES OF.)

Nimbus.—A term used in religious art for a peculiar decoration of divine or sacred persons in painting, sculpture, &c. The nimbus is a kind of halo of light, represented by various devices, usually around, upon, or behind the head of the character distinguished by it, but sometimes applied to other members when the whole body is not depicted. It is not of Christian origin, as it was used by Indian, Greek, Roman, and other pagan artists. Ecclesiastical art has, however, employed it most as a kind of crown of glory for the Persons of the Trinity, for angels, saints, and personifications of holy ideas; no man or woman who is not regarded as a saint can be correctly represented with it. Sometimes it is a simple ring, sometimes a kind of disc, sometimes an arrangement of rays of light, and there are other varieties. One modification of it, called an aureole, encircles the person represented; another, a combination of nimbus and aureole, is styled a glory, though this name is often wrongly given to the nimbus alone.

Nine Oils.—An old popular embrocation or liniment, chiefly used by farriers, but many times applied to the human subject in cases of sprains and strains of the joints. One recipe is:—Train oil one gallon, oil of turpentine one quart, oil of bricks and of amber of each five ounces, camphorated spirits of wine ten ounces, Barbadoes tar two and a half pounds, oil of vitriol one ounce. To make up the number of ingredients to nine, some add two ounces each of oil of origanum and oil of spike. The combination is very powerful, and when rubbed into the part affected calls for no little patient endurance, and adds unnecessary pain to the sufferer.

Nipperkin.—The name occasionally given to a small cup.

Nippers.—The nippers in common use are adapted both for holding (Fig. 1)—these being sometimes called pliers—and cutting

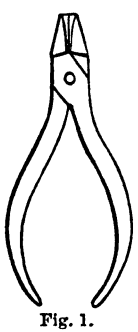


Fig. 1.

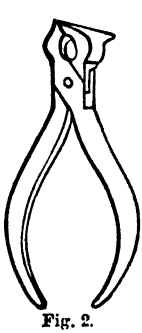


Fig. 2.

(Fig. 2); and the former are specially useful for twisting wire or dividing it. They differ in their action from shears, although in other respects they resemble them. In both we have opposing wedges which can

be brought together, but while the shear-blades pass each other, the wedges of the nippers cannot, consequently their angles differ, those of the nippers being more acute, ranging from 30° to 40°, instead of being ground as shear-blades are to angles of from 80° to 90°.

Nisi Prius.—Unless before. The nisi prius courts are courts which are held for the trial of issues, *i.e.*, questions of fact, before a jury and one presiding judge of the superior courts, in contradistinction to the sittings of the full court (*in banco*, as they are termod), for the hearing and deciding of points of law. The term originated in the old form of writ to the sheriff, which commanded him to have the persons of the jury at Westminster on such and such a day, unless sooner or before the judges should go down themselves to the country to try the cases there; and this they were sure to do at the Lent and summer assizes. (*See* ASSIZE.)

Nit.—A name given to the egg of any small insect, usually that of the louse or flea. They are attached to the hairs of the animal on which they exist. Many of the applications used to destroy vermin on dogs and cats have no effect upon the nits, and consequently the treatment must be repeated several times, so that the fleas, &c., may be destroyed as soon as they are hatched and ere they have time to breed.

Nitrates are combinations of nitric acid with a base. The most important of them are those of potash, soda, silver, and bismuth. For *nitrate of potash*, *see* SALTPETRE. *Nitrate of soda*, sometimes called cubic nitre, from the form of its crystals, is imported in large quantities from the west coast of South America, and is used in making nitric acid, and also as a manure. When mixed with twice its weight of common salt, it makes an excellent top-dressing for grain crops. If applied without the addition of salt, it would produce an over luxuriance. Its beneficial results are most apparent when the soil is light and sterile, or has been exhausted by over-cropping. *Nitrate of silver* is very much in requisition by photographers, on account of the colour it assumes when exposed to light. It also enters into the composition of marking inks for the same reason. For its medical uses, which are also very important, *see* CAUSTICS. For *nitrate of bismuth*, *see* BISMUTH.

Nitre, Spirits of, are made by adding one part by weight of nitric acid to nine of alcohol, and distilling the mixture over. The resulting ether is very volatile, producing great cold during evaporation. It is used in medicine as a refrigerant and diuretic.

Nitric Acid, or Aqua fortis, is one of the most powerful acids known. It will dissolve nearly all the metals, and acts also upon most organic substances, producing important compounds. It is made by treating nitrate of potash or soda with sulphuric acid, and distilling; it should be colourless, or nearly so, though it generally has a yellowish tinge, from the presence of some of the lower oxides of nitrogen. Even the pure colourless acid will gradually assume a yellow tinge if exposed to sunlight. The commercial acid is generally contaminated with sulphuric and hydrochloric acids. It is a fuming, intensely corrosive liquid, and is a powerful oxidising agent.

Nitro-glycerine is obtained by treating glycerine with a carefully-cooled mixture of nitric and sulphuric acids. It is a light yellow, violently-explosive, oily liquid. Its use is attended with so much danger that it is generally employed in the form of dynamite (*which see*). On account of its dangerous nature, the Nitro-glycerine Act was passed in 1869, laying down regulations respecting its use, and providing that its importation from abroad, its storage in magazines, and its use in factories should only be permitted under licences granted by a Secretary of State. Nitro-glycerine is also included in the list of explosives, other than gunpowder, which come under the operation of the Explosives Act of the 38 Vict. c. 17.

Nitrogen derives its name from the fact of its being an essential component of nitre; it is also sometimes called azote, because it is unfit to support life. It is a gas without colour, taste, or smell. Nitrogen alone, though unable to maintain life, is not a direct poison, and is indeed constantly inhaled when mixed with oxygen, the activity of which it serves to moderate. Atmospheric air is, in fact, a mixture of these two gases, the bulk of nitrogen in proportion to the oxygen of the air being in the ratio of nearly four to one. Nitrogen is most easily prepared by consuming the oxygen of the air contained in a closed vessel, the residue being nitrogen. Thus iron filings, spread out under a bell-jar over water, will gradually turn rusty, absorbing the oxygen; phosphorus will absorb it still more rapidly. With the withdrawal of the oxygen the water will rise in the bell-jar until little else than nitrogen is left at the top. The oxygen may also be very completely separated from nitrogen by allowing the air to stream very slowly over finely-divided copper made red hot. Nitrogen has very little tendency to enter into direct combination with the other elements, yet it is one of the most wide-spread forms of matter, entering into some of the most active and important compounds, such as nitric acid and ammonia. Though not abundant in plants, it is never quite wanting in them. It also forms part of the strongest vegetable poisons, such as prussic acid, strychnia, and morphia; and of the most important articles of food, such as bread, milk, and the flesh of animals. It is, again, an important element in the fulminates and most of the other highly-explosive compounds, both organic and inorganic. Nitrogen unites with oxygen to form the nitrous and nitric oxides, and the nitrous and nitric acids.

Nitrogenous Foods, or nutritious foods, are the foods that give flesh to the body. They are called nitrogenous because they contain—in addition to carbon, hydrogen, and oxygen—nitrogen in combination, so that nitrogen is a distinct element in their composition, never being absent in the foods that make flesh. Nitrogenous compounds have also been termed variously albuminoids, proteids, and flesh-formers. From the nature of the processes of nutrition that go on in the body, it is necessary that day by day

the material should be supplied which will enable it to grow and to be renewed. The principles which the body requires for this purpose are flesh, fuel, and mineral, and no food is sufficient which does not contain a due amount of each of these. The mineral principle is supplied by water and salts; the fuel, or heat-giving principles, are obtained from the starch, sugar, and fat in food; and the flesh-formers are derived from the nitrogenous principle, which in food takes the form of either albumen, fibrine, or caseine. The nitrogenous element is drawn both from the animal and vegetable world. In the animal world the principal substances in which it is presented to us are meat, game, fish, poultry, eggs, and cheese; in the vegetable world in flour, rice, oatmeal, barley, rye, peas, and lentils. Some foods are richer in flesh-formers than others, and it is the object of modern scientific investigation to discover the constituents of the various articles of food, in order to estimate their value. One fact has been ascertained, and that is that no food can be used as a principal support of man unless it contains from 6 to 8 per cent. of flesh-forming matters.

Nitrous Acid, or Peroxide of Nitrogen, is most easily prepared by heating the nitrate of lead in a glass tube. Deep red fumes of nitrous acid are given off. This acid is often present in nitric acid, rendering it red and fuming.

Nitrous Oxide. (*See* LAUGHING GAS.)

No Effects.—A return made by the sheriff to a writ of *fieri facias*, or attachment, when there is no property upon which to levy.

Noble.—An old English coin, value 6s. 8d., current during the Middle Ages.

Noble and Nobility.—The term nobility is very generally used to denote the peerage, and a noble and a peer may be considered as synonymous. The British nobility consists of dukes, marquises, earls, viscounts, and barons, and their families. (*See* ARISTOCRACY; PEERAGE.)

Noblesse Oblige.—In these words we have one of the most venerable of ancient axioms, the meaning of which appears to be that those who inherit honours won by noble deeds are bound to establish their right thereto by the nobility of their actions, feelings, and sentiments.

Nocturns.—An office of devotion, performed in the night.

Nodes.—*In acoustics.* The vibrations of a wire, or of a flat membrane, or those of the air in pipes, present a series of undulations passing both above and below the central line, or line of rest. The points where the undulations cross in this way are termed nodes, and the note of music produced varies with the length of the vibration between each node. Hence the variation caused by pressing the violin string with the finger, which will shift the position of the nodes all down the vibrating string; the opening or closing the holes in a flute by the keys or fingers will in like manner affect the vibrations of the air within, as a node cannot remain immediately opposite to any opening. *In astronomy*, the nodes are the two points in which the orbit of a planet intersects the plane of the ecliptic. The point where it passes from the south to the north of the ecliptic is called the ascending node, and is indicated by the symbol ☊; the opposite one, where it passes south again, is the descending node, represented by the same symbol inverted. The position of the nodes is one of the elements by which the situation of the plane of any orbit is defined—the longitude of the ascending node, or its distance from the first point of Aries, being the datum used for this purpose.

Noggin.—This is a small mug, or wooden cup, capable of containing the fourth part of a pint. The word is frequently contracted into nog.

Noisette Rose.—This is a rose now common in our gardens, but first reared in America, having been grown from seeds produced from the musk rose impregnated with the Chinese rose.

Nolle Prosequi.—A voluntary confession that the plaintiff has no cause of action—in whole or in part—or has misconceived the nature of his remedy—in whole or in part—and therefore forbears to proceed therein.

Nomadic.—An adjective descriptive of tribes who have no settled home, but wander from place to place in search of pasture for their flocks, &c., or of game. Such tribes are called nomads, from a Greek word meaning a pasture or grazing ground.

Nomination.—The proposing of the names of persons as candidates for an office, emolument, charity, &c., previous to an election or appointment. Sometimes, but less accurately, the word is used for the appointment itself.

Non Compos Mentis.—Not of sound mind. A person who is not in his right senses. (*See* LUNATICS AND IDIOTS, LAW CONCERNING.)

Non-conductors. (*See* CONDUCTORS OF ELECTRICITY; CONDUCTORS OF HEAT.)

Nonage, or Minority. (*See* MINORITY.)

Nonconformists. (*See* DISSENTERS.)

Nonpareil.—Literally, without an equal. More particularly (1) a sort of apple; (2) a kind of small type used by printers; (3) a kind of narrow ribbon; and (4) a certain sweetmeat or sugar-plum.

Nonsuit, in law, is an abandonment or surrender of his action by a plaintiff. It usually took place on his discovering some defect in pleading or insufficiency of evidence to sustain the action; he then elected to be nonsuited (as it was termed) rather than have a verdict recorded against him, because formerly after a nonsuit he might commence a fresh action for the same cause against the same party. But now, under the Judicature Act, 1875, any judgment of nonsuit, unless the Court or a judge otherwise directs, has the same effect as judgment upon the merits for the defendant; but in any case of mistake, surprise, or accident, any judgment of nonsuit may be set aside on

such terms, as to payment of costs and otherwise, as to the Court or a judge shall seem just. A plaintiff cannot be compelled to be nonsuited; on the other hand, if a verdict be once recorded, he is for ever barred from suing the defendant upon the same ground of action.

Noon.—The middle of the day; that time when the sun crosses the meridian of a place. (*See* MERIDIAN.)

Noose.—In making a noose it must be remembered that every knot in a rope weakens its ability of resisting a sudden jerk, and that its power of resistance to sudden strains is still further decreased if the knot is carelessly or clumsily made. To strengthen a knot, little pads of leather, linen, tow, or waste rope may be placed inside it where the folds cross each other and the rope is consequently sharply bent. The tighter and harder the knot, the greater is the danger of its breaking, and the more loose and open it is, the better.

Norfolk Fluid.—A preparation for preserving and softening leather. It is also called Norfolk leather preserver, and is made as follows:—Linseed oil three pints, yellow resin four ounces, turpentine two ounces, yellow wax twelve ounces; melt, and add neat's-foot oil two pints, and oil of turpentine one pint. Francis says india-rubber varnish is much better.

Normal Schools.—Schools established for the instruction of teachers in the theory and principles of education. The term normal is derived from the Latin *norma*, a rule, and implies schools conducted according to those fixed rules and principles which experience has taught are most in consonance with the natural mental processes by which knowledge is acquired.

Norman Style.—The Norman style of architecture, sometimes called the Anglo-Norman, is usually classified as a variety of the Romanesque style, introduced shortly after the conquest of this country by William of Normandy. It was originally characterised by its solidity, stern simplicity, and the absence of decorative features. The later specimens are lighter, and the ornamental work profuse, while the doorways and windows were more deeply recessed. Amongst the earliest existing specimens of this style in England are the following:—Part of the dormitory of Canterbury Cathedral, the north tower of Rochester Cathedral, the west front of Malling Abbey, and the keep of the Tower of London; the transepts of Ely Cathedral; the crypt of Lastringham, in Yorkshire; the walls of the nave of Thorney Abbey, in Cambridgeshire; the south transept of Carlisle Cathedral; the choir and transept of Norwich Cathedral; Colchester Castle; and the Abbey Church of Bury St. Edmunds. The Abbey Church at Tewkesbury is another famous example, as are also the remains of St. Botolph's Priory at Colchester, Peterborough Cathedral, and St. Bartholomew's Priory.

Normandy Butter. (*See* BUTTER.)

Normandy Pippins.—In Normandy and America, large quantities of apples are dried and flattened, and thus converted into Normandy pippins. Apples prepared in the same way in England are known as "Norfolk biffins." Before the pippins can be used they need to be soaked for some hours in water, then gently stewed in syrup before they are served. They are delicious when eaten with Devonshire cream. Normandy pippins can be bought by the pound of any grocer or Italian warehouseman.

Norroy.—This is the name by which one of the three kings-at-arms is known; these are respectively termed Garter, Clarenceux, and Norroy. Each of them has official arms, which are impaled with those borne by right of birth. The shields borne by Clarenceux and Norroy are alike, with this exception, that the lion on the latter is placed between a fleur-de-lis and key. The term Norroy was originally that of North Roy, which signified a king-at-arms whose business lay on the north side of the river Trent.

Northern Lights is the popular name for the Aurora Borealis, a luminous electric cloud of great service to the inhabitants of the north polar regions for the light it affords them during their long night of winter. It generally assumes the form of an arc, stretching over the magnetic pole, from which streams of coloured light shoot forth. That the Aurora is due to the presence of electric currents in the upper regions of the atmosphere seems pretty evident from the fact that the apparatus at telegraph stations is found to be affected whenever brilliant displays of Aurora occur. In the northern parts of the British Isles the Aurora Borealis may often be seen to advantage, and occasionally the ruddy glow of some of its great streamers are visible in the southern counties.

Nose, Ailments of. (*See* FACE, AILMENTS OF.)

Nose-bleeding. (*See* BLEEDING, TO STOP.)

Nosegay.—A bunch of sweet-smelling flowers and the like, intended to be carried in the hand or worn upon the dress. Like such words as garland, bouquet, wreath, and posy, it has been taken as a fanciful title for published collections of pleasant poems, &c.

Nosology.—This is that department of the science of medicine which distinguishes and defines all the different forms of disease, and assigns to each its proper name and classification.

Nostalgia. (*See* HOME-SICKNESS.)

Nostrils.—These are, properly speaking, the external openings of the nose. They are formed by two thin plates of cartilage, which are curved in such a way as to form the inner and outer walls of each orifice. The nostrils are lined with mucous membrane, which is very sensitive, and which, in a state of catarrh or irritation, secretes very copiously. The hairs which are found growing in the nostrils are intended to protect this sensitive membrane from unnecessary irritation.

Notary is a person duly appointed to attest deeds and writings; he also protests

and notes foreign and inland bills of exchange, promissory notes, translates languages and attests the same, enters and extends ship's protests, &c. In old Rome, clerks called *notarii*, from their keeping minutes or notes of their transactions in executing contracts, &c., originated the application of this name.

Note Books.—Small books of various shapes and sizes, generally of such a nature as to allow of their being carried about in the pocket. Many people invariably carry a note book in which to jot down memoranda as they occur to them. To the student a note book is invaluable; in all his work he should have one by his side, and enter therein all special points for after-reference.

Note Cases. (*See* LETTER-CASES.)

Notes, Bank. (*See* BANK NOTES.)

Notice to Quit. (*See* QUIT, NOTICE TO.)

Notices (Legal).—A notice is the giving of information to a person of that of which he was or might be unaware. Whatever is sufficient to put a person upon inquiry (provided there is a reasonable certainty as to time, place, circumstances, and persons) is in equity held to be good notice so as to bind him. To constitute what is known as "constructive notice," it is sufficient to affect the conscience of the agent, solicitor, or counsel of the party; for in such cases the law presumes notice to the principal, since it would be a breach of trust in the former not to communicate the fact to the latter. A clerk who searches the Register of Judgments against A. B. will, in the absence of proof to the contrary, be presumed to have seen, and therefore to have notice of any judgment which was at the time registered against A. B. A public Act of Parliament binds all persons, but a private Act is not of itself notice to a purchaser. The mere fact of attesting the execution of a deed is not of itself notice of that deed, for a witness to the execution of a document is not, as such, held to be acquainted with its contents.

Notices to Servants. (*See* DISCHARGING SERVANTS.)

Nourishment.—This includes all those articles of food and drink which are necessary to sustain life and promote growth and health. (*See* FOOD.)

Novels.—Works of narrative fiction in prose, comprising the *novel proper*, dealing with more or less familiar characters, scenes, and incidents; and the *romance*, dealing rather with extraordinary persons and adventures. High-class works of fiction, when the reading of them is not carried to any great excess, are of undoubted good, affording not only a pleasant means of relaxation for the mind, but also inculcating, as they should do, correct views of men and manners, life and its duties. Historical novels also, on account of their greater interest to the young, may sometimes with great success be made a means for teaching history in cases where historics, however picturesque, would fail to attract. Unfortunately, however, all the novels of the present day are not written from a sufficiently high moral standpoint, and many of them can only be regarded as pernicious, especially for young people. All novel-reading, when indulged in to excess, is fraught with danger, having a tendency to unsettle the mind for the work of every-day life.

November Meteors.—The star shower of the night of the 13th and 14th November, 1866, was the most remarkable display that has been witnessed by the present generation, sometimes nearly two hundred so-called shooting-stars being visible within the space of one minute. So grand a display is not likely to occur again till the year 1900. (*See* METEORS.)

Novice.—A neophyte or tyro; one who is not perfect in his vocation, but a mere beginner or probationer, and still on trial. Hence, in ecclesiastical language, a novice is one who, having entered a convent or monastery, has not yet taken the vows. Any inexperienced and ill-informed person is loosely spoken of as a novice.

Noxious Gases, Fumes, &c.—In addition to what are described under the heading of FUMES, NOXIOUS, the gases evolved by decaying animal and vegetable matter are generally nauseous in character and injurious to health. These *bad smells*, as they are commonly and very expressively called, serve to warn people of the lurking mischief, and to call for remedial action, though it is wonderful how much people will put up with in this respect at the expense of their health. It cannot be too strongly enforced that all such tend to enfeeble the constitution and predispose it to disease, even if they do not directly bring on the attacks. (*See* DEODORISING; DRAINAGE AND DRAINS.)

Noyau.—This liqueur is made from a combination of white brandy with bruised bitter almonds. Sometimes the kernels of the peach and the apricot are used to flavour it, and in Turkey the kernels of the Mahaleb cherry are employed for the purpose. Noyau is an agreeable liqueur, with a pleasant nutty taste. It is best when it is of a good age, and as it is much esteemed it is both rare and expensive. The best comes from Martinique. It contains, however, a large proportion of prussic acid, and therefore a small quantity only should be taken at a time. It is sometimes coloured pink. Careful housekeepers may imitate it by infusing fresh young peach-leaves in whisky for a couple of days, then straining the infusion, and mixing with it clarified syrup when cold. The imitation will become with age little inferior to the foreign production, and will be about one-quarter the cost.

Nozle, or Nozzle.—The valves employed to open and close the communication between the cylinders, boilers, and condensers of low-pressure engines, or the cylinder, boiler, and atmosphere in high-pressure or non-condensing engines, are placed in what are termed nozzles.

Nucleus.—A kernel, especially that of a nut. The word is generally used also to denote whatever may serve as a beginning—something to start with. In some of the sciences the word nucleus (plural, nuclei) is taken in special senses;

e.g., in astronomy, to denote the centre of a comet's head.

Nuisances.—An unlawful annoyance or damage. Nuisances are of two kinds—public and private. A public or common nuisance is one by which the community in general are affected. A private nuisance only affects or interferes with a private individual as such. The remedy for the latter is by action; besides which, the party injured may, in a clear case, take the law into his own hands and abate (as it is termed) the nuisance; but this course is not advisable. An action does not lie against an agent for damage done by the negligence of those he employs, for the principal or those actually employed are liable. The plaintiff must show himself entitled to the thing to which the nuisance was done at the time of the nuisance. As to the remedy for public or common nuisances, they are generally indictable only and not actionable, for it would be unreasonable to multiply suits by giving to every man a separate right of action for an injury which he sustains in common with others. (*See* INDICTMENT.)

Number, Golden.—The number of any year in the Metonic cycle, which includes a period of nineteen years. In the first year of each Metonic cycle (so called from Meton, its inventor, B.C. 432) the new moons fall on the same days of the year, and so on through the other years of the cycle, and the eclipses recur in nearly the same order. The cycle of Meton was engraved on its first introduction in letters of gold on marble pillars, and from this fact the term *golden number* has originated. On the introduction of the Gregorian Calendar (*see* CALENDAR), the year 1 B.C., when the new moon fell on the 1st of January, was fixed as the point from which the golden numbers should be reckoned; a new moon therefore falls on the 1st of January in every nineteenth year. By the following rule the golden number for any year (used for determining Easter, &c.) may be ascertained:—"Add 1 to the number of years and divide by 19; the quotient gives the number of cycles, and the remainder gives the golden number for that year; and if there be no remainder, then 19 is the golden number, and that year is the last of the cycle."

Numbness.—This is a peculiar sensation, usually of a tingling character, which is experienced when the nerves of any part have received a shock by some injury from without, or are influenced by some affection of the brain or spinal cord from within. In the former case the feeling would be only temporary, and probably of little importance; in the latter case it might be a significant symptom, and should be at once attended to. Numbness may also result from defective circulation, as in certain diseases, pressure of tumours, and from prolonged exposure to cold. (*See* FROST, EFFECTS OF; PARALYSIS; &c.)

Numerals.—Figures or symbols by means of which numbers are expressed. The three most important systems of numerals are the Arabic, the Roman, and the Greek. The Arabic numerals, now so universally used, and consisting of the nine digits and the zero, are separately described. (*See* ARABIC NUMERALS.) The Roman system consisted originally of symbols, of which a series of strokes formed the basis. By a number of changes, into the history of which it is impossible to enter, these symbols were converted into the letters still used to some small extent at the present time. In the Greek system all the letters of the alphabet are employed to represent figures—the first eight letters, with an additional symbol, representing the digits; the second eight, with an additional symbol, the tens; and the remaining eight letters, also with the addition of a symbol, the hundreds. By these letters, therefore, only numbers under 1000 could be expressed, but by putting an iota (Greek *I*) under any symbol, its value was increased a thousand-fold.

Numismatics.—The science of coins and medals (numismatics) is an interesting study in itself, and an adjunct of considerable value and importance to the study of history. The Numismatic Society of London was established in 1836 by Dr. John Lee, and issues a record of its proceedings, called the *Numismatic Chronicle*. A useful introduction to the science was published in 1840 by a Mr. Yonge, under the title of "Akerman's Numismatic Manual."

Nuncio.—This word is derived from the Latin *nuncius*, a messenger. The term is in these days chiefly applied to the spiritual envoys sent by the Pope to carry his mandates to those over whom he has sway.

Nuptials. (*See* MARRIAGE.)

Nursemaids, or Nursery-maids.—The mistress of a household who is also the mother of a family should be more careful about the character of the nurse and nursery-maid than of that of all the other servants put together. Inefficiency in other departments may cause discomfort and annoyance to the grown-up members of the family; want of integrity and truthfulness in cook, housemaid, or kitchen-maid may result in loss and inconvenience to the elders; but these failings in a nurse would be far more dangerous, as they would be communicated to the children, and might influence their characters for ill during all their future years. Amongst servants it is generally understood that there is a decided difference in the position of a nurse and of a nursery-maid. A nurse is a responsible upper servant who presides over the nursery, and is answerable to the mother for the well-being and comfort of the children; a nursery-maid is a young woman engaged to perform the rougher work of the nursery under the supervision and direction of the mother in small families, and of the nurse in large families. Both nurse and nursery-maid should be scrupulously clean in person and habits, good-tempered, cheerful, truthful, honest, and intelligent. They should be persons of education, and possess enlightened ideas as to the rearing of children and the importance of good food, pure air, and exercise. Without this they may in all good faith and honesty act in such a way as to counteract the mother's efforts in her children's behalf. They should be of a good constitution, or they may

communicate the seeds of disease to their charge; and this is especially important if they have to share a child's bed. A consumptive nurse might impart a tendency to consumption to a child with whom she slept. They should have no physical deformity; for children are great imitators, and might be led to squint, or to stammer, or to lisp, merely from noticing these defects in their attendant. They should be refined in manner, polite, and gentle, speaking with a clear pure accent, so that by constant companionship the children may acquire the habits of good breeding. Above all they should possess high principle, and be perfectly upright in their lives. Nothing would be so likely to lead a child to be untrue as being the constant witness of small deceptions in others. It is to be feared that the moral nature of many a child has received a twist, simply with observing the constant effort on the part of the nurse to deceive the mother, and with being told continually not "to tell mamma" the little accidents and details of nursery life. This it is that originates that want of confidence between parent and child which is the cause of grief to many a mother. It is evident that nurses possessing these high qualifications can scarcely be looked for in the lower grades of society, but would be more likely to be met with in the better educated circles. The mother who desires a nursery-maid of this high class for her children must therefore seek her among gentlewomen of reduced means, or amongst the daughters of tradesmen who have enjoyed the advantage of growing up in a well-regulated home. It would be only reasonable that a nursery-maid of this class should require a handsome remuneration for her services; and it is only reasonable to expect that the mother who confides the care of her children to the nursemaid will gladly reward her according to her deserts. In households where the mother herself undertakes the responsibility of the children, and spends a large portion of her time with her offspring, it will be sufficient to employ a young person at a moderate wage who will be expected simply to obey orders, and carry out the details of the mother's management.

Nursery.—The room or rooms appropriated to the children should be on an upper floor, and should be large, lofty, and well ventilated. At the same time they should not be draughty; they are best when facing the south, or east, or west, so that they have plenty of sunlight. They should be kept perfectly clean; and in order to ensure this there should either be no carpet, or a very small one, and the floors, chairs, and tables should be scrubbed at least once a week during the absence of the children. When this necessary work is performed, great care should be taken that the room is thoroughly dried before the little ones return to it. Not even for a few minutes should they be allowed to remain in a room that is in the slightest degree damp. If they are, chest and throat disorders, particularly croup, will be likely to be the consequence of the imprudence. During the day the windows of the nursery should always be opened, both at the top and bottom, when the children are away. They should, however, be closed in foggy weather and after sunset. In cold weather the atmosphere of the nursery should be maintained at an equal temperature, and should be warm and comfortable, but not too hot. It is a good plan to regulate the heat by means of a thermometer, which should be hung in a corner away from the fire and out of the reach of the sun's rays. From 60° to 65° Fahr. is the necessary temperature for healthy children. The walls of a nursery should be hung with bright-coloured pictures, to make the room as cheerful as possible. The furniture should be strong and plain, and of a kind that will not give evidence of every bruise that it receives. There should be plenty of shelves and drawers, cupboards, hooks, and pegs; and everything, even every book and every toy, should have its proper place. The children should themselves be required to put their possessions tidily away each time they have been used, for by this means only can they be trained to those habits of neatness and order which will in after years add so greatly to their own comfort and the comfort of other people. At the same time, the efforts after tidiness should never be allowed to interfere with the happiness of the children. There are some young folks with whom activity and buoyant health appear to exhibit themselves every now and then in confusion and anarchy. The experienced nurse and mother know this, and while they maintain a needful discipline, they will not act so that order becomes associated in a child's mind with restraint and discomfort. When it is necessary to have a fire in the nursery, a guard should be placed before it, and this should be fastened so that it cannot be removed by the children. Neglect of this precaution has brought many a young life to a cruel end. There should be strong iron bars before the windows too, and a child should never be allowed to sit or play at an open window, even when it is in the arms of a nurse, without these convenient safeguards. In arranging the routine of nursery work, plenty of time should be secured for out-door exercise, and this should be taken in the finest part of the day. In the summer season the healthiest time for walking is between eight and ten in the morning, and five to seven in the evening; in the spring and autumn, from ten to twelve in the morning, and from three to five in the evening; during the winter the middle of the day is the best, from twelve to two. On returning from a walk, the children should rest; the younger ones should be persuaded to lie down. The later this habit can be enforced, the better. When the little ones are lying down, the nursery should be darkened, and every one kept as quiet as possible. This will be a convenient opportunity for the nurse to do any work, such as washing or scrubbing, that is not suited to the nursery. Before leaving the room, however, she should be careful to guard against accidents, and not to go beyond call.

Nursery Governess. (*See* GOVERNESS.)

Nursery Linen.—The linen that is used for young children should be very soft, to suit the delicate skin. Sheets are best made of

cotton, which is warmer than linen; indeed, the necessity of warmth for children is so universally acknowledged, that many mothers dispense with sheets altogether, and let their little ones lie between the blankets. It is a very good plan, with children's beds, to lay a piece of macintosh sheeting under the sheet; but this should always be covered with a blanket, otherwise it might give a chill to the child. Thick weighty counterpanes are particularly objectionable; they lie heavily on the weak little chest, and prevent the child from breathing easily. Napkins are usually made of diaper, and are sold in lengths convenient for the purpose. It is a good plan to preserve old damask table-cloths and linen sheets, as these can be cut up to make excellent napkins. These napkins are best made single rather than double, because they can be washed out and dried thoroughly more easily than when they are double. They should be washed out each time they are used, that they may be perfectly sweet, and not even the tiniest piece of soda or washing-powder should be put into the water with them, as this would be sure to chafe the baby's skin. A child should never sleep in the clothes it has worn during the day. The articles which it has worn should when taken off be shaken out singly, and either aired before the fire or hung where the fresh air can get to them. This is necessary, because they are sure to be damp with perspiration. The bed-linen also should be thoroughly aired. The mother should herself see that every article is taken off singly, and hung before an open window for an hour or two every day. When the children's meals are taken in the nursery it is best to have table-linen set apart for nursery use. The table-cloths may be coarse in texture, but they should be changed as often as is necessary, to have them perfectly clean; for nothing is so likely to give the children refined ideas as to have their meals daintily served.

Nursery-maids. (*See* NURSEMAIDS.)

Nurses.—In cases of illness it is frequently most essential to the recovery of the patient that the services of an intelligent experienced nurse should be secured. The friends of the invalid may have a prejudice against having help in this way, and may determine that they will themselves perform every requisite duty, and will allow no hireling to attend upon their friend in the hour of weakness. The reason of this prejudice is to be found in the bad character which belongs to all nurses according to the popular opinion, and which is founded upon the doings of Mrs. Gamp and her tribe. This is unfortunate, for, happily for suffering humanity, Mrs. Gamp, with her ignorance, and selfishness, and cruelty, and gin-bottle, is rapidly disappearing from amongst us. Miss Nightingale has superseded her; and her influence and efforts, combined with those of many intelligent and highly-cultured ladies and gentlemen, have rendered it possible for the sick to obtain the aid of properly-trained and competent nurses. Affection is mighty, but it cannot do everything, for it cannot give people who are not physically strong the power of sitting up night and day for an unlimited period. The result of an endeavour to perform unwonted and too arduous work leads only to the exhaustion and prostration of the most loving relative or friend. When disease enters a house, and the medical man gives warning that there is the prospect of protracted nursing, by far the kindest thing that the relations of the sick person can do is to procure efficient help early, sharing with the hired nurse at the beginning of the trouble the work of attendance in the sick-room. This is far better than being determined to do everything for the first few days, then breaking down, and being able to do nothing afterwards. The duty, however, should be *shared* with the nurse, and not left to her entirely, for it would be a cruel thing to leave any invalid wholly with a stranger. When a nurse is wanted in a family, the best person to consult in selecting and engaging a suitable individual is the medical man. There are in different parts of the country institutions of one kind or another where trained nurses are employed, and the doctor is sure to know of these. In all probability he will himself be acquainted with three or four women who are able and willing to undertake the duty of nursing the sick, and will most likely furnish a list of names from which choice can be made. If the doctor is personally acquainted with the nurse, so much the better, for he is peculiarly fitted to form an opinion on her general qualifications. But when it can be obtained, it is advisable also to have a reference from some one in whose house the nurse has been. Especially is this the case with monthly nurses. These women may do their work well enough, but they may possess qualities which render them most undesirable inmates of a house, and especially of a house where the mistress is laid aside. A nurse who is quarrelsome or extravagant, or who is inclined to gossip and chatter and make mischief amongst the servants, is sure to be a source of trouble and annoyance, and of these characteristics a doctor would have no cognisance; only a previous employer would know anything on the subject, and therefore from such a one information as to the sobriety, honesty, and general behaviour of the nurse should be obtained. A monthly nurse should be engaged not later than the end of the third month of pregnancy The most suitable person for the situation is a middle-aged woman who is or has been married, who is of a healthy and robust constitution, is neat and clean in person, cheerful in disposition, and quiet and respectful in manner. She should not be too stout, or she will not be active; she should not be garrulous, or she will be sure to make mischief; and she should be entirely free from any physical defect, such as deafness, imperfect sight, or weakness of any kind. She should be intelligent, that she may be able to understand and carry out the wishes of the medical man; active and able physically to do what is required of her; vigilant, experienced, and thoroughly trained for her work. Nurses are usually paid by the week, and it is false economy to engage one simply because she is cheap. A good nurse is worthy of a good fee, and will be better worth her wage than an indifferent one who demands a lower remuneration. A sovereign or two may be saved many

times over in a thoroughly efficient nurse, and there is seldom a greater difference than this between a competent person and the reverse.

Nursing. (*See* INVALIDS.)

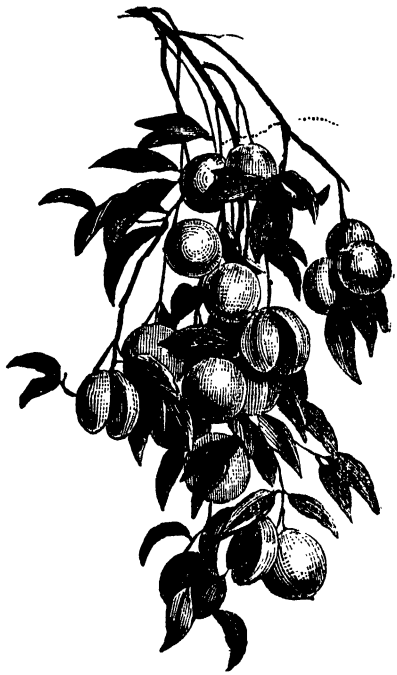
Nut-galls. (*See* GALLS.)

Nutcrackers.—A sufficient number of nutcrackers should always be placed on the table with the dishes which require them. These useful little instruments can be purchased at a trifling cost. They are made either of silver or electro-plated metal, and are so constructed that they will crack nuts of different sizes, the large nuts at one side and the small ones at the other.

Nutmeg-graters.—The ordinary nutmeg-graters are made of tin, perforated with holes which present a rough surface, upon which nutmegs can be rubbed to powder. They are either sold separately or form a portion of the spice-box. A little machine has been invented in America which saves both time and labour even in grating nutmegs. It is a kind of mill; the nutmeg is put into a cavity provided for it, when a handle is turned, and the nutmeg is speedily reduced to powder. This machine can now be procured in England at a trifling cost.

Nutmeg Oil.—A very pleasant oil is extracted from nutmegs, which, like the oils of other seeds, is useful for food as well as for other purposes. Like oil of lavender and oil of cinnamon, nutmeg oil is formed of hydrogen and oxygen with carbon, and has a different constitution to the fixed oils. It is a volatile oil, and easily evaporates. Seed oil is, however, much more commonly used in India and other hot countries than in England. We are so well supplied with olive oil and the many varieties of animal fats, that we require few others; though the delicacy of the vegetable oils will, no doubt, ere long force themselves into notice, and obtain for them a place among our foods.

Nutmegs.—The nutmeg is the kernel of a fruit growing in tropical regions. The fruit much resembles a round pear in size and appearance, and when ripe is of a golden yellow colour. The fleshy part of the fruit is rather hard, and of the consistency of candied fruit; it is often preserved, and eaten as a sweetmeat. Within this fruit is the nutmeg, which is used by us as a spice. It is enveloped in the curiously yellowish-red aril known to us as mace, another useful spice; under this is a thin shining brown shell, which contains the kernel or nutmeg. Nutmegs are invaluable in cookery as a spice, and they are also used medicinally. They are aromatic and stimulating in their nature, but require to be used with care. They possess narcotic properties, and must not be taken in large quantities where any affection of the brain is apprehended. Nutmegs are now cultivated in the West India Islands, both Jamaica and Trinidad producing excellent varieties. For many years their cultivation was confined to the Banda Isles possessed by the Dutch, who carefully endeavoured to prevent the nutmeg from being carried in a living state to any other place. In 1796, however, when the isles were conquered by the English, plants were sent to Penang, India, and other



FRUIT OF THE NUTMEG-TREE.

places, where they are now growing in large quantities. The nutmeg-tree is known as the *Myristica moschata*.

Nutmegs, Adulterations of.—Nutmegs are generally sold whole, but as it is also possible to obtain them in a ground state, they may in this form be adulterated. In making mixed spice, ground nutmeg forms one of the ingredients, so that at this time adulteration may easily be accomplished. Inferior nutmegs, too, are frequently offered for sale by second-rate tradespeople. Good nutmegs may be distinguished by their weight: when full of oil, as they ought to be, they are heavy, and on being picked the oil is visible; common nutmegs are dry and woody. Some years ago an American was detected making wooden nutmegs and exporting them—an imposition which it is to be hoped will never again be attempted.

Nutriment.—This is another term for nourishment (*which see*).

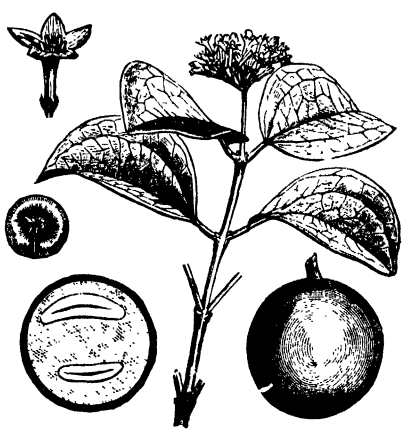
Nutrition.—This is the process by which, under the influence of good food, pure air, &c., the growth and development of the body are effected, and the waste which is continually going on repaired. (*See* FOOD.)

Nuts.—The class of fruits known as nuts might with propriety be classed among seeds, though, unlike seeds, they are eaten in an uncooked state, and are regarded as luxuries rather than as necessaries. Although nuts are highly nutritious, they cannot be eaten with safety in large quantities, owing to their being

so difficult of digestion. Like cheese, however, they are useful in promoting the digestion of other foods. Of the whole class of nuts, the cocoa-nut is by far the most important to mankind. In countries where the cocoa palm abounds, and great poverty exists, the cocoa-nut is a very important article of daily food; and it is not as food only that this tree is so valuable, but the wood and fibre and every part of the tree are made useful in some way or other. Each tree yields from eighty to one hundred nuts yearly, and will continue to bear during two generations of men. The hazel-nut is the parent of many varieties obtained by cultivation. The filbert and the cob-nut are varieties of the hazel. During the Middle Ages the hazel-nut was used in England in the preparation of milk. This nut may be reared in most temperate climates, but it attains to the greatest perfection in Spain and in the south of Europe. The Brazilian nuts, or, as they were called three hundred years ago, Peru almonds, are as large as a 24-lb. shot, and are very hard and full of closely-packed nuts. They are a source of great danger to travellers when they fall in the forests. The chestnuts consumed in England are principally brought from France and Spain. In the south of Europe they form a substantial article of diet for the poor. They are agreeable in flavour, easily cooked, and more digestible than other nuts. With bread alone they may be eaten, and are considered very nutritious. It is only, however, in the south of Europe that the edible chestnut is cultivated; it cannot be produced in northern climates. In England the only chestnut grown is the ordinary horse-chestnut, and this has an acrid bitter principle which does not exist in the Spanish chestnut, and makes it injurious and unpleasant as food. Roasted Spanish chestnuts are universal favourites, and the Portuguese eat them boiled and mixed with anise-seed. The walnut is usually considered one of the finest of nuts. It is a native of Persia, the Caucasus, and China, but was introduced to us by the French; although a foreign nut, it is, however, cultivated to great perfection in England. In its ripe state the walnut is used for dessert, and in its green state it is converted into a delicious pickle. It is a strange fact that, although walnuts are more plentiful in some parts of France than anywhere else in Europe, the French do not so much appreciate the pickled walnut as do the English. The Barcelonas and black Spanish nuts are from Spain, as their names imply; the former is one of the commonest nuts offered for sale. Almonds are both sweet and bitter, and are produced abundantly in Africa and Southern Europe. The sweet variety has long been in use in this country. It is eaten as a nut, and also mixed with raisins. The bitter almond contains an amount of prussic acid, but the quantity is not sufficiently large to render it dangerous. A curious point to be noticed about the almond-tree is that there are not only bitter almond-trees, but a number of bitter almonds are often found growing on sweet almond-trees. The usefulness of the almond is wonderful. To the physician, the cook, and the perfumer, it is of very great value. There is also a coarse kind of nut called jack that is eaten by the poorer classes in India and Zanzibar, and also a nut called kola, growing in Central Africa; but the above-mentioned are of the greatest importance. (*See* ALMONDS; BRAZIL NUTS; CHESTNUTS; COB-NUTS; COCOA-NUTS; FILBERTS; HAZEL-NUTS; SPANISH NUTS; WALNUTS.)

Nuts (for Screws).—When an ordinary screw is forced through any surface, the nut is a kind of block, with an opening made in the form of an internal screw, which enables the operator, by screwing it upon the head of the external screw, so to secure the latter, that until the nut is removed on the one side it is impossible to withdraw the screw from the other side.

Nux Vomica.—This is obtained from the seeds of the fruit of the *Nux vomica*, or koochla-tree, growing in the East Indies, and belongs to the natural order *Loganiaceæ*. Nux vomica contains two alkaloids, viz., strychnia and brucia, and a peculiar acid called strychnic acid. It is to the former of these alkaloids—viz., strychnia—that the drug mainly owes its action. Nux vomica has a powerful influence upon the spinal cord, causing muscular spasms and rigidity, and, if it is taken in sufficient quantity, death. The body is usually found much distorted, as in tetanus. (*See* JAW, AILMENTS OF.) The treatment of poisoning by strychnia consists in keeping up artificial respiration (*see* DROWNING, ADVICE IN CASES OF), and in administering chloroform, or



NUX VOMICA.

chloral, or the Calabar bean. In small doses, nux vomica acts as a powerful nervine tonic, and is advantageously administered in a great variety of diseases, as indigestion, paralysis, debility, hysteria, &c. Combined with purgatives, it increases their efficacy by imparting tone and contractile power to the intestines. The preparations of the drug are as follows:—1. *Extract of nux vomica.* This is prepared from the seeds, by softening, powdering, and macerating them in rectified spirit. The dose for an adult is from half a grain to a grain.

2. *Tincture of nux vomica.* This is prepared by macerating the powder in rectified spirit. The dose is from ten to fifteen drops, in water or bitter infusion. 3. *Liquor strychnia* (solution of strychnia). This is a solution of the alkaloid strychnia in rectified spirit and water, with a little hydrochloric acid added. Two drachms of this contain one grain of strychnia. The dose is from five to ten drops. 4. *Strychnia.* This is prepared by an elaborate process from the powdered nux. The dose is from the one-thirtieth to the one-twentieth of a grain, usually given in the form of a pill.

O

O Yes, O Yes!—A corruption of the old French *oyez, oyez,* meaning hear, hear; a term thrice repeated in courts of law by the criers, to secure silence and command attention when a proclamation is to be made.

Oak and Bark.—Different varieties of oak-trees are common over a large portion of the habitable globe, but do not grow wild in the southern hemisphere. They reach their southern limits about Java, but they are found all over Europe, on the Himalayan Mountains, along the eastern shores of Asia, in Canada, California, Oregon, North America, and Mexico. Our own common British oak may be taken as the type of all the others. It is called the *Quercus pedunculata,* and belongs to the *Robora,* or forest oaks. The timber of the British oak is extremely hard and durable, and is therefore much used for ship-building purposes. The quality of the wood, however, depends a good 'deal upon the kind of soil in which it is grown, some counties, such as Sussex, being rather celebrated for their oaks. The bark of the oak-tree is used for tanning hides. It is also used in medicine, being one of the best astringents we possess. It is used in powder internally, to check chronic diarrhœa or dysentery, mucous discharges, or bleeding from the bowels. It is also used in the form of decoction, as gargle, for relaxation of the uvula or tonsils, or an injection for the whites, or for prolapse of either the rectum or uterus. The decoction is thus made:—Bruised oak bark one ounce and a quarter, distilled water one pint; boil this for ten minutes, then strain it, and add as much distilled water as will make it measure one pint.

Oak-apple Day.—The custom of wearing oak-apples or a branch of oak-leaves on the 29th of May is still observed by men and boys in many parts of the country. This adornment was worn to commemorate the escape of King Charles II. when he eluded his pursuers by hiding in an oak-tree.

Oak-apples, or Nut-galls, are the small round excrescences which are formed on the stems and branches of oak-trees. (*See* GALLS.)

Oakum.—Ropes and cables, when unfit for further use as such, are pulled to pieces, the fibres are separated and disentangled, and then called oakum. This work of picking oakum is the one in which most of the prisoners in our jails are employed. Oakum is then re-sold in bundles to ship-builders, who find another use for the hempen fibres. These are formed into loosely-made ropes by rolling a small quantity with the hand on a slanting board; they are then thrust into the seams and crevices of vessels, and afterwards tarred. This process is known as that of caulking ships.

Oatcake.—Oatcakes are very common in the north of England and in Scotland, where they are eaten plain or with butter and cheese. They consist simply of oatmeal, water, and salt, kneaded together and baked on both sides. In Lancashire, buttermilk forms an ingredient of the oatcakes. When newly baked these cakes are quite soft, but become hard when dried. They are very little known in the south of England.

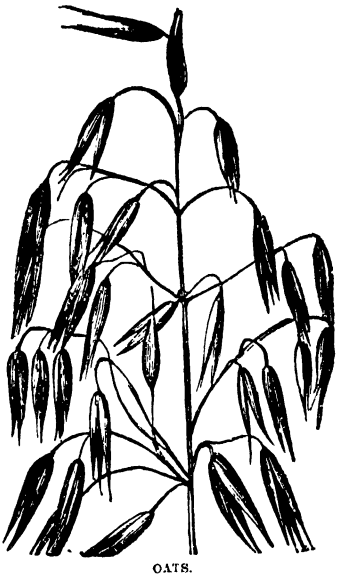
Oaths.—An oath is an affirmation or promise, accompanied with an invocation of God to witness the truth of what we say. Formerly all persons offered as witnesses, unless they were *in extremis,* were required to take an oath before giving testimony. Gradually, however, this rule has been relaxed, and the privilege of affirming without an oath has been extended to all persons who object to take an oath. The 5 & 6 Wm. IV. c. 62, abolishes unnecessary and extra-judicial oaths, and authorises any justice of the peace, notary public, or other officer authorised to administer an oath, to take voluntary declarations in the form specified by the Act; and provides that any person wilfully making such declaration false in any material particular shall be guilty of a misdemeanour. Witnesses are allowed to swear in that particular form which they consider binding on their conscience. By 32 & 33 Vict. c. 68, s. 4, if any person called to give evidence in any court shall object to take an oath, or shall be objected to as incompetent to take an oath, if the presiding judge is satisfied that an oath would have no binding effect on his conscience, he shall make a promise and declaration in the form given in that section; and false evidence given on such promise and declaration renders the witness liable to be convicted of perjury. The subject of oaths has undergone much legislative revision of late years. By the Promissory Oaths Act, 1868 (31 & 32 Vict. c. 72), a number of unnecessary oaths have been abolished and declarations substituted. This Act also provides a new form of the oath of allegiance, and forms of a judicial oath and an official oath to be taken by particular officers. The Promissory Oaths Act, 1871 (34 & 35 Vict. c. 48), repeals a number of Acts and parts of Acts requiring oaths to be taken. It proceeds on the recital that "divers Acts and parts of Acts relating to oaths and declarations have been virtually repealed by divers recent Acts, and in particular by an Act of the 29th & 30th years of the reign of her present Majesty, c. 22, intituled, An Act to render it unnecessary to take and subscribe certain declarations as a qualification for offices and employments, to indemnify such persons as had omitted to qualify themselves for office and employment, and for other purposes relating thereto;" and by the Promissory Oaths

Act, 1868, "it is expedient, with a view to the revision of the statute law, and particularly to the preparation of the revised edition of the Statutes now in progress, expressly to repeal the Acts and parts of the Acts so virtually repealed, and other parts of the same Acts which have ceased to be in force." The powers of committees of the two Houses of Parliament to administer oaths are regulated by 21 & 22 Vict. c. 78; 34 Vict. c. 3; and 34 & 35 Vict. c. 83. As to oaths in the Court of Referees, see 30 & 31 Vict. c. 136, s. 1. The administering of unlawful (*i.e.*, unauthorised) oaths is a punishable offence against the Government. The following Statutes relate to this offence: 37 Geo. III. c. 123; 39 Geo. III. c. 79; 52 Geo. III. c. 104; 57 Geo. III. c. 19; 1 Vict. c. 91; and 2 & 3 Vict. c. 12. (*See* AFFIDAVIT.)

Oatmeal, Adulterations of.—Various substances are employed in the adulteration of oatmeal, some of which are very injurious, such as plaster of Paris, whiting, and other ingredients equally pernicious. Barley is very often found mixed with oatmeal, and this, though wholesome and nourishing, is only about half the value, and does not contain the same amount of nourishment as oatmeal. Such impositions may, however, easily be detected by the microscope.

Oatmeal and Flour.—Though in many respects oatmeal and flour are very similar, the effect produced by them upon the system as food is very different. Oatmeal is richer in oily fatty matter than any other cultivated grain, and its proportion of proteine compounds exceeds that of the finest wheaten flour. Although so nutritious, however, it cannot be used as a substitute for flour, the peculiar quality of the gluten which the oat contains preventing the meal being made into fermented bread. In other forms it may be made into very pleasant food, such as biscuits, gruel, oatcake, and porridge, the last-named being a favourite dish with the Scotch. Oats are, too, a natural grain in England, and are cultivated with more ease and with less expense than wheat. Wheat, however, is better adapted for making good fermented bread, and for this reason is more in request. The time may come when it will be found that unfermented bread made from the flour of other grains is quite as good or better than the fermented bread of flour, but at present wheat is consumed more than any other grain.

Oats.—The oat is one of the edible grains that extend farther north than any other, with the exception probably of barley. Oats are used as food in Scotland, Siberia, and in Denmark, Sweden, and Norway. The common oat is called by botanists *Avena sativa*, and belongs to the great family of grasses, the *Graminaceæ*. The meal which is ground from the grains contains a very large proportion of flesh-producing substance (*see preceding paragraph*), and the seeds themselves form the ordinary corn given in this country to horses. According to Cooley, the yield of oats is "from 20 bushels per acre in poor soils, up to 60, 70, and even 80 bushels per acre in rich soils. The weight per bushel varies from 35 to 45 lbs., and the product in meal is about one-half the weight of the oats." There are several varieties of oats, such as the



OATS.

Chinese oat, the naked oat, the Tartarian oat, and the curiously-seeded oat called by gardeners the animal oat, as the grains when ripe fall on the ground and imitate the movements of long-legged insects. (*See also* GROATS, OR GRITS.)

Obelisk.—This word is derived from a Greek term meaning a "dagger;" but Dr. Johnson defines an obelisk as "a magnificent high piece of solid marble or other fine stone, having usually four faces, and lessening upwards by degrees till it ends in a point like a pyramid." The obelisk appears to have originated in Egypt in most ancient times, and from that country have been obtained all the principal specimens now in Europe. The Roman Emperors were the first who transported them to Rome and elsewhere; and, passing over intermediate ages, one has been removed to Paris and erected in that city, and another has been brought to London. The latter is one of two which stood at Alexandria, having previously been erected at Heliopolis. It was presented to the British nation early in the present century, but not until 1877 was it shipped for London, in a vessel built for the purpose, but being overtaken by a great storm, it was cast adrift, and soon after picked up at sea, and towed to Ferrol, on the Spanish coast. Early in 1878 it was successfully brought to London. The enterprise was due to the munificence of Professor Erasmus Wilson. Like most of the Egyptian obelisks, Cleopatra's Needle, as it is popularly styled, is of granite, hewn from the quarries at Syene, on the Nile. It is, as is usual with Egyptian obelisks, decorated with hieroglyphics; and its execution is ascribed to about fifteen centuries before the Christian era. Some others are said to be much older. Its height

is 68 feet 5½ inches; that at Paris is 76 feet 6 inches, and one at Rome is 105 feet 7 inches; two in the British Museum are only 8 feet 1 inch.

Obesity.—This term is derived from the Latin, and signifies a condition of excessive fatness. (*See* CORPULENCE.)

Object-glasses.—The glass placed next to the object in a microscope or telescope is called the object-glass—the field glass (*which see*) being next to it.

Oblations.—Offerings; generally such as are given from religious motives; but the word is sometimes used in a wider sense, as by Dryden when he speaks of "the kind oblation of a falling tear." Oblation also may denote the act of offering something, especially to God.

Obligations.—An obligation is, in law, a bond or deed, *i.e.*, an instrument, under seal, whereby any one covenants to do a certain act or thing, as to pay money at a particular time or place; the one who so obliges himself, or enters into such a bond or covenant, is the obligor, and the person to whom he so obliges or binds himself the obligee. The term has, however, a much more extensive use in jurisprudence as indicative of any liability incurred by one person with another. Obligations are of numerous varieties, and are of course governed by the laws of the particular country or place in which they are given or made.

Oboe.—A name sometimes given to the hautboy (*which see*).

Obsequies. (*See* FUNERAL ARRANGEMENTS; FUNERAL CUSTOMS; FUNERALS, EXPENSE OF.)

Obsidian.—A volcanic product, which may properly be described as a natural glass. It is caused by the fusion of rocks which have been rich in silicates of the alkalies, and occurs in some places in considerable masses. The Lipari Islands furnish quantities of it, which may be readily distinguished from all other rocks by its smooth vitreous appearance and conchoidal fracture. It is commonly of a dark colour, almost approaching black.

Obstructions.—This is the term used by medical men to describe a condition in which there is some impediment to the passage of a secretion or excretion along its usual course. The obstruction is for the most part mechanical at the part affected, though it may be the result of disease elsewhere. Thus, for example, we frequently find the gall-duct obstructed with gall-stones, preventing the passage of the bile. (*See* GALL-STONES.) Then we have calculi (gravel) lodging in the ureter, bladder, or urethra, and wholly or partially preventing the passage of the urine. Again, we may have obstructions in the bowels from some foreign body which has been swallowed, as, for example, a plum-stone, or from accumulations of hardened fæces (scybala). Obstructions may be caused by inflammation. We see this in enteritis, or inflammation of the lining membrane of the bowels, and also in inflammation of the nasal duct, obstructing the passage of the tears. Obstructions may also be the result of malformation, as, for example, in imperforate anus, where there is no natural outlet for the fæces, and where an artificial anus has to be made. Lastly, obstruction may occur from the pressure of tumours, from twisting or invagination of the gut; and even the circulation is not free from such a condition, as fibrinous clots often plug the arteries and veins, giving rise, when small and when confined to vessels of no great importance, to swelling, and it may be to inflammation, but when large, or where important vessels are implicated, as in the brain or pulmonary artery, proving dangerous to life. This is the condition known as embolism.

Occasional Chairs and Tables.—These are chairs and tables which do not belong to the regular suites of furniture. They are not only very useful, but may be procured of great elegance, and they help to break the stiff uniform appearance of a room. They can be placed to great advantage in recesses, in dining or drawing rooms, or in any position where they will contrast favourably with the heavier and more massive articles of furniture.

Occiput.—This is the name sometimes given to the occipital bone which forms the back part and base of the cranium, or skull. The bone is quadrilateral in shape, and has in it a large oval aperture called the *foramen magnum*, through which the spinal cord, the spinal accessory nerves, and the vertebral arteries pass. On each side of the foramen is a condyle, which forms an articulation or joint with the atlas, or first bone of the spinal column.

Occultation.—This term is specially applied to the hiding of a planet or fixed star from our view by the moon intervening between it and the observer. Though interesting only to those who possess astronomical telescopes, the phenomenon is really analogous to an eclipse of the sun.

Ochres.—These are varieties of fine clay containing iron. The common colours are yellow and red, the latter variety being coloured by the sesquioxide of iron, and the yellow by the hydrous sesquioxide. Green, blue, and black clays are also called ochres; and the name is sometimes written "oker."

Octagon Patterns.—Forms or designs having eight equal sides and as many angles. A word derived from the Greek for "eight" and for "corner."

Octave.—A small cask for wine, the eighth part of a pipe. (*See* WEIGHTS AND MEASURES.) *In ecclesiastical usage*, the eighth day after a Church festival, the feast day itself included; thus New Year's Day is the octave of Christmas. *In music*, an eighth, or an harmonical interval of five tones and two semitones, or twelve semitones.

Octavo.—A sheet of paper so folded as to make eight leaves or sixteen pages; a book consisting of pages so folded. (*See* BOOKS.)

Oculist.—A surgeon whose skill is chiefly employed in diseases of the eye.

Odd Men.—This expression is often used of servants who are only occasionally employed.

It is well to observe that casual servants engaged in domestic avocations are not liable to the tax which is levied upon regular male servants. The title of odd men is also applied to persons who, although giving their whole time to an employer, are not limited to one department, and make themselves useful as required, in the garden, the stable, or the cow-house, as the case may be.

Odds and Ends.—In domestic economy it is very desirable and profitable to utilise such odds and ends as would very likely be neglected as so much waste. Every department for which provision is made in a family necessarily produces fragments and remnants. A wise and thrifty housekeeper will devise means for turning these things to good account, either by giving them to the needy or by consuming them. In the cookery department, in the domain of dress, in such things as cinders, candles, soap, and elsewhere, there will be scope for ingenuity and the wish to avoid unnecessary waste. Special directions cannot of course be given here, but a mere reference to the subject must suffice, and will not be lost upon the prudent.

Odometer.—This term, derived from the Greek, signifies a "road-measurer," and is applied to an instrument which, attached to the wheel of a carriage, measures the distance travelled by indicating the number of its revolutions.

Odontalgia.—This term is derived from two Greek words signifying "tooth-pain" (toothache). (*See* TEETH.)

Œcumenical.—Universal, or what belongs to the whole world. In ecclesiastical history, where the word most frequently occurs, it is commonly connected with "council," and an Œcumenical Council is one which is considered to represent the whole Church, especially that of Rome. The first of these councils was held at Nice or Nicæa, in Bithynia, in the year 325 of our era.

Œdema.—This is a diffuse, inelastic, and somewhat obscure swelling, caused by effusion of serum into the loose areolar tissue beneath the skin or mucous membrane. It is recognised by the part pitting on pressure; that is to say, when pressed by the finger an indentation remains, which is characteristic of the condition. Œdema may result from debility or fatigue; hence we frequently find the feet and ankles swollen from one or both of these causes. It may arise from obstruction to the return of venous blood to the heart, as, for example, when cancer of the breast implicates the glands of the armpit, and these enlarging, prevent the blood returning from the arm, and thus cause the latter to swell, sometimes enormously. Œdema is also a prominent symptom in Bright's disease, in affections of the heart and liver, and in general dropsy.

Œsophagus. (*See* GULLET.)

Offence.—A crime; an act of wickedness. (*See* CRIME.) Offences are of two sorts, either capital or not capital—the former, such as high treason and murder, entailing the punishment of death on the offender; the latter, or non-capital offences, are of a less important nature, and are usually termed misdemeanours. In the year 1861, six Acts of Parliament were passed for the consolidation and amendment of the statute law of England and Ireland relating to certain criminal offences. By 24 & 25 Vict. c. 95, several previous Acts were repealed; c. 96 dealt with larceny and other kindred offences; c. 97 with malicious injuries to property; c. 98 with forgery; c. 99 with offences relating to the coin; and c. 100 with offences against the person.

Offerings, Easter. (*See* EASTER OFFERINGS.)

Offertory.—In olden times the bread and wine partaken at the Eucharistic service were offered or given by the faithful; other gifts as well were laid upon the altar on these occasions by those who offered them for the benefit of the clergy and the poor. In later times, money was substituted as an equivalent, and then the custom was established of holding plates or bags for the alms, which were afterwards taken to the altar. The passages of Scripture which are known as the offertory sentences are read by the officiating clergyman while the offertory is being collected. The word is from the Latin *offero*, I offer.

Officinal Preparations.—Such medicines or medical preparations and ingredients as are on sale at druggists' shops, and more especially such as are ordered in the Pharmacopœia.

Ogee.—In architecture, &c., a moulding consisting of two members—the one concave and the other convex, otherwise called cymatium. They are much used in picture-frames, carpentry, and Gothic architecture. The term is also applied to a pointed arch, the sides of which are each formed of two contrasted curves.

Oidium.—The true cause of what is known as vine mildew is the name of a vegetable parasite akin to the *Erysiphe* of botanists, if not really one of the species. It may be described as a minute fungus which attacks the leaves and fruit of the vine. The leaves look as if they were dusty, and if examined show dark rusty-looking spots, particularly near the edges, which curl, harden, and become brittle. When the pest reaches the leaf-stalks the leaves drop off and the tree soon dies. If the fruits are assailed before they are ripe, they have the same dusty look, dry up, and fall off; but if attacked when riper, the grapes burst, the seeds are exposed, and the fruit speedily decomposes and drops off. Sometimes the young shoots and the roots are affected, but in all cases the powdery appearance and the rusty spots are seen, and the vine is ruined. This disease was first observed at Margate in 1845, after which it spread over the country, visited France, Belgium, Madeira, Portugal, Spain, and other lands, causing fearful havoc. Its true character was detected by microscopic examination. Fine, silvery, jointed threads run over the places attacked, and throw out little stems bearing spores or seeds, which are rapidly disseminated and

become prolific. Many remedies have been tried, but the first which was found effectual is sulphur in the form of powder. In a hothouse the sulphur should be sprinkled upon the hot-water pipes, and a gentle heat maintained at night. This remedy should be applied as soon as the disease appears. In severe cases sulphur may be burnt, but very carefully, or it will kill the leaves. Even when placed on the pipes, too much sulphur will damage the leaves: it must in all cases, therefore, be used with skill and judgment. For vines out of doors this remedy is not always successful, and in vineyards it has been found too costly; but it is not certain that a better cure is known. By some the sulphur is dusted over the vines, washed or syringed off after two days, and then re-applied. Various other devices have been resorted to, but cannot here be described. The grape fungus is called *Oidium Tuckeri*, from the name of the person who brought the sulphur cure into notice.

Oil-cloth.—A strong substantial covering for floors is known by this name. It is made by painting canvas or other strong fabrics in various colours and designs. It is well adapted for covering the floors of halls, public rooms, and places of business where much traffic is carried on, and is found to be much more durable than carpet. Within the last few years it has, however, been greatly superseded by linoleum and kamptulicon (*both of which see*), substances which have been invented as an improvement upon oil-cloth. The former of these being made principally of linseed oil, and the latter of india-rubber and cork, are both warmer to the feet and softer to the tread than oil-cloth.

Oil Colours, To Prepare. — Some colours are sold in a prepared state, but when crude they should be ground on a slab of porphyry or marble with an instrument called a muller. The pigments are then mixed to a right consistency with oil and turpentine, and a small quantity of sugar of lead as a drying ingredient. The pigments themselves are composed as follows:—Vermilion, of sulphur and quicksilver; red ochre is produced by burning yellow ochre; lake from cochineal or Brazil wood and alumina; red-lead is lead calcined till it becomes a red oxide. Venetian red and Spanish brown are native earths. Prussian blue is prepared from prussic acid and iron; blue verditer from copper precipitated upon chalk; indigo is extracted from certain Indian plants; and smalt by grinding glass, coloured by cobalt, to a fine powder. Dutch pink is chalk coloured by French berries; king's yellow is made of arsenic and sulphur; and yellow ochre and Naples yellow are native earths. Verdigris is a carbonate of copper; Prussian green is a composition similar to the blue so named; and terre-verte is a native earth. Bistre is produced from peat smoke; burnt umber is a native earth; asphaltum a native bitumen; and Cologne earth a native pigment dug up. Orange lake is the tinging part of annatto or alumina. Lamp-black is obtained from the soot of oil burnt in lamps; blue-black from the charcoal of ivy-twigs and some other plants; and ivory-black from ivory or bone burned to charcoal. White-lead is a carbonate of lead, and flake-white a superior ceruse. The above are the crude pigments employed for oil-painting as applied to house decoration, and white-lead forms the basis of this description of oil colours. (*See* PAINTING, HOUSE.)

Oil Gilding. (*See* GILDING.)

Oil (in Cookery). — The oil that is employed in cookery is the well-known olive oil. It is one of the most easily-digested fats, and its use might well be extended in our country, notwithstanding our excellent supply of animal fats. On the Continent it is in continual request, more dishes being prepared with it than without it. With us, olive oil is principally used in mixing salads, and when thus employed tends to prevent fermentation, and is an antidote against flatulency. For frying purposes it requires greater care than lard or dripping, as it is apt to boil over. It is not a convenient article either for immediate use; owing to its raw condition, it requires to boil for a short time before it is fit for frying. When used with care, however, and in proper condition, olive oil is well adapted for cooking delicate dishes. The reason why many English people object to the use of olive oil is that they have not had the pure article. Really good olive oil is not over-abundant, and being the most costly of the ordinary fixed oils of commerce, is the one most subject to adulteration. The addition of any oil to olive oil makes it far less agreeable to the palate, and renders it much more likely to be injurious than when it is alone.

Oil, Lamp. (*See* LAMP OILS.)

Oil, Painting in. (*See* PAINTING.)

Oil Paintings. (*See* PICTURES.)

Oil, Rancid.—Nearly all fixed oils when exposed to the air absorb oxygen rapidly, and either gradually harden or become rancid and nauseous. They may, however, be restored by boiling them for about fifteen minutes with a little water and calcined magnesia, or by filtering them through freshly-burnt charcoal.

Oil Stains, To Remove. (*See* GREASE, TO REMOVE.)

Oil Varnish. — Varnishes are generally divided into two classes—fat or oil varnishes and spirit varnishes. The fixed or volatile oils, or mixtures of them, are used as solvents in the former, and concentrated alcohol in the latter. To ensure the excellence of oil varnishes, one of the most important points is the use of good drying oil. Linseed oil is generally employed for this purpose; it should be very pale, perfectly transparent, scarcely odorous, and mellow and sweet to the taste. To the boiling oil are added finely-pulverised scale litharge, red-lead, and powdered amber, all dried and free from moisture. These ingredients are boiled together until perfectly clear, when the heat is raised and the driers are sprinkled in. It has been imagined that the longer the boiling of the gum and oil is continued, within moderation, the freer the resulting varnish will work and cover. An excess of heat, however, renders the varnish

stringy, and injures its flowing qualities. For pale varnishes, as little heat as possible should be employed throughout the whole process. The use of too much drying oil is also found to injure the brilliancy and transparency of the varnish. Varnishes, like wines, improve with age, and should be kept as long as possible before use.

Oiled Papers.—Waterproof paper is made by brushing sheets of paper over with boiled oil, and then suspending them until dry. Paper of this kind is extensively used as a cheap substitute for bladder and gut-skin to tie over pots and jars, and to wrap up paste blacking, ground white-lead, &c.

Oiled Silks.—A very useful waterproof substance is made by saturating silk so thoroughly in oil that it becomes incorporated with the liquid, and by this means is made impenetrable to moisture. Oiled silk is very valuable in cases of sickness, or when it is necessary that moisture should be retained. A material is now made from gutta-percha that is likely to supersede oiled silk. It is much the same in appearance, answers the purpose quite as well, and may be obtained at half the price.

Oils.—The name of oil is given to numerous liquids extracted from animal or vegetable bodies, also to products of the distillation of bituminous minerals, and to several unctuous mixtures in perfumery and pharmacy. Oils vary very much in their nature, and are classified accordingly. Fixed oils are so called because they cannot be distilled without decomposition, and in this respect are quite different from essential or ethereal oils (*which see*). Fixed oils are chiefly found in the fruit and the seeds of plants, and, in their membranous cells, in the bodies of animals. Olive oil and spermaceti oil may be taken as types of the rest. Some of the fixed oils, as palm oil and cocoa-nut oil, are solid at ordinary temperatures, but the majority are fluid unless they have been considerably cooled, when they separate into two portions—the one solid, the other liquid. Nearly all of them when exposed to the air become rancid and nauseous. Volatile, ethereal, or essential oils are generally more limpid and less unctuous than the fixed oils. All of them when perfectly pure are colourless, though before rectification most of them have a pale yellow tint, and some of them are brown, blue, or green. They are derived from the vegetable kingdom, and found in almost every part of the plants which produce them. It is the presence of these oils that gives to flowers, fruit, leaves, &c., their peculiar and characteristic odours. To these plants we are indebted for our delicious perfumes. Some of them also possess valuable medicinal properties, and others are valuable on account of their peculiar chemical constitution. Volatile oils are chiefly used in medicine, and by perfumers and rectifiers. Some of the cheaper kinds are largely employed as vehicles for colours, and in the manufacture of varnishes. The number of essential oils is very great. Mineral oils are an important class of liquids, consisting solely of carbon and hydrogen, obtained by the distillation of coal, petroleum, lignite, and other bituminous substances. For illuminating purposes the mineral oils are superior to the fixed or fat oils. They give a whiter and more brilliant light, and are produced at a much lower cost. Animal and vegetable oils are included among fixed and ethereal oils.

Oils, Drying.—When nut and linseed oils are boiled with litharge, oxide of lead, or white vitriol, they acquire the property of solidifying, or drying quickly on exposure to the atmosphere; and without their admixture the pigments used by painters would remain soft. All the fixed oils have an attraction more or less powerful for oxygen, and they either become hard and resinous, or they only thicken a little and turn sour and rancid, on exposure to the air. Those that exhibit the first property in a marked degree—viz., the oils of linseed, poppy, rape, and walnut—are called "drying oils" (*Oleum desicativum* of commerce), and are used as vehicles for colours in painting; while the others are termed "glutinous," or non-drying. There are seven preparations of linseed oil with other ingredients used as drying oil. The difficulty of obtaining brightness in these oils after boiling or heating them with the lead solutions is such, that it is found necessary to filter them through coarse woollen filtering-paper, or to expose them to the sun for a time when bottled. On a large scale the finer oils of this kind are filtered through Canton flannel bags.

Oils, Perfumed.—The oils which for the most part form the basis of perfumed oils are those of almonds, ben, or olives, though others also are occasionally used. The methods adopted for their preparation vary with the nature of the substances whose fragrance it is intended to convey to the oil. Perfumers employ different methods for this purpose. The delicious scent of flowers is usually extracted by extreme pressure before being mixed with essential oil. Sometimes the scent is, in the first instance, drawn into the oil. This is done by placing freshly-cut flowers on cotton cloths, moistened with almond or olive oil, and stretched upon an iron frame. A pile of these are prepared, after which the oil is obtained from the cotton cloth by extreme pressure. The native perfumers of India prepare highly-scented oils by placing along with the layers of flowers layers of moistened teel or sesamum seeds. The swollen sesamum seeds, rendered fragrant by contact with the flowers, are then highly pressed, and a beautiful oil is obtained. Oils for the hair are among the perfumed oils, and these are numerous, including Macassar, musk, vanilla, and many other oils. In England a mixture of two or three perfumes is generally preferred to the pure fragrance of any single flower—a taste which is considered by our Continental neighbours to be very gross.

Ointment, Golden.—This is also called Singleton's ointment. Its composition is as follows:—Red oxide of mercury sixty-two grains, yellow wax a quarter of an ounce, oil of almonds three-quarters of an ounce. Golden ointment as usually sold is, however, made much weaker than the above by the addi-

tion of more wax or some pure lard; and it can then be safely applied, and with remarkably good effect, in ophthalmia and indolent ulcers.

Ointments.—These are medicinal applications largely used in the treatment of ulcers, chronic swellings, &c. They are composed for the most part of simple lard or wax, or a mixture of both, in which some active medicinal ingredient is incorporated. Ointments are used in many ways and for widely different purposes. Some are healing, as basilicon, citrine, spermaceti, and zinc ointments. Others have an opposite effect, and are used for the purposes of counter-irritation and blistering, as iodine, antimony, and cantharides ointments. Some, again, are of an astringent character, as gall and lead ointments; others, as sulphur and white precipitate ointments, are used for the purpose of destroying parasites and treating parasitic affections. For further information as to ointments and their application, *see* special headings, as BASILICON; OINTMENT, GOLDEN; &c.

Old Style. (*See* STYLE, NEW AND OLD.)

Oleander.—This is the *Nerium oleander* of the botanist, and belongs to the natural order *Apocynaceæ*. It was originally a native of the Indies, but is now to be found growing wild in damp places or by shady streams in the south



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of Europe. In this country it is more of a hothouse plant, but is very showy, the flowers being large and bright red. The bark is poisonous, and is used in some parts of the world for poisoning mice and rats. A decoction of the leaves is made in France by the peasants, and is used for the cure of certain kinds of skin diseases. Oleanders need a rich soil to thrive well in, and plenty of heat and moisture.

Olfactory Nerves.—These are the nerves which supply the mucous membrane of the nose, and to which we owe the sense of smell. They are usually described as the first pair of cranial nerves, and have two remarkable peculiarities which distinguish them from other nerves—viz., that the interior contains grey matter, and that they are soft and pulpy in structure.

Olibanum. (*See* FRANKINCENSE.)

Oligarchy.—A form of government in which the sovereign power is exercised by a small exclusive class (Greek, *oligarchia*, government by a few).

Olio.—This is the name by which a rich famous Spanish dish, composed of different kinds of meat, is known. The term is also applied to a miscellaneous collection of good things of almost any kind. A good vegetable olio may be made as follows:—Boil three heads of small close cabbage with carrots, turnips, potatoes, and small onions; drain the water from them, and cut them into pieces. Mix these, and add two handfuls of spinach-leaves, two ounces of butter, and three spoonfuls of cream, with a little salt and pepper. Keep them stewing, closely covered, two hours, and then stir in a piece of butter rolled in flour, over a clear fire. Cucumbers, peas, spinach, celery, and young onions may be dressed in the same way.

Olive Oil. (*See* OIL—IN COOKERY.)

Olives.—The olive-tree (the *Olea Europæa* of Linnæus) is a native of the south of Europe. It has evergreen, smooth, scaly leaves, with a small flower growing at the end of the twigs. The fruit is valuable both in its ripe and unripe



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state. Unripe olives are pickled in various ways, being usually first soaked in lime-water, by which means they are rendered softer and milder in taste. They are well known as a restorative of the palate, and are also good for promoting digestion. From the pericarp, or the external part of the ripe fruit, the oil is obtained, which is one of the purest and most

useful oils we have. In France the olives are gathered in November and December, while in Italy they remain on the tree all the winter, and are gathered in February and March. Although the French are very proud of their olive-trees, the chief supply for England comes from Italy and Spain. In poetry, the olive betokens fruitfulness, and the tree has in all ages been held in great estimation. Some authors have given it the name of a mine on earth.

Olivine. (*See* CHRYSOLITE.)

Olympiad. — In chronology, a Grecian epoch of four years, being the period intervening between successive celebrations of the Olympic games. The first year of the first Olympiad began 776½ years before the Christian era. (*See* ERAS.)

Ombre. — A game at cards, originally borrowed from the Spanish, and a celebrated Court game a hundred and fifty years ago. It may be played by two, three, or five persons, but three is the more general number.

Omelette-pan.—A small sauté-pan with sloping sides, which is intended exclusively for omelettes and delicate preparations of batter, is named an omelette-pan. Omelettes are so delicate that it is of no use to try to make them in a pan that has been used for all sorts of purposes. The pan must be scrupulously clean, otherwise it is sure to impart an unpleasant flavour to the preparation. It should be cleaned each time it is used, dried thoroughly, and hung in a dry place, as dampness is most injurious.

Omelettes are of French origin, and are more popular in France, Germany, and Spain than they are with us. Five hundred years ago the name was written alumette, and this was gradually changed, first into aumelette, and then into omelette. Omelettes are composed chiefly of eggs. They are simple and inexpensive, and furnish a nourishing and savoury dish, yet they are never found in the homes of the poor in England, and are not unfrequently badly prepared even in the houses of the rich. M. Soyer says:—"Where is the man or woman cook but says they know how to make an omelette, and that to perfection? but this is rarely the case. It is related of Sarah, Duchess of Marlborough, that no one could cook a 'fraise,' as it was then called, for the great duke but herself. The great point is, if in an iron pan, it should be very clean and free from damp, which sometimes comes out of the iron when placed on the fire. The best plan is to put it on the fire with a little fat, and let it get quite hot, or until the fat burns; remove it, and wipe it clean with a dry cloth, and then you will be able to make the omelette to perfection." Omelettes are flavoured with various ingredients, such as chopped savoury herbs, minced ham or bacon, salt fish, shell-fish, and game; or they are sweetened and served with stewed or preserved fruits. (For the method of preparing them, see "Cassell's Dictionary of Cookery.")

Omens.—Popular credulity has given this name to many circumstances which have been regarded as signs or tokens of some good or bad event to come. Under this head may be classed the superstitious beliefs concerning dreams, going to sea on a Friday, spilling the salt, laying knives across, meeting hares and other animals or persons at particular times, and a great number of other matters. It is needless to say that such beliefs are irrational, and are based on ignorant credulity. They can be eradicated only by the inculcation of sound principles and the spread of correct information. Many nations, such as the Chinese, are influenced in all the important affairs of life by these notions, and even among ourselves they retain their hold and power to a deplorable extent. Among the ancient Romans, &c., the study of omens was conducted on regular fixed principles, like any real science, and such is the case in China at present.

Omnibus.—The first idea of an omnibus (a Latin word meaning "for all") has been traced to Pascal, and it is said such vehicles were started for public use in 1662, although they were discontinued soon after. They were revived in Paris in April, 1828, and introduced into London by Shillibeer, who first started an omnibus to run from Charing Cross to Greenwich, and afterwards, in July, 1829, one to run from the Bank of England to Islington. The opposition he encountered nearly ruined him. At first three horses were used, afterwards two. The London General Omnibus Company was established in January, 1856.

Omnivorous.—That which devours anything and everything; all-devouring. The word is used of certain animals which feed indiscriminately upon all sorts of food.

Onions.—The onion (*Allium cepa*) is one of the most useful of vegetables, and is largely grown in various parts of the world. Its native country is not known, some supposing it to be India, and some Egypt, in both of which places it has been grown from very early times. With the ancient Egyptians it was an object of worship. It is to be found in England in every place where vegetables are grown, and is extensively used amongst us, either raw or pickled, as a condiment. It will be acknowledged that of all the flavouring substances used in cookery, the onion is the most valuable, next to salt. The rich soil of Warwickshire is particularly suited to the growth of the onion, and it is extensively cultivated for miles round Birmingham. The Michaelmas fair of the great midland metropolis is known by the name of the "Onion Fair," because of the masses of onions that are to be seen on every side. Among the Spaniards, Portuguese, Arabs, and North Africans, the onion is used as food, and is eaten raw like an apple; and with working people is often eaten with bread, as cheese is with us. The onion contains an acrid volatile oil, which imparts to it a strong unpleasant smell, and this is retained in the breath for a long time after the vegetable has been swallowed. It is said that this smell can be overcome by eating a little parsley after the onion. It is to a certain extent dissipated by boiling, and boiled onions are much milder than raw onions. The onion possesses strong irritant and excitant properties,

and is diuretic, expectorant, and stimulant. It is believed to promote sleep, and is usually looked upon as exceedingly nutritious. But opinions differ on this point. According to Dr. Cullen, "Onions are acrid and stimulating, and possess little nutrient power. In bilious constitutions they generally produce flatulence, thirst, headache, and febrile symptoms; but where the temperament is phlegmatic they are of infinite service, by stimulating the system and promoting the excretions, particularly expectoration and urine." There is no root which is so much affected in character and flavour by the circumstances under which it is grown. The onions grown in Spain and other warm countries are milder and sweeter in flavour than those grown in cold countries. Onions require a tolerably rich and well-pulverised soil, and in this they will thrive for several years in succession without much help from manure. They will not flourish, however, amongst clods, and a newly-broken pasture does not suit them. If the soil is poor, a good deal of manure will be necessary, horse or cow manure being the best for the purpose, though some gardeners prefer artificial manures. Carbonaceous manures are exceedingly good for onions, and salt, soot, and the lime and plaster rubbish that is left after building may be used for the purpose. Any of these substances may be dug into the ground as it is prepared, during showery weather, and some of them, especially the soot, should be spread over the surface sufficiently thick to make the ground black after the seed is sown. The situation should be warm, open, and sunny, and free from the shade of trees. The seed should be sown thinly in drills eight inches apart, in order that the hoe may be used between them. The times for sowing are from February to May, and from the end of July to the beginning of October. The seed should be covered with two inches depth of earth. As soon as the plant is well above ground, the hoe should be used between the rows, and the ground should be well weeded. As soon as possible, thinning out should be proceeded with. If this work is done judiciously, supplies of young, tender, salad onions may be obtained for a considerable period. In the end the onions should be left from four to five inches apart in the rows. Onions ripen better when they jostle each other, and grown in this way fine symmetrical bulbs will be produced. When the onions are green and growing, they should be watered frequently and plentifully with sewage, but this should cease as soon as ever they show a sign of ripening. When the time for ripening approaches, the handle of the hoe should be passed carefully over the plants to bend the stems to the beds. This will make the bulbs swell and promote ripening. As fast as the roots ripen they should be pulled up and spread on the ground in the sun to dry, being taken under cover at night and during wet weather. It would not do to leave those which ripen first until the others are ready, as they would soon begin to grow and make fresh roots, and so would be entirely spoilt. It may be known that the bulb is fit to gather when the foliage withers, the neck becomes dry and shrunken, and the onion leaves the ground easily. When the bulb is firm and dry, and the leaves have withered completely, the onion is ready for storing. A dry day should be chosen for putting onions away, and they should be kept in a dry but not over-warm place, and be examined frequently. They may be put into nets or baskets for a while, and on a convenient opportunity they may be roped and hung to the rafters till wanted, or they may be tied in bunches and hung in a shed. The varieties of onions are very numerous. The Banbury Prize, Bedfordshire Champion, James' Long Keeping, Old Globe, White and Red Tripoli, and White Spanish and Reading, are good kinds in their season. The Giant Rocca is a variety introduced within late years. It grows to a good size, and is mild in flavour, beautiful in appearance, and most excellent for cooking purposes, but unfortunately it does not keep well. The early silver-skinned onion is the kind best suited for pickling, and considerable quantities are grown in the neighbourhood of Sandy, in Bedfordshire, for the purpose. During the winter, quantities of large and mild onions are imported into this country from Spain and Portugal. Burnt onions are used for colouring soups.

Onomatopœia.—Literally, the making of names, but in actual practice the term is applied to words which imitate sounds. Hence cuckoo, caw, quack, pee-wit, whizz, whirr, buzz, bow-wow, and many such, are onomatopœetic, or onomatopœias. Rhetoricians give the name to phrases and sentences in which the sound is associated with the sense. The extent to which onomatopœia occurs in language is so great that it has been asked whether most words are not radically imitative, and the affirmative has been seriously maintained and ingeniously defended. On the other hand, it has been successfully combated by Max Müller and others of his school.

Onus Probandi. (*See* BURDEN OF PROOF.)

Onychia.—This is the medical term for inflammation or ulceration of the skin at the root of the nails. The disease sometimes assumes a very severe form, when it is called *onychia maligna*. (*See* NAILS, AILMENTS OF.)

Onyx.—A kind of chalcedonic quartz, generally black or brownish with a white stripe, but sometimes with a greenish layer. It is found in Arabia, India, Saxony, Scotland, Ireland, &c. The best are Indian, and come in a circular or an oval form, with the stripes running round them. They are very much used as beads and for mounting jewellery, but are not of great value. In Germany the work of cutting, polishing, &c., is carried on to a large extent; and so is the dyeing of these stones, for it has been found that they readily absorb certain colours. The nicolo, or onicolo, is a variety of onyx with a brown ground, on which is a layer of bluish-white. The sardonyx, a closely-allied stone, consists of alternate layers of chalcedony and carnelian. (*See* SARDONYX.) The name onyx has been applied to some striped varieties of alabaster, hence Mexican onyx (*which see*). The onyx marble which comes from Algeria is a stalagmitic formation, and is used for making many beautiful ornamental articles.

Oolite.—The general name of an important series of secondary rocks, so named because some of the limestones are made up of little egg-like concretions resembling the roe of a fish. The oolitic series, as exhibited in England, include several important beds of limestones, separated by clays and shales, stretching from the North Riding of Yorkshire through the midland counties down to Dorsetshire. The uppermost rock that supplies good material for building is what is known as Portland stone, because it is quarried in the island of that name. The principal beds of the lower oolite are known as Bath stone (*which see*). The lias is included by geologists in the oolitic group, and this furnishes argillaceous beds, which are valuable for making cement; and in the north of England it contains the very extensive iron-stone deposits of Cleveland and the alum shales of Whitby. The total thickness of the oolitic series in England is about 3,500 feet. To palæontologists the whole of this group is of much interest, on account of the abundance and beautiful preservation of its fossil remains.

Oonoscope.—A contrivance for inspecting uncooked eggs and determining their condition. It is an American invention, and consists of a box, the top of which is perforated with holes, in which eggs can stand with the small ends downwards. Two eye-pieces, like those of a stereoscope, enable the observer to look into the box at the side; but the rest of the box is closed, so that when held to the eyes the only light that comes in is through the eggs. A small mirror stands at an angle opposite the eye-holes, and in it the eggs are reflected, so that any defects they may have can be ascertained. A little practice and a quick eye are all that is necessary to render any one a successful operator.

Opal.—This is one of the most beautiful of precious stones, and yet is, in reality, nothing but quartz with an addition of from 5 to 10 or even 13 per cent. of water. Its varieties include the "noble" or precious opal, the "fire" or reddish opal, the common opal, the semi-opal, the hydrophane, or Mexican opal, the cacholong, opal jasper, wood opal, &c. These differ in many respects, and are of very unequal value and beauty. The precious opal is highly prized for its exquisite play of colours, a peculiarity which is scarcely perceptible in some sorts. Opals are easily broken; they are cut and polished for jewellery, and in that state have at various times been much in demand. The hydrophane loses its beauty when exposed to water; and a reference to that fact in Sir Walter Scott's "Anne of Geierstein" seems to have caused the belief to spread that opals were unlucky, and they went speedily out of fashion. At present this superstition is less prevalent, and opals of large size and great beauty are priced very high. Inferior specimens are of not much value. Opals for jewellery are cut with a rounded top, and usually are oval in form.

Opalescence. — The peculiar play of colours observable in the opal when polished. It might be called iridescence, a term which is in the same manner applied to the flashing of rays of light of various hues, whether in the opal or in other substances. Several stones are more or less opalescent, though not in any other respect like opals.

Openwork.—A term generally descriptive of such fancy work as is not executed upon a ground, and in which there are interstices between the details of the pattern. Many kinds of knitting, lace, crochet, tatting, netting, &c., are openwork.

Opera.—A musical drama for the stage. The earliest opera of which anything is known is *Dafne*, by Peri, produced at Florence in 1594. This was succeeded by the opera *Euridice*, the joint work of Peri and Caccini, which formed one of the festal displays at Florence on the occasion of the marriage of Mary de Medicis with Henry IV. of France, 1600. These early operas consisted for the most part of choruses, connected together with recitatives, all of a very crude description. Monteverde, however, effected considerable improvements in the recitative; while his successors, Scarlatti, Stradella, and others, gradually developed what is known as the "aria." Opera in England seems to have been introduced about 1673, when Lock produced his *Psyche*. Italian opera was brought into this country about the year 1700, and ever since has maintained its hold upon the popular taste. In fact, opera composers of all countries have more or less conformed their styles to the old Italian models. Almost the only exceptions to the general rule have been Gluck, Beethoven, Weber, and, lastly, Wagner, whose later operas have formed the subject of a protracted controversy amongst musicians.

Opera-cloak.—The cloak known by this distinctive name is one adapted for evening wear. It is round in form, resembling a cardinal cape, and has a hood at the back either round or long in shape. It is usually made of cashmere, or of some soft material, which is either plain in colour or embroidered; these cloaks are lined with white fur or with wadded silk. Prettiness of appearance, warmth, and lightness of weight are the three desirabilities connected with an opera-cloak.

Opera-glasses. — By the help of these, objects at a distance are apparently brought nearer, and therefore can be more clearly distinguished, and as these glasses have no great magnifying power, the pictures seen through them are more correct and true in delineation than if greatly enlarged. They are constructed on the same principle as the telescopes introduced in the seventeenth century by Galileo. They possess two lenses—an object-lens, which is convex, and an eye-lens, which is concave. A screw regulates the power of these glasses, by which persons having long or short sight can arrange them to suit their peculiarity; when the instrument is extended the size of the objects is enlarged, at the same time the scope of the picture is smaller. The great advantage possessed by opera-glasses is that they permit the use of both eyes, and they can be held by one hand. The majority are made in Paris, and their price varies from six guineas to as many

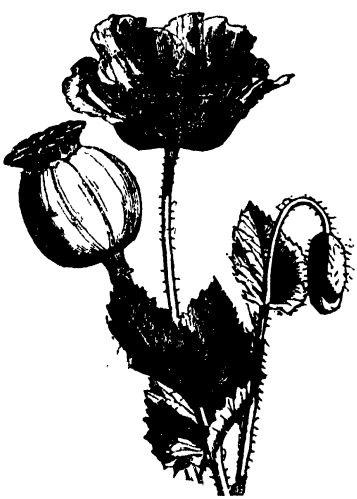
shillings, the cost depending partly upon the quality of the lenses, and partly upon the cases in which these are fixed. Ivory, mother-of-pearl, tortoiseshell, and leather are employed for this purpose. The first-named looks the handsomest, but renders the glasses very heavy. The best class of these glasses are called field-glasses: they are much used by tourists and on race-courses. They are carried in leather cases, which are slung over the shoulder by a strap.

Ophthalmia.—This is a disease of the eyes, occurring for the most part amongst scrofulous children. It frequently assumes an epidemic character in schools, and newly-born infants are especially liable to be attacked by the disease. (*See* EYE, AILMENTS OF THE.)

Ophthalmoscope.—This is an instrument employed in examining the interior chamber of the eye. It consists of a highly-polished concave mirror, which is perforated by a little hole, through which the observer looks whilst making his examination. A lamp is so placed at the side of the patient's head, and a little behind, as to throw a powerful light upon the mirror, which is reflected upon the eyeball, clearly illuminating it. A small magnifying glass is also held between the eye and the mirror, and thus a very complete view is obtained of the interior chamber. During the examination the room should be darkened. No pain or inconvenience is experienced.

Opiates.—These are the various preparations of opium (*see next paragraph*). The term is also used to designate any draught, lotion, ointment, or liniment in which opium, or any preparation of it, is used.

Opium.—This is the inspissated juice of the unripe capsules of the white poppy



OPIUM POPPY.

(*Papaver somniferum*), growing in Asia Minor, and belonging to the natural order *Papaveraceæ*. The value of opium as a medicine has been recognised from the very earliest times, and it has even been asserted that it was the nepenthes of which Homer speaks. There are many varieties of the drug, but the Smyrna and Constantinople opiums are considered the best, and are alone officinal. The Smyrna or, as it is generally called, Turkey opium appears as rounded or flattened masses of varying size and enveloped in poppy-leaves. These masses are soft when freshly imported, but become hard and darker in colour if kept any time. Turkey opium has a disagreeable smell and bitter taste; it yields about 8 per cent. of morphia, and is therefore commercially superior to Constantinople or Egyptian opiums, which do not as a rule yield more than 4 or 5 per cent. of this alkaloid. Opium is frequently subjected to various forms of adulteration, dilution, and abstraction. Hence it is not uncommon to find in a mass of opium a considerable quantity of gravel or small stones or flour of starch; the latter can be detected by testing with iodine, which forms a blue iodide of starch if starch is present. Water also is frequently used in excess, making the drug uncertain as to strength; and, worse than all, opium has been sold from which the morphia has been extracted, thereby rendering the drug almost valueless. Opium is composed of:—1. *Morphia.* This is an alkaloid of a bitter taste, occurring in transparent crystals. It is soluble in oil, but very slightly so in cold water or ether; moistened with strong nitric acid, it becomes red; heated with a solution of perchloride of iron, it turns blue. 2. *Codeia.* This is a white crystalline solid, which is distinguished from morphia by being more soluble in water and ether, and less so in solutions of potash or soda. It does not redden on the addition of nitric acid as morphia does, but may become an orange-yellow. Codeia is the Greek term for a poppy-head. 3. *Narcotine.* This is a white inodorous substance, which crystallises in striated prisms, and is distinguished from morphia and codeia by its not affecting vegetable colours. 4. *Thebaia* (paramorphia). This is a white crystalline solid of a bitter taste. It is said that one grain of this principle injected into a vein will produce death in a few minutes from tetanus. 5. *Narceim.* This is an inert principle. 6. *Meconin.* This is a white crystalline solid, soluble in boiling water and alcohol, and distinguished from morphia and codeia by not possessing alkaline properties. 7. *Meconic acid.* This is believed to be an inert principle. 8. *Extractive.* This is a brown acid body, which is supposed to be one of the active principles of opium. 9. *Volatile oil.* This is probably an inert principle, but its exact nature is as yet unknown. Opium, when given in small doses, acts in the first place as a stimulant, causing a pleasant nervous excitement and mental exaltation. This is followed, if the dose has been sufficiently large, by drowsiness and sleep, the person usually awaking with a headache, foul tongue, and some disturbance of the secretions. If a poisonous dose has been taken, there is usually no preliminary period of excitement, the person passing at once into a state of stupor

In this condition the breathing is slow, there is complete insensibility to surrounding impressions, and the pupil of the eye is contracted. If not aroused from this condition, the pulse begins to fail, the muscles become relaxed, the countenance assumes a ghastly look, and death soon ends the scene. In cases of poisoning by opium the stomach-pump should be used, or an emetic given, either of sulphate of zinc or copper (from twenty to forty grains), in warm water; or, failing these, a table-spoonful of mustard or salt in some warm water may be substituted. Having evacuated the stomach, the next thing is to obviate, if possible, the effects of the drug in so far as it has been absorbed into the system. No known medicine can do this, but a great deal may be done by active and persevering efforts to keep the patient from yielding to sleep. The patient must be walked up and down the room for several hours, supported by relays of nurses. Hot coffee should be given frequently; cold affusions may be employed with advantage to the head and chest; counter-irritation, as mustard, &c., will be of service applied to the calves of the legs; and, as a last resource, galvanism. As a medicine there is perhaps no drug so useful or so largely employed as opium and its preparations. In inflammations, fevers, chest complaints, urinary diseases, hæmorrhages, and in most painful affections, the drug is invaluable, whether taken internally, injected subcutaneously, or applied externally as ointment, liniment, or lotion. At the same time it must never be forgotten that opium is not a panacea, that its administration is always followed by more or less functional disturbance, and that there are certain conditions when it will be positively hurtful. For example, opium would not be advisable in inflammation of the brain, or in apoplexy; neither would it be advisable to give opium in derangement of the digestive organs, as indicated by loss of appetite, biliousness, or constipation. In morbid conditions of the circulation, with a tendency to stupor or insensibility, opium should not be given; neither should it be given in affections of the respiratory system where there is a tendency to blueness of the skin, and where expectoration is very difficult. Lastly, opium is not advisable in the case of lying-in women or nurses, as the milk may be affected and the life of the child endangered. The preparations of opium are:—1. *Syrup of poppies.* This is prepared from dried poppy heads, rectified spirit, refined sugar, and boiling distilled water. The dose for an infant is about ten drops; for an adult from one to two tea-spoonfuls; but as the strength is somewhat uncertain, it must always be given with caution. 2. *Decoction of poppies* (poppy fomentation). This is prepared by boiling two ounces of poppy capsules in a pint and a half of water for ten minutes, then straining, and making up the strained product to a pint with more water. This is a useful application in painful bruises, in affections of the eye, &c. 3. *Confection of opium.* This is prepared from compound powder of opium and syrup. It is a useful remedy in diarrhœa. Dose for an adult from five to twenty grains. 4. *Extract of opium.* This is obtained by macerating sliced opium in water, and straining. This is one of the best forms of administering opium. The dose for an adult is from half a grain to a grain. 5. *Liquid extract of opium.* This represents Battley's sedative solution of opium. It is prepared from the preceding by adding water and rectified spirit. The dose for an adult is from ten to thirty drops. 6. *Tincture of opium* (laudanum). This is prepared by macerating coarsely-powdered opium in proof spirit for seven days, and then straining and filtering. Laudanum is too well known to require any description. The dose for an adult is from ten to thirty drops. Fourteen drops are calculated to contain about a grain of opium. 7. *Opium lozenges.* These are prepared from extract of opium, tolu, sugar, acacia, liquorice, and distilled water. The dose is from one to six lozenges; each lozenge contains one-tenth of a grain of opium. 8. *Opium wine.* This is prepared from extract of opium, cinnamon, cloves, and sherry wine. The dose is from ten to thirty drops, but it is more frequently employed externally as a lotion in irritability, with tearfulness, of the eyes. 9. *Hydrochlorate of morphia.* This is obtained by an elaborate process from sliced opium, chloride of lime, charcoal, dilute hydrochloric acid, solution of ammonia, and distilled water. It appears as white silky prisms, which are soluble in water and spirit. The dose for an adult is from one-eighth to one-fourth of a grain. 10. *Solution of hydrochlorate of morphia.* This is obtained by mixing hydrochlorate of morphia with dilute hydrochloric acid, rectified spirit, and distilled water. The dose is from ten to forty drops. There is one grain of morphia in every two drachms of this solution. 11. *Acetate of morphia.* This is obtained from the hydrochlorate by dissolving it in solution of ammonia, acetic acid, and distilled water. The dose is the same as the hydrochlorate. 12. *Solution of acetate of morphia.* This is prepared from the acetate by mixing it with dilute acetic acid, rectified spirit, and distilled water. The dose and strength are the same as the solution of the hydrochlorate. 13. *Morphia lozenges.* These are prepared from hydrochlorate of morphia, tolu, sugar, acacia, mucilage, and water. The dose is from one to four lozenges; each lozenge contains one-sixth part of a grain of morphia. 14. *Morphia and ipecacuanha lozenges.* These are prepared much as the preceding, with ipecacuanha added. The dose and strength are the same. It may be as well to state here that the morphia preparations of opium are preferred, first, when it is desirable to administer them hypodermically by subcutaneous injection; and, secondly, when any of the diseases or disorders which have been previously referred to as rendering the use of opium inadmissable or unadvisable exist.

Opium Plaster.—This is prepared from opium, very finely powdered, and resin plaster. The proportion of opium is about one part in ten.

Opodeldoc.—This is the name popularly given to the soap liniment of the Pharmacopœia. It is composed of hard soap two ounces and a half, camphor one ounce and a quarter, oil of

rosemary three fluid drachms, rectified spirit eighteen ounces, distilled water two ounces. (*See* EMBROCATIONS.)

Opopanax (a name derived from two Greek words respectively signifying "all" and "to heal," or all-healing) is an inspissated vegetable juice of a firm texture, brought from Turkey and the East Indies in loose granules and sometimes in larger masses, obtained from the root of an umbelliferous plant—the *Pastinaca opopanax*, or *Opopanax chironium*. It is of a reddish-yellow colour, with specks of white, has an acrid taste and strong odour, and was used formerly in medicine as an emmenagogue. The name opopanax has been given to a scent which was introduced a few years since.

Optic Nerves.—These are the special nerves of the sense of sight, and are usually described as the second pair of cranial nerves. After emerging from the brain, each penetrates its respective orbit, pierces the sclerotic and choroid coats of the eyeball behind, and expands into the retina.

Optical Delusions, or Illusions, are deceptive appearances, in which the eye fails to convey the reality to the mind. Persons riding may seem to be still, while the adjacent objects look as if they were moving, or there may be not only a perception that they are riding, but the appearance of motion at the same time in the trees, &c. Under certain circumstances the actual distance of objects is apparently less or greater than the reality. A straight pole placed in water looks bent, articles placed at the bottom of clear water seem nearer the surface than they are, and water itself seems shallower than it is. The mirage and similar phenomena are optical illusions; disordered conditions of the eye also cause erroneous impressions. The subject is a wide one, but is curious and not unimportant. Happily in ordinary cases we have the means of correcting sufficiently, for all practical purposes, the most common of these illusions. In some instances, as in regard to sunrise and sunset, illusion is inevitable, but science rectifies the errors of the eye. Sometimes what is known as colour-blindness, and other cases in which the eye is functionally deranged, optical delusions are one of the results. Sometimes, also, artificial means are resorted to for the purpose of deceiving the eyes, either for amusement or with a fraudulent intention. It is a sound scientific maxim not to judge from outward appearance alone; and if this maxim were properly explained and applied, it would be found that not a few superstitions and impostures would speedily take their flight.

Optician's Cement.—Common brickdust and resin melted together; the oftener it is remelted, the better. This is a mixture which is also used to secure stones, &c., while they are being cut or polished, and to fix tools in their handles. A little wax adds toughness to the mixture.

Optics embraces the study of the laws and properties of light, and also those of vision. The latter is often distinguished as physiological optics; and is described under the heading EYE. The theory of light is one which has afforded scientific men much scope for discussion; and what is generally known as the wave theory is the only one which seems to account for many optical phenomena. According to this view, light is due to the vibrations of an elastic medium which must be supposed to pervade all space. The practical application of optics is mainly dependent upon the absorption, reflection, and refraction of light. When light falls upon any body, whether rough or smooth, coloured or uncoloured, a part of the incident light enters the body and is absorbed by it, or is partly absorbed and partly transmitted through it, and the remainder is reflected. The absorption of light by rough surfaces and dark colours, and its reflection from smooth surfaces and by light colours, readily suggest how light may best be toned down or economised as circumstances may require. The fact that transparent mediums (such as glass) cause a divergence in the line of the ray as it passes through them, whenever it does not fall perpendicularly upon their surface, has led to the application of convex and concave lenses in telescopes and other optical instruments. To refraction is due the prismatic effect of the rainbow and of the lustres of cut-glass. The application of optics to chemistry and other sciences, and in many other ways, has been greatly extended of late years.

Oracles.—Strictly explained, this word means utterances or words, and in the English Bible has that meaning. More particularly, oracles were the responses supposed to be given supernaturally to those who consulted the gods. Several places at which such responses were thought to be specially obtainable were called oracles. The messages were sought in different ways, and in accordance with established rites; they were verbal, or they consisted in signs which were interpreted by those whose office or interest it was to explain them. Of the many ancient oracles, those of Dodona and Delphes were perhaps the most famous as places, but among written ones the Sibylline had an extraordinary reputation. Omens were constantly regarded as oracular. (*See* OMENS.) All oracles appear to have their basis in the desire to know the future, and in the belief that a revelation is not only possible, but can be understood. In the vernacular, any one who speaks with indisputable authority and wisdom is called an oracle: hence the phrase, "I am Sir Oracle" (*Merchant of Venice*, act i., sc. i.), for a dogmatiser.

Orange (Colour and Dye).—The principal colouring matters for dyeing yellow are weld, fustic, quercitron bark, and annatto. The yellow colouring matters have too little an affinity for cloth to produce permanent colours without the use of mordants, and alum or acetate of alumina is generally employed as such; but when very fine yellows are required, the oxide of tin is used. The dye produced from fustic is more permanent, though not as beautiful as that from weld or quercitron. Nearly the same colour is produced by weld and quercitron bark. The latter is the cheaper.

Orange Flowers.—The flowers of the orange-tree cannot easily be got in this country. In France, however, it is different, and the large white deliciously-perfumed flowers of the *Citrus Bigaradia* are used to distil orange-flower water from. This is sometimes used as a tonic, and also for a cosmetic, as well as for flavouring creams, ices, &c. Its principal use in the Pharmacopœia, however, is as a vehicle for other remedies, and to make the syrup of orange flowers, which is the most agreeable of all our medicinal syrups.

Orange Pekoe, or Pekoe Tea. (*See* TEA.)

Orangeade.—A very pleasant beverage is made from the juice of oranges, and is known by the name of orangeade. Sugar and lemon-juice are mixed with the orange-juice, and very often brandy is added.

Orangery.—This name is given to a kind of gallery in a garden for the preservation of orange-trees during the winter season. It is distinguished from a conservatory by its having an opaque roof, while that of the latter is glazed. The finest orangery in Europe is that of Versailles.

Oranges.—The fruit of the orange-tree (*Citrus Aurantium*) is of great commercial importance. Not only is it one of the most delicious of fruits, but is also most easily kept and carried from one country to another. The oranges consumed in England come from Spain, Portugal, Malta, and the Azores. Those from St. Michael, one of the Azores, and from Malta



ORANGE.

are among the best varieties. There are many different kinds of oranges; among them the Portugal or Lisbon orange, the China orange, having a thin rind and very abundant juice, the blood orange, remarkable for its blood-red colour, the Tangerine, the egg orange, the mandarin, the bergamot, and the bitter or Seville orange. The last-named (*Citrus Bigaradia*) is so called in consequence of large plantations planted by the Moors round the city of Seville. It has several varieties, all remarkable for the bitterness of the rind. It is principally used in making orange marmalade. Although with care oranges may be reared in England, their abundant importation into Britain renders the cultivation of the orange unnecessary. To the Greeks and Romans they do not seem to have been known, and were probably brought to Europe by the Moors. When gathered for export, oranges must not be quite ripe; those with the colour just turning from green to yellow are the most suitable for the purpose. We receive the first crop early in November, after which time ships continue to bring them until spring.

Oranges, Maltese. (*See* MALTESE ORANGES.)

Oranges, Preparations of.—Oranges, combined with sugar, wines, and spirits, assist in the formation of many liqueurs, conserves, and other preparations. Not only in its ripe state is the orange used in confectionery, but also when green and not larger than a pea. Orange flavour is often used to aromatise various dishes. Essence of orange is usually made from the rind of the fruit, which is digested in spirits and in wine. The rind of orange is very good candied in the same way as lemon-rind. After the pulp is removed, the rind is first infused in strong salt and water, and afterwards boiled in syrup. Wine of very excellent quality is made from oranges, also punch syrup, and other liquors, all of which are useful as beverages and as ingredients in cookery. From distilled orange flowers a fragrant oil is extracted called oil of neroli, which is used in making eau de Cologne and other perfumes. For this purpose the flowers of the bitter orange are preferred. The dried flowers that are exported and used for this purpose have a yellowish colour. The fresh flowers are white and very fragrant, and are used for bridal decorations. Medicinally, orange-juice is beneficial as a refrigerant beverage, and is very valuable in febrile and inflammatory complaints.

Oratorio.—A musical composition of more or less length, consisting of recitatives, airs, and choruses, upon some sacred subject. Originally the oratorio was little more than a "religious play," founded either on well-known episodes of Bible history, or upon far-fetched allegorical conceits of virtues or vices, such as the three Christian graces, the seven deadly sins, &c., and accompanied by incidental music and solemn dancing. The term "oratorio," as applied to this class of sacred music, is derived from the fact that St. Philip de Neri, of Florence (sixteenth century), introduced sacred plays, with music, into the services he held in his oratory (It. *oratorio*). In the year 1600, Del Cavaliere produced the first oratorio worthy the name; and this work—*L'Anima e Corpo*—was performed at a church in Rome, with the accompaniment of a small but not ineffective orchestra. To trace the successive improvements introduced into this form of composition would take up an unfair proportion of our space; we may, however, remark that scarcely any material advance has been made upon the sublime "passion" oratorios of J. Sebastian Bach, or of *Israel in Egypt* or the *Messiah* of Handel.

Oratory (Private Chapel).—These chapels, or closets, were usually found within the larger places of worship, and set apart for family worship, but they were sometimes erected to stand alone or in connection with private dwellings. The original name was derived from the Latin, and in private life usually consisted of a portion of an apartment set apart for devotion. In mediæval residences the domestic oratory was so placed that the *sacrarium* extended from the top to the bottom of the building, with an upper floor looking into it for the accommodation of the lord and his family, which part of the oratory was usually termed the *oriole*.

Orb.—An orb was originally understood to mean a hollow sphere, such as the heavens above us were supposed to be, but it is sometimes used for any large globular body. The globe which in the hands of royalty expresses universal sovereignty is called an orb.

Orbit.—The path of any heavenly body through space is its orbit. Those of the planets are more or less elliptical; some of the comets travel in very elongated ellipses, and others seem to take a course which will never bring them back again into the same region of space. In anatomical language, the cavity in which the eyeball rests is called the orbit, on account of its circular form; and the several bones which combine to wall in this cavity are known as the orbital bones.

Orchard.—An orchard is a piece of ground specially devoted to the cultivation of fruit-trees. The introduction of such crops as vegetables is injurious to the growth of fruit-trees, therefore the trees are planted as near as possible to each other, and the ground is devoted to them. In England the principal fruits reared in orchards are apples, pears, plums, and cherries, though in some orchards walnuts, filberts, chestnuts, and other fruits are grown, and in the southern parts there are even a few small fig orchards. An orchard requires a dry soil, but it must also be free and open to receive the necessary moisture. A slight slope, too, is preferable to perfectly level ground; and although it is important that an orchard should be protected from certain winds, it is equally necessary that there should be plenty of fresh air, for without this the trees will cease to thrive. The finest orchards in Scotland are to be found in Lanarkshire and Perthshire, though as a rule the orchards of England are much finer. The German name for orchard is *Baumgarten*, tree garden, and the Dutch, *Boomgaard*, tree yard. In America, any piece of land set with apple-trees is called an orchard, and orchards are usually cultivated land, devoted to mowing or tillage.

Orchestra.—A term used indifferently to denote either an assemblage of musical performers or the place constructed to accommodate them. (In like manner the word "choir" is applied both to the choristers of a church and to that part of the church where they sit.) The term "full orchestra" has a very elastic meaning, depending very much on the character of the musical work to be performed. In the case of a symphony, concerto, or purely instrumental composition, the following would be considered a sufficiently "full" orchestra:—Two flutes, two hautboys, two clarinets, two bassoons, horns, trombones, drums, violins (first and second), violas, violoncelli, double basses. In any good orchestra each body of instruments has a principal or leader, who takes all the solo or *obbligato* parts, the whole being under the control of the conductor, whose bâton is as despotic a sceptre as ever king or emperor wielded; for the slightest inattention on the part of band or chorus would sometimes be sufficient to upset the whole performance.

Orchids.—These are perennial flowering plants belonging to the natural order *Orchidaceæ*. There are many species of orchids, and they are very beautiful and showy, amply repaying the care which they require in culture. They do well in warm greenhouses, especially if they can enjoy plenty of ventilation. Probably the best way in which to grow them is in baskets of an ornamental kind, suitable in size to the sort of orchid it is meant to plant. It must be remembered that they grow downwards; hence, if put in a pot, the soil must be placed high over the pot level, else the stems will bury themselves and perish. The best soil is a compost of a peaty nature. First cover the bottom of the basket with a layer of moss; this prevents the soil from getting through the bottom of the basket, which ought to be made of rods. Then lay in a layer of peat soil; and having well cleaned your plant and seen that bulbs and roots are all intact, carefully place it in the middle of the basket, and fill in all around with soil; then place the basket on the floor, and water abundantly to render the soil firm. The firmness of the soil prevents it from being washed away with future waterings.

Ordeal.—In modern times this word has come to signify any severe test of a person's patience, courage, skill, &c., but formerly it had a much more serious meaning. Disputed questions, as of guilt or innocence, were decided by various experiments or trials, the result of which was supposed to be a divine judgment. The ordeal by fire was reserved for persons of high rank, and consisted in carrying a piece of red-hot iron a certain distance in the naked hand, or in walking blindfold and barefooted nine feet over red-hot plough-shares. The hand or feet were then bound up, and if after three days the accused were found unhurt, he was acquitted; otherwise he was adjudged guilty. The ordeal by water was allotted to those of inferior rank. If the water were boiling, the accused had to take out of it with his bare hand a stone; but if the water was cold, the accused was thrown bound into a pond or river. The sign of innocence in the one case was not being scalded, and in the other was sinking. The latter ordeal was applied to suspected witches, and in the form of mob-law has been employed in comparatively modern times. Several other kinds of ordeal are on record, such as wager of battle, which was a challenge to fight a duel with any one who made an accusation. In the ordeal of the bier,

a suspected murderer had to touch the body of his supposed victim, which it was thought would bleed when the guilty man touched it. In the ordeal of the Eucharist, it was believed that, if guilty, the participant would be choked; in the ordeal of the *corsned*, or consecrated bread and cheese, it was held that if a man failed to swallow it he was guilty. Other forms of ordeal might be mentioned, but the above may suffice to show their general character and foolishness.

Order.—A direction, mandate, or command. Orders are promulgated by the Courts of law, not only for the proper regulation of their own proceedings, but also to enforce obedience to justice, and compel that which is right to be performed. This term is also used to indicate a class or division of the members of the body of a state, with regard to assemblies, precedency, &c. In this sense, order is a kind of dignity, which under the same name is common to several persons, and which of itself does not give them any particular authority, but only rank and a capacity of arriving at honours and employments. To abridge this definition, order may be said to be a dignity attended with an aptitude for public employ, by which it is distinguished from an office, which is the exercise of a public trust. (*See* ORDERS, HOLY; ORDERS, RELIGIOUS.)

Orders, Holy.—A collective term used to express the various ranks of ecclesiastical persons. In the Church of England there are three recognised orders, those of bishop, priest, and deacon, and a person is said to enter holy orders when he is ordained a deacon by the bishop. In the Greek Church there is an additional order, that of sub-deacon; while the Roman Catholic Church recognises four additional and minor orders.

Orders of Knighthood. (*See* KNIGHT, KNIGHTHOOD.)

Orders, Post Office. (*See* MONEY ORDERS.)

Orders, Religious. — Religious orders may be divided into three groups—monastic, military, and mendicant. Of the *monastic* orders, the first was the Basilian, founded by Basil, Archbishop of Cæsarea, in Asia Minor, in A.D. 370. Previous to this time many men had lived in seclusion as hermits, or cenobites, but this was the first attempt to band them together in one order with a uniform constitution. The Basilian order still exists in the Greek Church. In the Western Church the first religious order was the Benedictine, founded by Benedict in A.D. 529. This was followed by the Cistercian, Carthusian, Augustinian, and many other orders. The *military* orders seem to owe their origin to the necessity that existed in the Middle Ages to defend the possessions of the Church by force of arms. The first order of the kind was that of the Knights of St. John of Jerusalem, or Knights Hospitallers, which arose in the eleventh century out of a religious community to whom a hospital in Jerusalem had been entrusted. To the Knights Templars, founded in 1118, were committed, on their first foundation, certain military duties, such as the protection of pilgrims to the Holy Land, and the defence of Jerusalem. They in time became a very numerous, rich, and powerful body; so much so, that they at length aroused the jealousy of kings and popes alike, and were after a long persecution altogether exterminated. The Teutonic order was another which grew out of the Crusades; it became established in Germany, and only ceased to exist with the Reformation. The *mendicant* orders comprise several religious orders in popish countries, who, having no settled revenues, are supported by the charitable contributions they receive from others. This sort of society began in the thirteenth century, and the members of it, by the tenor of their institution, were to remain entirely destitute of all fixed revenues and possessions, though in process of time their number became a very heavy tax upon the people. Innocent III. was the first of the Popes who perceived the necessity of instituting such an order, and accordingly he gave such monastic societies as made a profession of poverty the most distinguishing marks of his protection and favour; they were also encouraged and patronised by the succeeding pontiffs when experience had demonstrated their public and extensive usefulness. But when it became generally known that they had such a peculiar place in the esteem and protection of the rulers of the Church, their number grew to such an enormous and unwieldy multitude, and swarmed so prodigiously in all the European provinces, that they became a burden not only to the people, but to the Church itself. The great inconvenience which arose from the excessive multiplication of the mendicant orders was remedied by Gregory X., in a general council which he assembled at Lyons in 1272. For here all the religious orders which had sprung up after the council held in Rome in 1215, under the pontificate of Innocent III., were suppressed, and the extravagant multitude of mendicants, as Gregory called them, were reduced to a smaller number, and confined to the four following societies or denominations, viz., the Dominicans, the Franciscans, the Carmelites, and the Augustins, or hermits of St. Augustin.

Ordinary, in the civil law, signifies a judge who has authority to take cognisance of causes in his own right and not by deputation. In the common law, it signifies one who has exempt and immediate jurisdiction in causes ecclesiastical. But the term is more generally applied to each bishop in his own diocese, wherein he possesses the power to decide certain cases, and to issue orders to his clergy, provided they are not contrary to the established order of the Liturgy. Formerly a bishop as ordinary was vested with authority to decide the legality of marriages; but this power is now disconnected from the Church, and has been transferred to a judge ordinary.

The name ordinary is also given to a regularly-established dinner, served at a stated time and for a fixed price, and intended generally to suit the convenience of commercial gentlemen and others.

Ordinary (Heraldry).—There are nine charges on shields, each of which has a name

assigned to it, the whole being classed under the above general term. It is supposed that these marks originated in the metal plates and bars which in ancient warfare were placed on the shields of knights to strengthen them. These charges appear in early heraldry, and have always been held in high esteem; they are as follows:—*The chief.* This marks a third of the upper portion of the shield. *The fesse.* This traverses the centre of the shield horizontally. *The bar.* This is horizontal, and extends in depth one-fifth of the field. *The pale.* The position of this is vertical, and is in the central third of the shield. *The cross.* This is placed upright in the centre, and extends to the border of the shield: this charge is always regarded as a definite symbol, and of it there are several varieties. *The bend.* This crosses the shield diagonally. *The saltire.* This is a cross diagonal in form. *The chevron.* The form of this is that of the lower half of the saltire. *The pile.* This is similar to a wedge in form. "Ordinary of Arms" is a book which describes armorial coats, and is useful as a reference to ascertain to whom belong the respective shields with their several bearings.

Ordination.—Ecclesiastical ordination is the solemn setting apart of any person to the ministry of the church. It is often called taking orders, or entering into holy orders, when the act pertains to communities in which there are degrees or ranks of clergy, as bishops, priests, deacons. The special services and forms required and enforced by the Church of England are given at length in the Book of Common Prayer, but some particular regulations as to qualification and the like are to be learned from other sources. Dr. Johnson calls ordination "the act of investing any man with sacerdotal power;" but as the word is employed by Christian bodies without any idea of "sacerdotal power," his definition does not cover the whole meaning of the word in its ecclesiastical use. Speaking broadly, ordination is the act or result of ordaining, *i.e.*, appointment in a regular way.

Ordnance Survey.—This famous survey originated in a desire expressed by scientific men in England and France to determine the true geometrical position of our islands and their varied superficial features, the original object being to determine with exactitude the difference of longitude between the meridians of the observatories at Greenwich and Paris. With this end in view, it was arranged that three members of the Academy of France, MM. Cassini, Mechain, and Legendre, should meet, at Dover, General Roy and Dr. Blagden, to make preliminary arrangements. The survey was executed by the officers of the Royal Artillery, who, extending their views and operations, arranged their plans to determine the length of as many degrees on the meridian as came within the limits of the survey. The success of their operations resulted from the extreme accuracy with which they determined the measurement of a line to serve as the base line of a triangle, the rules by which the main lines for all extended surveys are obtained being those derived from the properties of triangles, or, in other words, the principles of trigonometry. General Roy commenced the measurement of a base line on Hounslow Heath with a rod which, to guard against the alteration of length by temperature, as affected by the varying conditions of the atmosphere, was composed of glass tubes enclosed in a wooden frame, the degrees of contraction or expansion of which by heat or cold had been demonstrated by a series of very careful experiments. Each of these tubes was twenty feet in length, and with them a base line of five and a half miles was so correctly measured, that several years after, when the measurement was repeated by a Ramsden's steel chain, under the superintendence of Colonel Mudge, his measurement did not differ from the former more than two inches and three-quarters. The angles were determined by a theodolite made by Ramsden, having both an altitude and an azimuth circle, and a powerful telescope, which, combining in itself the powers of a quadrant, theodolite, and a transit instrument, was capable of measuring horizontal angles to fractions of a second. On completing the primary triangulation, the great triangles were subdivided and re-subdivided, until a complete network of triangles embracing the entire plot of the country was obtained, each division and subdivision being independent of each and all the others, and yet demonstrating by their exact accordance the accuracy of the whole. After this the surveyors measured the lines and angles on the ground, and the "plotters" based upon their records a plan which was carefully tested by the examiners by comparison in the field. The ordnance survey of England and Wales is plotted on a scale of one inch to a mile, and is comprised in 110 sheets of maps published at 2s. each, or in quarter sheets at 6d. each. That of Ireland is plotted on a scale of six inches to a mile, and is contained in 1,907 sheets of maps. A geological survey is also published.

Organ.—The organ is the largest and most majestic of modern musical wind-instruments. The modern organ was invented in modern Greece during the period of their first emperors, and a description of one, differing from the hydraulicon from its being blown by a bellows and played by keys, is given in a Greek epigram in the Anthologia, attributed to the Emperor Julian in 364, in which brazen reeds are named in connection with "a blast rushing from a leathern cavern beneath their roots, and producing melodious sounds as the keys dance under the skilful fingering of a robust performer." The first organ which has been noticed in the western part of Europe was that sent from Constantinople by Constantine IV., as a present to King Pepin, in 757. This was a small instrument of a portable kind. It is probable that organs were first introduced for church music in Greece. The chapel at Aix-la-Chapelle was furnished with an organ, manufactured for it by a Venetian priest named Gregory, by Lewis le Debonnaire about 840. The pedals to organs were invented early in the fifteenth century, and stops were introduced about 1650. Organs are composed of several ranges of pipes, with open mouths like flutes played at the end, some wooden, others made from a metallic composition,

generally tin and lead, and some having their mouthpieces supplied with reeds or tongues of brass. The pipes are ranged upright, with the mouthpieces below in holes which belong to boxes called the wind-chests. To each range of pipes the register—a plate or rod of wood—is attached, and so arranged as to move readily in or out at the touch of the organist. When this is pushed in, the wind is shut out of the pipes; when drawn out, the wind is admitted. When a key is touched, it draws out a little rod attached to a valve corresponding to a hole in the register, permitting the entrance of the wind, and producing the required note. If several registers are drawn out, the corresponding pipes will sound at once. If the flute-pipe is acted upon, a vibrating motion is given to the column of air in the pipe; if the reed-stop is acted upon, the resulting sound is due to the beating of the tongue. The hydraulic organ-blower was originated by the necessity of a motive power to meet the requirement of the bellows of a large organ. The *barrel-organ*, or hand-organ, is one the tones of which are produced by a revolving cylinder, upon which are arranged pins and staples, the one producing the tones, and the other the tunes.

Organ-accordian.—A large kind of accordian (*which see*), otherwise called the bass accordian from the deeper compass of the instrument, which is moreover of an unusually powerful tone.

Organ-grinders, Law concerning. (*See* Music in Streets, Law concerning.)

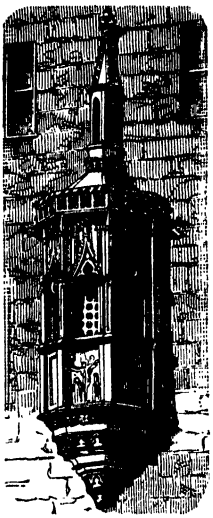
Organic.—This is the term used by medical men to signify the presence of disease in the substance of one of the vital organs of the body. It is a condition in which there is usually more or less alteration of structure and impairment of function, and is consequently fraught with much danger to life. Diseases of the brain (softening, for example), kidneys (Bright's disease), liver (cancer, for example), valves of the heart, consumption, &c., are all called organic diseases.

Organs, Physical, are usually divided into (1) organs of circulation, as the heart and blood-vessels; (2) organs of respiration, as the lungs and skin; (3) organs of digestion, as the stomach, liver, and pancreas; (4) organs of generation, as the uterus, &c.; (5) urinary organs, as the kidneys, bladder, &c.; (6) organs of thought, sense, and motion, as the brain, spinal cord, nerves, and muscles; and (7) organs of deglutition and voice, as the teeth, tongue, vocal cord, &c.

Organzine is one kind of silken thread which is often used as the weft of fine fabrics. Filaments of silk, when wound off from cocoons, undergo various processes before they are ready for the weaver's loom. Those which after being wound, cleaned, and spun are finally "thrown" (*i.e.*, twisted together into a fine cord), are known by the name of organzine, which is the French term for "thrown" silk.

Orgeat.—A liquor known by this name is extracted from barley and sweet almonds. It is an agreeable flavouring for sauces, creams, and other sweet dishes, and is also very beneficial to persons suffering from chest complaints. Formerly it was nothing but barley-water, which was flavoured sometimes with lemon and sometimes with almonds. Gradually, however, the almond flavour came to predominate, until now orgeat is only almond milk. Orgeat lemonade is an American drink made by mixing lemon-juice and ice with orgeat syrup.

Oriel, Oriel Window.—Any projecting portion of a room or building was of old called an oriel, a term derived from a portion of the oratory, or little chapel for private prayer. It is now architecturally applied to a projecting window, hence the term oriel window. Any projecting portion of a building was at one time known by this name.



ORIEL WINDOW.

Oriental Amethyst. (*See* Amethyst.)

Oriental Porcelain. (*See* Porcelain, Oriental.)

Oriental Topaz. (*See* Topaz.)

Oriflamme.—A banner which was at one period used as the royal standard of France. Its name arose from the Latin words *auri flamma*, flame of gold, the device being that of golden rays issuing crossways from the centre of a red flag. In later years the banner became the insignia of the French infantry. Originally this famous banner belonged to the Abbey of St. Denis, and it was carried as the standard of the Counts of Vexin, who were the martial protectors of that monastery; eventually the lands of this family fell into the hands of the crown, and then the banner was made the royal standard.

Orisons.—A modified form of the French *oraison*, a prayer; hence Milton says of our first parents that they "began their orisons, each morning duly paid." It is ordinarily used in the plural form.

Orleans Plums. (*See* Plums.)

Ormolu. (*See* Gold, Dutch.)

Ormolu, To Clean.—The best method of cleaning ormolu or any gilt article is to wash it in sherry, and put it, when drained, into boxwood sawdust, in which it should be shaken. The friction will make it very bright. Some people use ammonia, but sherry is preferable. If the cleaning in this manner be found insufficient, there is only one other method to adopt, and that is, to send the article to a manufactory to be re-gilt.

Ornamentation, Hints on.—The grand end and aim of ornamentation being the grati-

fication or delight of the spectator, the difficulty of explaining briefly its principles, in connection with beauty in all its diversities of form, colour, and associations, is perplexingly great. The demands of modern taste rule that one of the most important elements is fitness. If the ornament is not in keeping with the purpose and character of the object ornamented, it is bad; if it harmonises with the feelings proper to the contemplation of such an object, and in no way interferes with or lessens its utility, it is very seldom far wrong. For instance, if we design a flat pattern, consisting of forms which have a base and a top, it would be obviously unsuitable for, say, a carpet, whatever claim it might have in the beauty of its lines, colours, or combination of tones and tints, to be regarded as highly ornamental. It would as obviously be more suitable for a wall-paper, on which it might appear in a perpendicular position with its base downward. So if in carving woodwork in relief for the decoration of a chair-back we brought out the sharp hard points of leaves, or the sharp edges of wooden scrolls, so that no one could sit in the chair it formed part of, and lean back in it with comfort, no amount of beauty in the carving itself could render it an object of delight to its owner or its user. But this is easily understood. In other respects, ornament is a matter of very careful thought. Monotony and formality being displeasing qualities, while repetition and order are very useful in conveying a sense of quietude, &c., proportioning the one so that it will not embrace the other is often a very complicated task to the decorative designer, who also finds in many other ways how the nice distinctions and complexities of art render his studies by no means the simple, easy work outsiders are apt to consider it. It is not easy, again, to interest the eye by varied combinations, and at the same time not perplex and confuse it. In the one case the spectator derives pleasure from the gentle exercise of vision almost without mental effort; in the other he is teased almost despite himself, and feels that the ornament is engaged in doing that which is altogether outside its true province. So a series of sharp, abrupt angles, which keep the glances of the eye flashing to and fro like forked lightning, wearies, while a more gradual blending of dissimilar forms merely affords gentle exercise. Colours, in a like manner, excite the sense of vision in different ways. Brilliant colours in sudden and violent contrast compel you to see them, but afford the eye no pleasure in the seeing. The kaleidoscope will illustrate the effect of colours in pleasing combination, its chance-produced combinations being frequently of extreme suggestive value. However, as to deal with the principles of ornamentation would require more space than this work would afford, we must content ourselves with the hints given above, and refer the reader to more exhaustive works for fuller information.

Ornaments, Household.—There is no part of the furnishing of a house which affords such an opportunity for the display of good taste as the choice of the ornaments for each apartment. If the articles are ever so costly, unless they are suitable for their position and surroundings, they will not answer the purpose for which they are intended. A dining-room requires substantial, heavy-looking ornaments; those made of bronze or marble are the best, but unfortunately these are costly. A drawing-room may be elegantly ornamented at much less expense. A few simple vases, constantly supplied with fresh flowers, are much to be admired; and brackets fastened to the walls, with flowers on them, add greatly to the finished appearance of a room. When natural flowers cannot be obtained, artificial ones may be substituted, and these may be arranged with evergreens or any leaves of shrubs that are procurable. A lady may display good taste in the plants she places on the table. A fancy flower-pot, with a small plant inside, which is kept in a flourishing condition by being constantly watered and looked after, will be an excellent table ornament, and will not be expensive. Good pictures and statuettes are exceedingly valuable for household ornamentation, but they are too costly to be within the reach of the majority of housekeepers.

Ornaments, Personal.—These include brooches, rings, pendants, necklaces, and many other items, many of which are described in their proper places in the course of this work. The disposition to wear ornaments seems to have prevailed at all times among all nations, and is therefore presumably not one to be abruptly condemned. The habit is conducive to the pleasure of the wearer, and often to that of others. It is necessary to guard against excess and absurdity; and inasmuch as the ill-informed and untrained are likely to err in these respects, those who have the care of the young should bear this fact in mind. When not properly controlled, the propensity may lead people to involve themselves in pecuniary difficulties, to subject themselves to actual pain, and to incur reproach or contempt. In nothing is there more room for good sense and correct taste than in the personal adornment of oneself or children.

Orphan. — An orphan is a child who has been deprived of both its father and mother. The Lord Chancellor is the general guardian of all orphans and minors throughout the realm. *Orphanage part* is that portion of an intestate's effects which his children are entitled to by the custom of London. This custom appears to be a remnant of what was once a general law all over England, namely, that a father should not by his will bequeath all his personal estate away from his family, but should leave them a third part at least of it, called the children's part, corresponding to the "bairn's part," or *legitim*, in Scotch law, and also (although not in amount) to the *legitima quarta* of Roman law.

Orphan Asylums.—Many institutions exist in this and other countries for the receptions of orphans of various classes. The orphans are educated, and in some cases trained to certain industries, as well as clothed, lodged, and boarded. Generally the candidates must be children, whose election takes place in accordance with the conditions of the institution applied to. These establishments are among the

most valuable and important of those which are due to modern philanthropy.

Orphrey (also called orfrais and orfray).—A kind of band, richly ornamented for the most part, and attached to an ecclesiastical vestment. There are different kinds of orphrey, and of those applied to the cope in particular we are told that they were in former ages made "splendid with the embroidery, gold, pearls, precious stones, and enamels heaped upon them." Orphreys were made of needlework, cloth of gold, satin, velvet, woven lace, &c., and varied in width and style of decoration quite as much as in their material.

Orpiment.—The trisulphide of arsenic, occurring in crystals of a lemon colour, and having a resinous taste. It occurs in nature as an ore of arsenic, and usually in combination with realgar. Orpiment is used in the process of dyeing. Red orpiment is realgar, or red sulphuret of arsenic; yellow orpiment is king's yellow.

Orrery.—An astronomical machine for representing the relative magnitudes and positions and the several motions of the heavenly bodies. The name is said to be derived from the fact that one of the first of these machines was in the possession of the Earl of Orrery. The value of orreries as a means of educating the young—their primary intention—has been much called in question, and no less an authority than Sir John Herschel has written of them as "those very childish toys" from which it is impossible to get "correct notions on the subject" of astronomy.

Orris-lace.—A thick band made of silk, used for the trimming of bed-furniture. (*See* BED-LACE.)

Orris-root.—This is the root of a plant (*Iris Florentina*) growing wild in Italy, and cultivated as a flower in our gardens, belonging



IRIS FLORENTINA.

to the natural family *Iridaceæ*. It is of a burning pungent taste, but when dried this is almost lost. It is well known in the shops, and as the smell is almost like the odour of violets, it is often used in tooth-powders. Many plants of the same genus used to be admitted into the Pharmacopœia.

Ortolan.—This is a name given to a small bird belonging to the natural family *Fringillidæ*. It is called by Linnæus the *Emberiza hortulana*, and is found in the southern parts of Europe, where as an article of diet it is considered a very great delicacy. It is also occasionally found as far north as Denmark, Sweden, and even Lapland. The bird is about six inches in length, and in plumage is not unlike the yellow hammer, for which it may at times be mistaken. There are in Italy large establishments for feeding these birds for the table after they have been caught in traps. They are kept in darkened rooms, and fed on millet-seed until they are nearly suffocated in their own fat.

Osiers.—The twigs of a species of willow used by basket-makers are known by this name. Osiers thrive best in moist places, and in marshy land we find willow-beds are preserved and cut regularly at certain seasons. Osier beds are usually about six, eight, or ten feet wide, and they are divided by narrow ditches, into which water is admitted by means of a sluice. The common osier is usually fit for cutting at the expiration of three years, but that with yellow bark is allowed to have another year's growth.

Ossification.—This is the process by which cartilage is converted into bone. It commences in the second month of fœtal life by what are called points of ossification in the temporary cartilage or framework of the fœtus, and is not complete until the twelfth year, the last bone to ossify being one of the small bones of the wrist, the pisiform. The first to ossify are the collar-bone and lower jaw. It sometimes happens that in advanced life, or in certain morbid conditions of health, calcareous deposits take place in the arteries, membrane of the brain, coats of the stomach, investing membrane of the heart, &c., to which the name of ossification has been given. This is really a state of degeneration, in which the calcareous salts are in excess, and become deposited in abnormal situations.

Ostend Butter. (*See* BUTTER.)

Ostend Rabbits. (*See* RABBITS.)

Ostler, or Hostler.—Properly a man who undertakes the care of horses at an hotel or inn; hence any one who has charge of horses and the care of them, especially those belonging to strangers.

Ostracism.—Among the ancient Athenians public men were sometimes degraded and banished by what was called ostracism, which consisted in writing the name of the person proposed to be removed upon a potsherd or shell, and depositing it in a place appointed. If the number of adverse votes was sufficient, the party was banished. From this practice arose the custom of saying a person is ostracised who is condemned by the public voice, such condemnation being styled an ostracism. In like manner the term ostracism is applied to the rejection of anything by popular or general consent.

Ostrich Eggs and Feathers.—The ostrich is the largest of all birds; it inhabits the deserts of Africa, where it is hunted on horseback by the natives for the sake of its feathers, which are valued in every country. (*See* FEATHERS FOR ORNAMENTS.) The eggs are remarkable for their size and weight, one such egg weighing from two to three pounds; they are considered a great delicacy in food, and are usually cooked with butter. The shells are used by the Africans for water-vessels, and in this country often appear as ornaments in sitting-rooms.

Oswego Tea. (*See* TEA.)

Otalgia. (*See* EAR, AILMENTS OF.)

Otter Fur.—The fur of the sea-otter is the most costly of all furs; the cost of a jacket made of this skin would be about eighty guineas. The colour of the fur is black, with a shade of brown; it is very smooth, and has a rich velvety appearance. Sea-otters are larger than those which frequent rivers; they are found in the northern part of the Pacific Ocean. Most of the skins obtained are sent to China and Japan, where they are greatly valued. The fur of the river otter is likewise very thick, smooth, and glossy; these otters are numerous in both warm and cold countries. The fur of those found in Europe is grey at the base tipped with brown; those which inhabit America are very similar in appearance, with the exception of being larger in size. The otter of India has fur of a deep chestnut colour.

Otto of Roses. (*See* ATTAR.)

Ottomans.—Cushioned seats, oblong or square in form; they have no backs or divisions, and are usually made to accommodate several people. These seats were very general in drawing-rooms about twenty years ago; they possess several advantages, for they are low, they do not appear to overcrowd a room, they can be pushed aside or under tables when not required, and they can also be made in the form of boxes, and thus are useful receptacles for music, extra cushions, chair-covers, &c. These seats are so called because they resemble in some degree those used by the Turks or Ottomans.

Ouch.—Occasionally this word denotes an ornament of gold, or a jewel, but more frequently the bezel, or socket, in which a gem or the stone of a seal is set. It is an old-fashioned word, but in the English Bible it is used for the gold setting of precious stones.

Ounce.—A weight. In troy weight and apothecaries' weight the ounce is the twelfth part of the pound, and weighs 480 grains; in avoirdupois the ounce is the sixteenth part of the pound, and is equivalent to 437½ grains troy. (*See* APOTHECARIES' WEIGHT; AVOIRDUPOIS; WEIGHTS AND MEASURES.)

Outfits.—These are requisite under various circumstances, and upon their proper arrangement much depends. They are required for young people going to school or college or to learn a profession; they are needed by those who are about to enter upon the married state, who are going out as emigrants or as sailors, and whenever any similar change in position is contemplated. Every effort should be made to avoid omissions and excess, to secure good quality and suitableness in every case, and, in the case of wearing apparel, a correct fit. Operations may be facilitated by consulting professed outfitters, who are to be easily met with for all ordinary purposes. Arrangements should not, however, be left wholly in their hands, valuable as their aid may be; their lists should be consulted, their goods examined, and their prices studied whenever possible, and a selection made accordingly. Persons providing their own or their children's outfits must be left to their discretion, but in all cases every precaution should be taken to secure a satisfactory result.

Outlaw, Outlawry.—An outlaw is one who is excluded from the benefit of the law; and outlawry is the act of being put out of the law, or out of the Queen's protection. It is a punishment inflicted for a contempt in refusing to be amenable to the process of the higher courts. By outlawry in civil causes, a person is put out of the protection of the law, so that he is not only incapable of suing for the redress of injuries, but may be imprisoned, and forfeits all his goods and chattels, and the profits of his land, his personal chattels, immediately upon the outlawry, and his chattels real and the profits of his lands when found by inquisition. Since the Common Law Procedure Act, 1852, s. 24, proceedings to outlawry cannot be taken for the purpose of compelling a defendant's appearance to an action commenced by writ of summons.

Outrider.—A term which belongs to one who travels on horseback, whose business is that of surveying ports and fleets. Usually the name is applied in particular to the person on horseback who precedes or accompanies a carriage of state: thus outriders always precede the carriage of the Sovereign.

Outsizes.—Various articles for personal and domestic use are commonest in certain sizes, and when larger are in question they are often called outsizes, and are probably not kept in stock by the small tradesmen. Such goods in linen, woollen, &c., as are in daily demand must be supplied in certain proportions, both as regards quantity and capacity, in accordance with a natural law of supply and demand: this is very much the case with sheets, under-shirts, stockings, gloves, &c.

Ovation.—Originally a kind of triumphal reception granted to a general on his return from a successful expedition or campaign. It was, however, not equal in dignity to a triumph properly so called. In modern times the word is chiefly used for a popular display of respect and admiration.

Ovens.—Of ordinary domestic ovens, the three kinds most commonly in use are stove ovens, Dutch ovens, and out ovens. A *stove oven* is usually part of the stove, and varies in its position with the shape and capacity of the stove. Of these there are many varieties, some having one oven only, others two, and some four, two on each side the fireplace. The *Dutch oven* is a contrivance made of sheet metal that is meant

to be placed in front of the fire. (*See* DUTCH OVEN.) The *out oven*, which is so called because built out of doors, is not so common now as formerly. It is built of brick, and is heated with light wood or sticks. When the bricks are well heated, the loaves are introduced by means of a flat wooden shovel with a long handle; the door is then closed. When the materials are good, and proper management is exercised, the result is very satisfactory. Even now in many places the baker's oven is of this description. The *reel oven* is a clever modern invention. A series of pans or traps are suspended from the periphery of a skeleton cylinder, or as it were from the spokes of two wheels keyed on to the same shaft. This reel is turned by a wheel on the axis, which extends outside the wall of the oven. The rate of rotation is such that a loaf is baked during one revolution. As a pan comes opposite the mouth of the oven, the baked loaf is taken off, and a loaf of dough placed upon it. The work is thus continuous. The travelling apron oven is another form of a continuously-working oven. *American ovens* are of great value, and are better adapted to some purposes than brick or iron ones, because preparations can be heated in them more gradually. When used by those who understand them, they answer admirably for cakes and delicate sweet puddings, and require only a moderate fire. They cannot be used, however, with many of the modern close stoves; they are better suited to the wide open old-fashioned ranges. It must be acknowledged that the improved construction of the ovens connected with modern cooking stoves gives great facility at the present day for cooking of the best description. Without the possession of a good oven, it is impossible that justice can be done either to the viands or to the person who conducts the cookery. Very few houses, however, are now built that are not provided with a good oven.

Overcharge.—An amount charged in excess in an invoice or account, and afterwards credited.

Overcrowding.—By this we mean the occupation of a house or of a room by a larger number of persons than is consistent with health, comfort, and propriety. The evil results are so real that no wise housekeeper will crowd more persons in an apartment than it ought to contain, especially for sleeping; and the Legislature has passed enactments on the subject. Powers have been granted for inspecting houses, for determining the number which can be safely accommodated, and for subjecting to penalties those who are guilty of an infraction of the laws in this respect. A certain quantity of space and of air is found necessary for health: but poverty and pecuniary temptations often lead the poor, and the proprietors of public lodging-houses, to practise overcrowding. With regard to common lodging-houses, they must be registered, and by the Public Health Act of 1875, one of the points decided is that the register shall intimate the number of lodgers authorised to be received therein. The evils of overcrowding are not confined to private buildings, and are consequently dealt with in several other cases by the Legislature. We can, however, only mention some of these cases, chief among which are theatres and other places licensed for public amusement, omnibuses and other wheeled vehicles for the conveyance of passengers, steam-boats, emigrant ships, &c. The overcrowding of churches, halls, &c., is frequently fraught with danger. especially in case of panic, or when the structure is not equal to the strain upon it. Some of the gravest accidents recorded have been due to panics in excessively-crowded buildings, from which at the same time ample provision had not been made for rapid egress.

Overdoses.—This means taking more of a medicine than has been prescribed by the physician or regulated by the Pharmacopœia. Some imprudent persons take overdoses on the principle that if a certain quantity of a drug does good, taking a little more will benefit proportionately. The fallacy of such reasoning is apparent. Nevertheless, much mischief and even fatal consequences have resulted from such folly, and the practice cannot be too strongly condemned.

Overseers of the Poor.—These are appointed on the 25th of March or within fourteen days afterwards in each year. Two, or at most four, are chosen for each parish from those who are duly qualified and not exempt by law. The exemptions include peers, members of Parliament, magistrates, aldermen of London, clergymen and dissenting ministers, attorneys and barristers in practice, surgeons and apothecaries, officers of law courts, of the army and navy, and of the customs and excise, and persons who contract to supply goods to the workhouse or for the poor. In ordinary cases, overseers rate the inhabitants for the relief of the poor, and also collect and apply the rate when made. Their duties vary with the organisation of parishes, and are too numerous to be specified here. An assistant overseer is appointed in large parishes, and is a paid officer, who undertakes a great part of the work which would otherwise devolve on the overseers. The parish vestry usually nominates overseers, and they are formally appointed by the justices of the peace.

Ox-gall.—Formerly the gall of various animals was used in medicine, when each variety was thought to possess virtues peculiarly its own. Ox-gall was the great remedy for stiff joints, ulcers, rheumatism, and stomach complaints. At the present time, ox-gall is the only one of the animal galls used either in medicine or the arts, and it has of late years been re-introduced into medicine. In certain cases of dyspepsia and biliary derangemement it is of great value. Crude ox-gall is extensively used by the scourers of woollen cloth, and by renovaters of woollen materials. It effectually removes grease and oil without injuring the colour of the substance. In domestic economy, ox-gall will be found to be very efficacious in cleansing carpets. The carpet should first be well shaken and beaten, and tacked firmly upon the floor, after which it should be washed over with a mixture of ox-gall and water, the

proportions being one-fourth of gall to three-fourths of soft cold water. The gall must then be rubbed off with a clean flannel. Any particularly dirty spot should be rubbed with pure gall.

Oxalic Acid is present in most plants, being particularly abundant in the juice of wood sorrel, the common sorrel, and in rhubarb. It sometimes occurs as free acid, but more generally in combination with potash, soda, or lime, the last-named being the most common. The oxalate of lime is also found in urine. Many organic substances, such as sugar, starch, &c., yield oxalic acid when oxidised by nitric acid, or fused with caustic potash; and the acid is now made on a large scale by heating sawdust with caustic potash and soda. The oxalate of soda is converted by lime into oxalate of lime, and this is decomposed by sulphuric acid, oxalic acid being the result. A given weight of sawdust will thus yield half its weight of acid. The crystals of oxalic acid bear a strong resemblance to Epsom salts, which has led to many fatal accidents, as the acid is a powerful irritant poison, very rapid in its action. The best antidotes for it are chalk and magnesia, and no time should be lost in administering them. The acid is largely used by dyers and calico-printers in the preparation of dischargers, by which means a white figure can be retained upon a coloured ground.

Oxides are combinations of oxygen with other elements. As oxygen combines with almost every element, and frequently in several different proportions, the list of oxides is very extensive. These form two great classes—those which are acids, and those which are capable of neutralising acids more or less completely. It is to the latter class that the term oxide is generally restricted. When an element combines with oxygen in more than one proportion, the compounds are distinguished as the protoxide, sesquioxide, deutoxide, and so on, the highest in the scale being the peroxide.

Oxidised Silver Ornaments.—Oxidised silver is silver which has undergone a process, the effect of which is to darken it. It is very much used in the manufacture of personal and other ornaments.

Oxygen is a colourless gas without smell or taste. It is the most important and also the most abundant of the elements. It forms a little more than one-fifth of the bulk of the air; it constitutes eight-ninths of the weight of water; and the rocks which form the crust of the earth contain about half their weight of it. Sugar, starch, woody fibre, and other vegetable substances contain about the same proportion of oxygen; and in most animal substances it exists in considerable quantity. No other gas will support respiration in man and animals; but the nitrogen with which it is mixed in the air is needful to dilute it, or else it would over-excite the bodily frame. Oxygen is remarkable for its great chemical activity. Substances which burn in air burn in oxygen with much greater energy, and hence a fire burns more brightly when there is a powerful draught, as a larger quantity of oxygen is brought into contact with the fuel in a given time. The exhilarating effect of the open air, as compared with that of close rooms, is due to the greater quantity of oxygen which comes in contact with the lungs, and hence the importance of good ventilation. Oxygen gas is easily prepared. One of the best plans is by heating in a retort a mixture of chlorate of potash and the black oxide of manganese, the gas being given off from this mixture at a moderate temperature, and collected, as usual, under a bell-jar or other receiver in a pneumatic trough. When large quantities are required, it is usual to use the black oxide alone, which, when heated to full redness, will part with one-third of its oxygen, so that three pounds of the mineral will yield about a cubic foot of the gas.

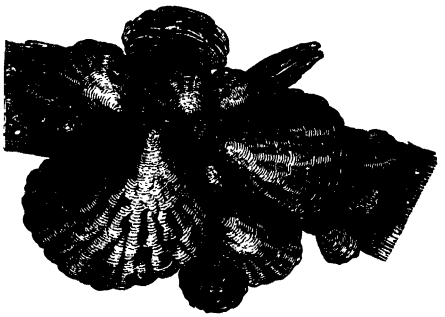
Oxymel.—Any combination of acid and syrup, or of other sweet and sour ingredients, may fairly be called oxymel, whether medicated or not. In actual practice, however, the term is seldom used except for a small number of preparations, such as oxymel of squills. The simplest oxymel is a mixture of acetic acid and water in nearly equal proportions, combined with honey, thus:—Acetic acid three and a half ounces, distilled water four ounces; mix, and add two and a half pounds of honey previously heated. The proportion of acetic acid may be made larger if strength is required. Mixed with water, this oxymel forms a useful gargle in cases of hoarseness, sore throat, &c. It may be swallowed also in moderate doses in fevers, when it is generally used with the admixture of other ingredients under medical advice. Oxymel of squills is made by mixing vinegar of squills and honey. This can be obtained of the druggists, and is useful in coughs, hoarseness, &c., in doses of from half a drachm to a drachm. Oxymel of colchicum is given for gout and rheumatism. Oxymel of garlic is prescribed for whooping-cough, rheumatism, and chronic diarrhœa.

Oyer and Terminer (from the French *ouïr*, to hear, and *terminer*, to determine).—A commission under the Great Seal, directed to certain persons, among whom two common law judges are usually appointed, empowering them to hear and determine treasons, felonies, robberies, murders, and criminal offences in general. The justices so appointed are the justices of assize. (*See* ASSIZE.)

Oyster-knife and Oyster-opener.—Those who are accustomed to the work can with proper utensils open oysters with astonishing facility, but the task often proves a difficult one for the novice. The oyster-knife is the instrument usually employed for the purpose. This is a strongly-stocked and thickly-bladed knife, which is thrust forcibly between the shells of the oyster. In America it is customary to hammer upon the hinge of the bivalve, and thus weaken its power before effecting an entrance; but this is not done in England. The oyster-opener is another utensil invented for the purpose. The oyster is laid on a stake, and a notch is taken out of the edge of the valves by means of a lever-knife. It is then placed edgewise between a pair of knives, which are forced together and separate the shells.

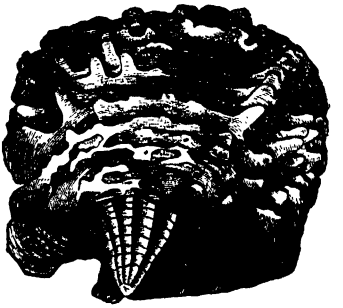
The oyster-opener is an English invention. The English are rather peculiar in their mode of serving oysters after they are opened, for they always leave them on the flat shell, from which the liquor drains away. The Scotch and French, on the contrary, lay the fish in the hollow half of the shells, by which means the brine, or "oyster broth," as it is sometimes called, is retained.

Oysters.—The edible oyster (the *Ostrea edulis* of Linnæus) is a bivalve shell-fish which has long been highly esteemed as food by man. It is found on various parts of the coast in warm climates, but the best and most delicately-flavoured oysters are obtained from the shores of Britain. Oysters are exceedingly productive,



GROUP OF OYSTERS.

and bring forth their young by millions. Leeuwenhoek calculated that from 3,000 to 4,000 exist within an oyster at once when it is "milky," or full of spawn; and, according to Poli, one oyster produces about 1,200,000 eggs. The greater part of these are lost, some being driven to unsuitable positions, and many being devoured by fish, reptiles, or birds, so that only a few succeed in attaching themselves to an object to which they can adhere for life, and so remain in the beds. Oysters are obtained by dredging. The best and most delicious are the "natives" which have been raised in artificial beds, and these are much superior to those obtained from natural beds. The oyster-beds from which the principal supply is procured for the London market are those of Whitstable, Melton, Rochester, Colchester, Burnham, Faversham, and Queenborough. Oyster-beds have been too frequently impoverished, if not destroyed, by continued and careless dredging, so that, notwithstanding the fecundity of the creatures, they have not been sufficiently productive to satisfy the demand for them. There is, however, hope that this state of things will be improved. Stringent laws have been passed to regulate the oyster fishery, and their observance, which is rigidly enforced, will lead to the restoration of the supply. Large quantities are also imported alive from America, and the trade promises to be one of considerable importance. An idea of the estimation in which oysters are held may be gained from the fact that "from 30,000 to 40,000 bushels of 'natives' are consumed annually in London alone, and in addition to these, fully 120,000 bushels of the sea-oyster are also sold in that city. It has been computed that this enormous bulk contains more than 500,000,000 individuals, and represents a value of nearly £100,000 sterling." According to the popular opinion, oysters are exceedingly nutritious; but this is a mistake, for containing about eighty per cent. of water, they do not possess a high nutritive value. They are, however, useful to the sick, their delicacy of flavour leading to their acceptance when other food is rejected. They are most digestible when eaten raw, for much of their nitrogenous matter is rendered tough and insoluble by heating. The large and coarse oysters are just as good for cooking purposes as the smaller and more expensive native, for the flavour of the mollusc is to a great extent changed by cooking. Oysters cast their spawn, which dredgers call the spat, in the month of May, and they are then in a sickly state and "out of season." They regain their condition in August, and this has given rise to the saying that oysters are only good when there is an *r* in the month. The pearl oyster is found in the seas of tropical regions, and is generally attached to rocks in a considerable depth of water. It is valuable because it furnishes almost all the pearls and mother-of-pearl of commerce. The pearls are generally eggs which have become abortive, and which remain in the shell instead of being cast into the sea. They are also occasionally the result of accident, such as the intrusion of a grain of sand into the shell,



PEARL OYSTER (UPPER SHELL).

which grain is gradually covered with the fluid secretion with which the creature lines its shell, and which is made into ornamental articles of great beauty, under the name of mother-of-pearl. Pearl oysters are too coarse to be eaten. When they are taken out of the sea they are laid out in the sun to die, in order that the pearl may be taken when the shell opens.

Ozokerit.—A beautiful wax, known by the name of ozokerit, has within the last few years become an article of commerce. The name is derived from the Greek word *ozo*, I smell of, and *keros*, wax. Ozokerit is a natural mineral product, and until lately was only to be found in small quantities oozing from rocks of coal formation. So small was the quantity obtained, that candles were made of it by the miners as objects of curiosity. Now immense deposits of this mineral wax are to be found in

several parts of Europe, principally in Moldavia and Galicia, and it is extensively used in the manufacture of candles. When first found, its colour is a dark rich brown with a green tint. After being refined it resembles well-bleached beeswax. Ozokerit candles have the peculiarity of retaining their hardness even at a high temperature.

Ozone is a variety of oxygen of considerably greater density than the ordinary gas, and possessing a peculiar odour. Traces of it seem to be generally present in the atmosphere, but the proportion varies, as it appears to be most abundant on the sea-coast and wanting in the neighbourhood of large towns. It is not improbable that ozone, minute in quantity as it is, exerts an important purifying effect upon the atmosphere, by destroying and oxidising animal effluvia, which would otherwise increase in quantity until they produced disease.

P

Pace.—A line or measure of various lengths. In its general use it is understood to be the space measured by the foot in walking. The ancient Roman pace, the thousandth part of a Roman mile, was about 58·1 English inches. (*See* MILE.) The military pace consists of 30 or 36 inches, varying according to whether the marching is in slow or quick time.

Pacha, or Pasha.—A title of honour in the Turkish Empire, conferred on the chief ministers and officers of the Sultan, civil and military. Governors of provinces are also known as pashas, their districts being termed *pashaliks*. The word pasha is derived from *pa*, foot or support, and *shah*, ruler, and therefore signifies "support of a ruler." The badge of an ordinary pasha is a horse's tail on the end of a staff, and the distinctions of rank among them are shown by the number of these horse's tails carried before them as standards, those of the highest rank being entitled to three; these last are known as *pashas of three tails*.

Pachydermatous. — An adjective descriptive of those animals that belong to the *Pachydermata*, and derived from two Greek words (*pachus*, thick, and *derma*, skin). The order is divided into three distinct genera, viz.:—1. The *Pachydermata ordinaria*, to which the rhinoceros, the tapir, the hippopotamus, &c., belong. The feet of this order are divided into two, three, or four separate toes. 2. The *Proboscidea*, which have five toes on every foot, and also a proboscis. To this order belongs the elephant. 3. The *Solidungula*, having only one toe and a hoof to each foot. Of this genus the horse may be taken as the type.

Pack-saddle.—This saddle is so formed that it supplies a convenient support for the packs conveyed by horses in places where other modes of conveyance are difficult or impossible.

Pack-wax.—By this term is understood the tendon, or collection of fibres forming a hard insensible ligature, found in the neck of an animal.

Packhorse.—In the old days of trade, when the means of conveying merchandise from one place to another were very few and imperfect, a large number of horses were employed for carrying goods in packs, and long strings of these packhorses traversed the country in every direction, roads of a narrow kind being frequently made for their accommodation, with narrow, rudely-constructed bridges where dangerous fords had formerly been used.

Packing.—It is quite an art to pack glass and china, or brittle articles, so that they will stand being knocked and jolted and shaken about without being broken. The performance requires so much skill, that when the articles to be packed are of any quantity or valuable it is best to employ a professional packer to do the work. The packer may be hired at any large glass or china warehouse for a trifling remuneration. When the services of an expert cannot be secured, care should be taken that the articles are placed in such a way that they will be preserved from undue pressure or from touching each other, whilst at the same time they are put firmly into position, and surrounded with either hay, straw, or some soft material. Clothes should be folded neatly and by the seams before they are packed. The small unimportant articles should be placed underneath, and the dresses, or such things as are likely to be creased, should be put at the top, then taken up and shaken out as soon as possible. When packing luggage it is well to make a list of the articles as they are put into the trunks. The list should be made in such a way that those things which are put in last are entered first. Besides this, each box, with the list belonging to it, should be numbered, so that if some special object is wanted it may be known at once which box contains it. The traveller will also find it a great convenience if, when preparing for a journey, he can remember to pack the necessaries that will be wanted immediately on his arrival at his destination, in a small bag or portmanteau, so that they can be laid hands on at once, and the large boxes may be left until a convenient opportunity. When books have to be packed with clothes, it is best, for the preservation of their bindings, that they should be placed in the middle of the package, so that their edges may not come into contact with the sides of the box. When packing parcels, care should be taken to make the outer covering strong enough for what it is to contain. Unless this is done, the contents are almost sure to burst out.

Packman. (*See* TALLYMAN.)

Paddy.—Rice when enclosed in the husk is known as paddy. The husk is removed by careful milling, and the pearled grain is then designated rice. The husk is both fibrous and harsh in its texture, and it is much used in the adulteration of food both for men and cattle. In India, paddy is the name commonly given to rice. It is the Tamul and Malay name.

Padlocks.—Locks in metal cases, made to hang loose, and used for fastening gates, boxes, &c., by passing the movable half ring through a staple or something equivalent. They are of

many kinds, and some of them are constructed in a most ingenious manner, or as puzzle-locks, to prevent unauthorised persons from opening them.

Pads and Padding.—A pad is a small quantity of cotton, wool, or other soft material, flattened out, often used to prevent friction, pressure, or injury, or to fill out certain portions of a dress. Padding is the material used for pads, or the process of making and applying them. This word padding is colloquially employed to denote the introduction of superfluous matter into a spoken or written composition.

Page.—This word is probably the French form of a Greek term signifying "a boy," and is defined as "a young boy attending, rather in formality than servitude, on a great person." In ancient times, youths of high birth attached themselves to princes and others of high rank as pages, their aim being often to learn the manners of the court and to be initiated into the knowledge of public life and men. They who began as pages passed on to the degree of squire, and then often to that of knight. Though little heard of now, pages of honour form part of the royal household. Grandees and great ladies patronised them as convenient ornamental appendages and additions to state, but the offices devolving on them were light, such as holding up a lady's train or taking charge of a message. In lower strata of society they were little more than ordinary personal attendants, to which rank they seem ultimately to have dwindled, so that now the name itself is seldom met with as really denoting a distinctive class. What have been called "ladies' pages" are elastic contrivances for holding up the skirt of a lady's dress.

Pagoda.—The pagoda, or Hindoo temple, is



HINDOO PAGODA.

a pyramidal building rising to a great height, usually crowned with a cupola, but sometimes with a series of curiously-shaped spires, as in the pagoda of Condjeveram, in the accompanying engraving. In China, pagodas are built which consist frequently of as many as nine or more storeys, each of a lofty description, some being over twenty feet high. In these buildings the idols are deposited and used for worship.

The term pagoda is also a name that is given by Europeans to numerous Indian gold coins, which mostly weigh about 52·85 grains troy, and contain 44·39 troy grains of pure metal.

Pail, or Bucket.—House-pails are made of wood, and are chiefly employed for carrying water that is to be used for household purposes. Some also are made of tin, zinc, or galvanised iron, and these are to be preferred for their durability, although they are heavier than the wooden ones. Pails are also found among the dairy utensils.

Paillasse. (*See* PALLIASSE.)

Paillettes.—Small discs of metal, either gold, silver, or steel, which are pierced in the centre, and by this means are attached to stuffs or dresses for the purpose of ornamentation. The term is mineralogic, and refers to the thin plates or scales which are detached from laminable substances—mica for example.

Paillons.—Small leaves of copper beaten very thin, and coloured, used to ornament embroidery and theatrical dresses; also used by jewellers, who place them underneath precious stones in order to augment their clearness.

Paint-brushes.—These are respectively composed of hog's bristles, badger's hair, and camel's hair, some being fitted into cylinders of tin, sometimes flattened at each side, and varying in their several widths; and others are inserted into quills, from feathers of the smallest description to those of the largest goose and turkey, a stick in each case being inserted at the opposite end to serve as a handle. When the tin casing is flattened and very broad, the stick is flat at the brush end, cut so as to fit, and reduced to a small and convenient-sized handle. The camel's and badger's hair brushes are cut into a fine point, and bound with silk at the square-cut end inside the quill-case, and the superior sort with gold thread, discernible through the transparent quill. Brushes for oil-painting are invariably inserted in tin casings, and the handles are very much longer than those designed for water-colours. To the latter description of paints not only quill-cased brushes are employed, but the small sizes in the metal casings. Badger's-hair brushes are superior to those of camel's hair, having more firmness and spring; and paint-brushes of all descriptions may be had in any size, being manufactured on a most carefully-graduated scale, and numbered.

Paint Spots, To Remove.—Recent paint spots may sometimes be removed with hard rubbing. If the fabric will not bear this, however, a quill should be dipped into turpentine, and the spirit dropped upon the stain.

This should be allowed to remain for some hours, then rubbed off. If the paint be wet, spirits of turpentine should be applied immediately on a sponge. Sulphuric ether as well as spirits of turpentine will remove paint spots.

Painting, Face. (*See* FACE, PAINTING ON.)

Painting, House.—For ordinary house work and furniture, the following is the course to be adopted:—If the material to be painted upon is wood, the surface should be made smooth, and all holes carefully stopped with putty. If knots occur, especially in deal, they must be "killed," or the turpentine will exude. To do this effectually, plaster the knots with fresh-slaked lime, and let it remain on for twenty-four hours; then scrape it off and coat them with size, prepared for the purpose of red and white lead ground in water and mixed with strong liquid size or glue, to be applied warm. When hard, rub the size smooth with sand-paper. If necessary, repeat this process. Next lay on the priming, or ground, which is made of white-lead ground in linseed oil, with four ounces of driers and four ounces of red-lead to every ten pounds of white-lead. Take care to cover the work well with this, and when quite dry rub it over carefully with sand-paper. The second coat of colour is to consist of white-lead and linseed oil, with a double proportion of driers and as much turpentine as linseed oil. When dry, rub down with sand-paper as before, and for a third coat use half linseed oil and half turpentine. If a fourth coat is given, the colour must have twice as much linseed oil as turpentine, unless it is to be "flatted" with a view to varnish, &c., when the colour must be wholly mixed with turpentine. When a dark colour is to be the last, the second coat may be of lead colour and the third more nearly of the one to finish with. The last coat should be very finely ground, and if good need not be a heavy one. In painting doors and panelled work, go over the edges and outer mouldings first, and end with the smooth surfaces. Where there are mouldings or carvings, they should be painted before the plain parts. Always remember to begin to paint at the top, and rather on the right hand than the left. Lay the colours on evenly, look well to the edges and wherever the paint can accumulate or run, and never use too full a brush. A skilful hand will make a little paint go a long way, and if the work is well coated, and each layer quite dry before another is applied, there will be no blisters or other disfigurations. Stucco requires more coats of paint than wood. (*See* OIL COLOURS, TO PREPARE.)

Painting (in Oil and Water).—For artistic *painting in oil*, colours are sold in metallic tubes specially prepared, from which they are squeezed out in the requisite quantities upon a palette of wood or china, with a medium of oil, or oil and varnish combined. The oils most commonly used are linseed, nut, and poppy oil, with sometimes drying oil, used chiefly with slow-drying pigments and spirit of turpentine. These are applied with hog-hair, camel-hair, and badger-hair brushes, the last being frequently known as softeners or sweeteners—names derived from their uses. Metallic cups are used for the oil and turpentine. A wooden palette is generally preferred: it should be hard, free from knots, and of a close, non-porous texture; and previous to use requires to be saturated with linseed oil, and dried in the air in a place as free as possible from dust. A palette-knife, easel, and maul, or rest-stick for the hand, will also be required, together with a slab and muller and prepared paper, millboard canvas, or wooden panel, the surface most commonly in use for oil-paintings being canvas. The painting-room should be kept very clean and free from dust. The colours are applied with the harder brushes, and blended with the softer brushes. The processes by which they are applied are known as glazing (painting with thin transparent colour), impasting (painting thickly with opaque colour), and scumbling (an intermediate process, with colour partially opaque and of medium thickness). A glazing colour must always be darker than that over which it is applied, for which reason allowance should be made in the previous painting, which should, moreover, be just dry enough not to work up or cause the glaring colour to be lost or absorbed, and not so dry as to render glazing difficult. In painting, be careful to preserve the purity and freshness of your colours by not disturbing them too frequently with the brush. The first painting is called the dead-colouring, which consists in modelling or rounding out the objects in relief, and laying in the broader masses of colour, avoiding the more minute details and subtle tones. When this is dry enough to paint upon without disturbing the surface, a second painting follows, strengthening the drawing, enriching the colour, increasing the gradations of tones and tints, and generally approximating nearer, in roundness, force, and fidelity of colouring, to nature. When the second painting is dry enough, a third may follow for the more minute details, the final glazings, and scumblings. It is of course impossible to give, in the space at our command, complete instructions for the acquirement of this art, but there are many excellent handbooks published, most of which are exceedingly sound and practical, emanating as they do from the pens of skilful professors. *Water-colour painting* is executed with dry colours in cakes, or moist colours in pans or tubes, with water as a medium. The pigments have different degrees of transparency or opacity. The brushes used are of camel-hair or badger-hair, and of various sizes, called, according to the nature of the quills employed in making them, eagle, swan, goose, duck, and crow-quill. Brushes of corresponding size are also made in metal. The broader masses of colour are applied in "washes," and the more subtle gradations and effects are got by a process of "hatching," or stippling; stippling being executed with dots of different shapes and sizes, hatching by short strokes crossing and re-crossing each other, and thus allowing the effect of one colour to be seen under another, as it is in glazing with oil-colours. (*See next paragraph.*)

Painting on Various Materials.—Fresco-painting is executed on a surface prepared with lime; distemper painting can be applied to wood, stone, canvas, &c. Enamel colours are used for metallic surfaces, and may be bought ready for use; water-colours for ivory, card or paper, silk or velvet. For painting on glass in windows, the colours may be used in water, and afterwards varnished or ground up to great fineness, and applied with copal varnish as a medium, diluted, when required thin, with spirits of turpentine. Ground glass affords a better surface for the reception of the colours, and the design having been previously made on paper, is laid under it for tracing. The outlines must be quite dry before proceeding to lay on the colours. For magic-lantern slides the glass must, of course, be plain. Camel-hair pencils are used with what are called dabbers—namely, brushes the points of which have been removed by burning, to produce a rounded, blunt, stump-like, but smooth end to each. The pigments used are, of course, those which possess the greatest transparency and brilliancy. The dabber is used after the colours applied have been rendered damp by breathing upon them, to soften their edges or blend one with another. For painting on china, mineral pigments are used, which can be vitrified by the action of heat. The design is transferred, by the aid of red oiled paper placed under the drawing, to the china or earthenware, which has been previously and carefully washed with warm water and a little soda, and afterwards wiped over with a little turpentine. The colours are laid on somewhat thickly if the surface be one of earthenware, and white can be mixed with them, but on the harder surface it cannot be used. The colours are diluted with rectified turpentine; and when the preliminary painting is completed, the work is put aside in a place free from dust until thoroughly dry and hard, and this is repeated after each painting. Re-painting is conducted after the firing with greater ease, the colours being thereby fixed, and not being likely to be disturbed by re-touching. Colours ground in turpentine, suitable for painting upon the hard paste and the softer earthenware, or for grounds, are prepared and sold ready for use in tubes similar to those in which oil-colours are kept. For painting on vellum, the ordinary water-colours, moist or dry, are used. For painting on ivory, *see* MINIATURE PAINTING; and the same process will also serve for painting on marble.

Paintings, Arrangement and Care of. (*See* PICTURES, ARRANGEMENT AND CARE OF.)

Paintings, Copyright in. — By the Act 25 & 26 Vict. c. 68, it is enacted that "the author, being a British subject or resident within the dominions of the Crown, of every original painting, drawing, and photograph which shall be or shall have been made either in the British dominions or elsewhere, and which shall not have been sold or disposed of before the commencement of this Act, and his assigns, shall have the sole and exclusive right of copying, engraving, reproducing, and multiplying such painting or drawing, and the design thereof, or such photograph and the negative thereof, by any means and of any size, *for the term of the natural life of such author, and seven years after his death.*" By the first section of the same Act it is provided that the copyright in a painting, drawing, or the negative of any photograph, sold or disposed of to any person, or made or executed for or in behalf of any person for a good and valuable consideration, is vested in the vendee or assignee, unless expressly reserved to the author at or before the time of sale or assignment. By the second section of the Act it is provided that though copyright may exist in a copy of a non-copyright work, or in a photograph of an object or place, such copyright shall not prevent any other person from also copying the non-copyright work, or photographing the same object or place, the holder of the copyright in such cases being only entitled to the sole right of multiplication of copies of his own copy or photograph. Copyright in paintings, drawings, and photographs must be registered at the Hall of the Stationers' Company similarly as with books. (*See* COPYRIGHT.) The fourth section of the Act provides that "no proprietor of any such copyright shall be entitled to the benefit of this Act until such registration, and no action shall be sustainable nor any penalty be recoverable in respect of anything done before registration."

Paintings, Varnishing. — A picture should be varnished directly it is dry enough, and while fresh from the painter's hand, as the process then prevents those changes which take place when certain mediums and pigments are exposed unprotected by its hard transparent surface to the action of light and air. But it must not be varnished before its surface is thoroughly dry and hard, as by preventing the absorption and evaporation of the oil employed with the pigments, the colours would be apt in time to grow horny and discoloured. Before varnishing, wash the surface and thoroughly dry it. Place it flat upon a table where it is not exposed to chilling draughts of air, and filling your brush with varnish—not too full, as the coat of varnish should be thin—carry it over the painting as rapidly as you can with a firm even pressure from the top to the bottom in a straight line, repeating the process until the entire surface has been coated. Then pass the brush over the varnish from side to side in the same way, to render it more even. Bright warm weather is the best for varnishing, as a current of cold air causes an effect called "chilling" or "bloom." (*See* VARNISH.)

Paints, To Mix.—Directions respecting the preparation of *oil-colours* are given under the heading of OIL COLOURS, TO PREPARE. *Water-colour* paints should be rubbed on a palette or saucer with a little water.

Palæography.—An antique mode of writing or otherwise, representing the words of a language; hence the study and art of deciphering and explaining ancient records. This art is of great importance and value in the discovery and determination of the age and character of manuscripts, inscriptions, and other documents.

Palæontology.—That branch of zoology which treats of fossil organic remains, the word

being derived from the Greek *palaios*, ancient; *on, ontos*, being; and *logos*, a discourse.

Palanquin, or Palankeen.—A covered litter which is used in hot countries for travelling purposes. It is carried on the shoulders of four bearers, who are called coolies. In India, where journeys are frequently made during the night to escape the intense heat, palanquins are provided with mattress and pillow, and have curtains round them. This mode of transport is considered very agreeable when the traveller becomes accustomed to it. There is no real occasion for fear of accidents, as the bearers are accustomed to their burdens; they proceed at a rapid pace, and the peculiar smoothness of their step gives a pleasant motion to the conveyance.

Palatine, County. (*See* COUNTY PALATINE.)

Paleography. (*See* PALÆOGRAPHY.)

Paleontology. (*See* PALÆONTOLOGY.)

Paletot (French, *paletot* and *pale-toque*, a peasant's frock, probably derived from the Latin *palla* and *toque*, or a frock with a hood or cap).—This appellation now signifies a species of loose over-coat, made of any light description of cloth, and formerly only worn by gentlemen. In the present day the coats or long jackets worn by ladies in the cold season, and made of silk, cloth, matelassé, &c., are called paletots. They are not tight-fitting, the fronts being loose, and the backs slightly cut in to the waist.

Palette.—An oval plate, flat and thin, made of ivory, porcelain, or walnut-wood, on which artists place their colours and prepare the tints for painting in oil or otherwise. The palette is held in the left hand, the thumb of which is passed through a hole made at one end of the palette for this purpose. (*See also* PALLET.)

Palfrey.—The palfrey, or lady's horse, should not be more than fifteen hands two inches in height, nor under fourteen, as the fair rider loses much of her natural grace and quiet ease as an equestrian upon a steed too small, or upon a larger, and consequently less easily managed one. The temper, action, breed, training, and general conformation of the horse should all be consulted with regard to the animal's fitness to act as a palfrey. Such a horse should be well broken and bred, with good action, and power sufficient to meet the greater demand made upon it by the side-saddle and the position of the rider; with depth of shoulder and fore-rib essential for the security of the saddle, and a back not too short. In training a horse for a lady's riding, the whip should be used as little as possible, and after training it is essential that the animal should have regular exercise. A horse with upright ill-formed shoulders is particularly unsuitable for a palfrey, as also, of course, is a steed addicted to some dangerous vice, or having faults rendering him unsound or unsafe.

Palimpsest.—A manuscript the original writing of which has been erased or chemically removed, and subsequently written over again a second or even a third time. The original writing often re-appears, or can be restored, and is frequently far more valuable than that with which it has been afterwards covered. Some of the most ancient manuscripts known are palimpsests.

Palindrome.—A word, line, or sentence so constructed that it can be read either backwards or forwards.

Palissy Ware.—A kind of pottery work of great beauty and value, named after Bernard Palissy, the potter of saints, who was its inventor. It was the result of experiments extending over sixteen years, and dates from 1555. This ware has on its surface figures in relief modelled and coloured from nature, with ornamental designs, also in relief.

Pall.—A square covering which is thrown over coffins when borne to the grave, usually made of black velvet, with a deep black silk frill round the edge; at the funerals of children and young maidens white silk is often substituted in the place of the black. Latterly coloured palls have been sometimes introduced, to further the idea that death should be regarded as the entrance into a brighter life, and therefore the symbols should be of a brighter character; violet and white are the colours generally chosen. It is the custom for the four corners of the pall to be held; this office of pall-bearer is usually given to the personal friends of the deceased. In the Roman Catholic Church, the name of pall is given to the small square cloth which covers the Eucharistic elements at the celebration of mass. This is made entirely of linen, or of silk lined with linen, for it is considered essential that linen only should touch the consecrated vessels. A broad hem is the usual finish to the border.

Palladium is a very rare metal, principally obtained from South America, and generally associated with platinum, which it resembles in colour. It is fused with great difficulty, and is very hard, but is malleable and ductile. It is not acted upon by the air at any ordinary temperature; and hence is used in making the graduated scales of scientific instruments, and other philosophical apparatus in which great exactness is required, having this advantage over platinum, that it is only about half as heavy; but it is very costly. An alloy of palladium with one-tenth of silver is sometimes used by dentists.

Pallet. — Among potters, a pallet is a wooden instrument, and may be either round or oval. It is used by them for forming, heating, and rounding their works. In gilding, a pallet is an instrument made of a squirrel's tail, to take up the gold leaves from the pillow, and to apply and extend them. In clock and watch work, pallets are the pieces connected with the pendulum, which receive the immediate impulse of the swing wheel, and are of various forms and constructions. A pallet is also the name of a measure, containing three ounces, which was formerly used by surgeons. (*See also* PALETTE.)

Palliasse.—This is a kind of mattress stuffed with straw which is placed under the mattress next to the bedstead, which it is made to fit. Two palliasses are required for ordinary-sized bedsteads. Palliasses should be brushed at least once a fortnight, and taken quite off the bedstead, which should then be thoroughly dusted. The beds which soldiers use in camp are called palliasses.

Pallor.—Paleness, or the withdrawal from the countenance, &c., of that pinkish hue which is natural to it. Pallor is the opposite of blushing, and is ascribed very often to depressing emotions, caused by unpleasant or painful discoveries and communications. It is a fact, however, that often what will give rise to pallor in one person will lead another to blush—a circumstance which is doubtless owing as much to difference of temperament as to difference of emotion. Fear, surprise, anger, jealousy, consciousness of guilt, suspicion, &c., may all be indicated by the change of complexion called pallor. When habitual, the loss of colour is, of course, symptomatic of various diseased conditions. In all cases there is a diminution of the usual quantity of blood in the minor vessels which give its characteristic tint to the skin. (*See* Blushing.)

Palm Oil.—Palm oil and palm-nut oil are two distinct substances. Both are obtained from the palm-tree, which is a native of Africa; the difference between the two consists in the fact that palm oil is extracted from the fruit of the tree, and palm-nut oil from the kernel of the fruit. Formerly the nut was rejected as useless after the oil from the fruit had been extracted; but now a fixed oil is derived from the kernel, which is palm-nut oil. Palm oil is obtained by bruising and boiling the fruit, and has a very pleasant odour somewhat resembling violets. It is imported from Africa to Britain in large quantities, and is used for making candles, toilet-soaps, and for many other purposes. In Africa and in warm atmospheres it is liquid, but in colder regions it becomes as firm as butter. The unripe nuts of the oil palm are used in some parts of Africa for making soup, which is excellent.

Palm Sunday.—The Sunday before Easter, thus called from very early days, because it was the custom to carry palm-branches on that day, in celebration of the triumphant entry of Christ into Jerusalem eight days before the Feast of the Passover.

Palma Christi.—This is the name given to the *Ricinus communis*, or castor-oil plant, belonging to the order *Euphorbiaceæ*. It may be cultivated in this country, and should be first sown in pots or in hot-beds early in the season, and afterwards planted out. Although very ornamental and beautiful, in Britain it never exceeds two or three feet in height; but in Spain, and more especially in India and some parts of Africa, it is not merely a shrub, but a very tall tree. The palma christi is also cultivated in the West Indies, and in both North and South America. The oil is obtained from the seeds either by the aid of heat or without; if by the latter process it is called cold drawn, and esteemed greatly superior. It is a very mild though somewhat nauseous aperient, operating quickly and painlessly. It is given in the diseases of infancy and childhood, and in hæmorrhoidal affections, and in cases of an inflammatory kind where it is desirable to open the bowels gently. It is best given floating on a little broth, boiled milk, coffee, or brandy, or as an enema. The dose is from one to four table-spoonfuls.

Palmistry.—The practice or alleged ability to tell one's fortune or character by means of the marks or lines upon the palm of the hand. Common fortune-tellers are prone to resort to it; and not a few persons of some intelligence believe that the lines of the palm are an index to personal character. How little reliance can be placed even upon the latter idea is shown by the fact that some of the marks upon the palm are greatly influenced by the manual occupations of individuals, while others are invariable and are caused by the action of the thumb and the fingers, and others again are dependent upon the degree of the hand's fleshiness.

Palpitation. (*See* Heart.)

Palsy. (*See* Paralysis.)

Pamphlet.—A short printed treatise or essay, consisting of sheets merely stitched together, with or without a paper wrapper, but not bound. The subject of a pamphlet is generally one of temporary interest only.

Panacea.—A remedy for everything. Popular and pretentious medicines are frequently described as a panacea for a long list of ailments; but prudent people will understand that no one drug or combination of drugs can be efficacious in all cases. Even medicines which are deservedly regarded as specifics sometimes fail in their operation in their own peculiar domain; it is therefore impossible to believe in a universal remedy.

Panada is one of the substances employed in the preparation of French forcemeats. It is made by soaking finely-grated crumb of bread in water, and when it is soft wringing out the moisture, and stirring the mass over a slow fire till it is smooth and dry, then spreading it out to cool. Panada for kromeskies, croquettes, and similar dishes, is made by stirring flour and water together over a slow fire till it is a stiff paste, then mixing with it a little fresh butter and the yolk of an egg. Panada for invalids consists of dressed meat, such as the under side of a cold roast sirloin, or the white flesh of a chicken, pounded with an equal quantity of bread-crumbs, then made into a fluid paste with beef tea or chicken broth. This preparation is considered very wholesome and digestible.

Pancakes.—These culinary preparations are intimately associated in the popular mind with Shrove Tuesday, but the origin of the connection is not known. It is most probably the relic of a heathen custom, for at a certain time of the year pancakes were offered by the pagan Saxons to the sun. Later they came to be connected with the religious ceremonies of

the Church of Rome, and were eaten on Shrove Tuesday by those who were about to be shriven. The shrove bell was called the pancake bell, and the day of shriving Pancake Tuesday. At Shrovetide, before eating the pancakes, it was customary for the eaters to try which could toss them in the air most adroitly; and, according to an ignorant superstition, the maiden who could toss and turn the pancake, and catch it without breaking it the first time of trying, might behold her future husband in the first man who passed the house afterwards. The first pancake that was made was presented to the greatest lie-a-bed of the household. It will be remembered that the parishioners of the Vicar of Wakefield "religiously ate pancakes at Shrovetide." The pancakes thus celebrated consist simply of batter fried over a quick fire in a pan which has been previously heated and greased with fat, oil, or butter. When one side of the pancake is browned, the skilful cook gives the pan a little jerk upwards, and manages to turn the pancake completely over. The art of tossing the pancake is easily acquired by practice. Pancakes which contain fruit, or flavouring ingredients of any kind, and are smaller than the pan in which they are fried, are named fritters.

Pancreas.—This is a large and important gland which lies transversely behind the stomach. It is from six to eight inches in length, about an inch and a half in breadth, from half an inch to an inch in thickness, and weighs from three to four ounces or more. In structure the pancreas is analogous to the salivary glands of the mouth, and secretes a similar fluid called the pancreatic juice. This juice is carried out of the gland by the pancreatic duct into the duodenum, or small intestine, where in conjunction with the bile it acts upon the food, or chyme, as it passes out of the stomach during digestion, converting it into chyle, and thus fitting it for absorption into the blood for the nourishment of the body.

Pandean Pipes.—An ancient rustic instrument of music, formed of a series of small pipes graduated so as to give the ordinary diatonic scale, and varying in compass from one to two octaves. There is little doubt that from this primitive instrument arose the idea of the stately organ, whose rows of "flues" have the appearance of colossal Pandean pipes; while the tiny "mixture" pipes in the largest organs are so small that they could be played upon with the mouth. And the instrument acquires additional importance as such when it is understood that with the lip the octave harmonics, as well as those of the fifth or twelfth, can be obtained with surprising clearness and brilliance of tone by an apt player. These pipes are ascribed by the legend to the god Pan, hence the name given to them.

Panel (Legal).—The document containing the names of the jurors returned by the sheriff to serve on a jury; and empanelling a jury is the entering their names in the sheriff's roll or book. In Scotland the term signifies the accused person in a criminal trial.

Panier.—A puffed over-skirt, consisting of a large balloon-like puff at the back, round which there was a flounce, frill, or fall of lace. To this, the original shape so designated, two more puffs were added over the hips. This style has been out of fashion for some years. It was one of the distinguishing features of the Watteau costumes.

Pannage.—This is a legal term signifying the money collected by the agistors of the forest for the feeding of swine within the forest, and sometimes applied to the food itself.

Pannier.—A large wicker-work basket, such as was formerly slung, one on either side, of horses, donkeys, and mules, for the conveyance of goods (*see* PACKHORSE), is still known by this name.

Pannikin.—Properly, a small pan; sometimes a small tin saucepan with a lid, used for warming a baby's food.

Panorama.—A picture so contrived that it represents the entire landscape surrounding a spectator from a given point. The first to exhibit such a work was Mr. Barker in 1788, when a panorama was shown in Edinburgh. By a peculiar arrangement of perspective, a circular painting is produced, and this is hung round the walls of a circular room. The picture is viewed from a stage in the centre of the building, and the light is admitted through the roof, but so that the spectators cannot see the opening by which it enters. The effect is remarkable and the illusion complete, so that it is difficult for a spectator to realise the fact that he only gazes on a picture. The first building erected for a panorama in London was in Leicester Square in 1793, by the inventor, who died in 1806. The exhibition was continued by his son and by Mr. Burford, the latter of whom brought out a fine series of panoramas, and died in 1861. Several modifications of the original idea have been introduced, but none of them equal it in importance.

Pans, Cooking.—The various utensils used in cookery are made of silver, copper, brass, tin, iron, and lead. Silver is, of course, used only for very special articles. If it were less expensive it would be more employed than it is, for it cannot be dissolved by any of the substances used as food. Brass pans are only found in old houses; they have gone out of fashion. The pans ordinarily used are made either of tinned copper, tinned iron, iron, and blocked tin. Copper vessels will last a lifetime, but they need to be frequently examined, as the copper itself when dissolved is highly poisonous, and the tinned lining, which consists of a thin coating containing both tin and lead, is apt to wear, and needs to be frequently renewed. Iron is one of the safest metals which can be used for making cooking pans, for in itself it is not an unwholesome substance, even if a little should be dissolved and mixed with the food. It is objectionable, because it is liable to rust and soon decays. Blocked-tin vessels do not wear so well as copper and iron ones. Porcelain saucepans are the best for delicate culinary preparations. They are not particularly expensive, and they are very easily cleaned, for they can be washed like a dish; but they are

very brittle, and require great care. All cooking pans should be washed and scoured each time they have been used. By this means only can they be kept in good order.

Pans, Foot. (*See* FOOT-PAN.)

Pans, Warming.—"A warming-pan," said Mr. Serjeant Buzfuz, "is in itself a harmless, a useful, and I will add, gentlemen, a comforting article of domestic furniture." It is, however, going out of fashion. It consists of a copper pan with a closely-fitting cover and a long wooden handle. Red-hot cinders are introduced into the pan, which is then well shaken and moved about between the sheets of a bed, being passed slowly over the surface, so as to warm it thoroughly in every part. To any one who suffers much from cold this is a great luxury. Great care should be exercised when using a warming-pan, for if left in one place for more than a few seconds it would scorch the sheets and might do more serious mischief.

Pansy, or Heartsease. — This name is given to those kinds of violets that are cultivated in gardens, such as the *Viola tricolor*, the *Viola lutea*, &c. These grow wild in almost every country of the globe, and there are at least a hundred different species common in our gardens. They begin to bloom in May, and although the midsummer heat checks them a little, they are in full vigour again in August,



PANSY.

and continue to flourish until checked by winter's frost. The soil they like best is only moderately rich, and should be well sheltered from cutting winds, but at the same time freely ventilated. They may be propagated either from seed or cuttings, and are best grown in beds, and occasionally watered and protected from too much sun.

Pantalets.—A sort of loose drawers worn by children, &c., but more particularly the kind of article described under the word LEGGETS, and made in separate pieces.

Pantaloon.—A stage character, the associate and subordinate of the clown. The name is derived from the Italian, and is descriptive of a garment combining breeches and stockings in a single piece. The real etymology of the word is, however, uncertain.

Pantaloons.—By this term trousers (*which see*) were often designated; hence the familiar abbreviation pants.

Pantograph, or Pentagraph.—This is an instrument which by adjustment may be used for tracing larger, smaller, or of the same size, the outlines of any print or drawing upon a separate surface. It was invented by Christopher Scheiner, a Jesuit of Suabia, in the early part of the sixteenth century. It acts very simply and is readily adjusted, requiring no knowledge of drawing in the operator. The pentagraph is largely used in mechanics and by artists who do much copying of a simple kind; it consists of a set of diagonally arranged arms, two short and two long, connected together with the pencil at one end, and a sliding index for regulating the instrument so as to produce a copy of any given size.

Pantomime.—As the derivation of the word implies (Greek, *pantomimos*, an imitator of all), a pantomime is a kind of theatrical representation, consisting solely of mute action. In this form pantomimes owe their origin to the Greeks, and from them they were introduced to the Romans. The modern pantomime consists of a mimic representation by means of fantastic gestures and actions, performed by certain characters, known as harlequin and columbine, pantaloon and clown, &c. The term pantomime is now also often erroneously applied to a composite representation, consisting of a kind of burlesque with dialogue, followed by a pantomime proper; the change from the first part of the performance to the second being effected by means of a transformation scene, the principal characters in the burlesque usually taking the parts of harlequin, columbine, clown, &c., in the pantomime.

Pantry.—A cellar or closet where the food is kept. This part of a house should be kept perfectly clean and well ventilated, and it should be arranged that a constant current of air can pass through the apartment, which may thus be kept cool and free from smell. If two iron gratings are inserted in the wall opposite each other, this object will be attained. The floor and shelves of the pantry should be washed and scrubbed at least once a week. Nothing should be allowed to remain in the pantry that is not perfectly sweet; anything that is in a state of decomposition is almost certain to render other food unwholesome.

Papaw.—This is the name usually given to a remarkable tree, a native of South America. It is called by botanists *Carica papaya*, and belongs to the natural order *Papayaceæ*. It has a straight, erect, and branchless stem, about fifteen or twenty feet high, with long broad seven-lobed leaves. The stem abounds in milky juice, but the tree is principally cultivated for the sake of its fruit. This latter is a large oblong berry with a sweetish, not unpleasant taste, and is greatly relished by many. The milky juice of the unripe fruit is greatly extolled by

some writers as a vermifuge, being, it is said, very certain in its action. The most remarkable property of this tree, however, is in its juice. If water is mixed with it, and tough meat washed therein even for ten minutes, it is rendered perfectly tender. If, again, old hogs or poultry are, before being killed, fed upon the leaves and berries, the flesh when dressed for the table is found to be also tender.

Paper.—The art of paper-making is said to have reached us from China in the sixteenth century, although as a branch of manufacture it made comparatively no progress before the Revolution, after which the art became so extensively practised that in 1760 Great Britain no longer imported paper. At first it was made exclusively from rags, but in the present day vegetable fibres are very largely used, as they were in France as early as 1751, when Guettard experimented in paper-making with bark-leaves, wood, straw, &c., as did also, in 1765, Dr. Schaeffer in Germany, and M. de Villette, who used the bark of the lime-tree and marsh-mallow. Rags are still in demand: cotton for the production of a more or less soft woolly textured paper, such as is used for printing; linen for papers used for writing and similar purposes; and dirt-stained, dyed, and inferior rags for coarse papers for wrapping and other less important purposes. Brown paper is obtained from waste bagging, refuse pieces of rope and matting, hemp, and jute. Waste paper is also re-made into the commercial product. Esparto grass, straw, and wood are the vegetable materials now in use for paper-making. The former makes a paper admirably adapted for lithography and printing-paper, and the cheaper kinds of writing-paper. An excellent paper is made from oat and barley straw, most of the millboards used for box-making and bookbinding being produced therewith. Wood ground to a pulp gives a fairly good printing-paper. The various kinds are principally distinguished as writing, printing, pressing, cap, cartridge, copy, chancery, post laid, blue wove, yellow wove, &c.; their colours ranging from white through various tints of buff, blue, brown, &c.; and their qualities being defined as fine, second, bastard, superfine, &c. The sizes of papers for writing and drawing bear the names demy (20 inches × 15½ inches), medium (22 × 17), crown (20 × 15), foolscap (16½ × 13½), pot (15½ × 12½), royal (24 × 19), super-royal (27 × 19), imperial (29 × 31), elephant (28 × 23), atlas (33 × 26), double elephant (40 × 26), antiquarian (52 × 30), large post (21 × 16½), small post (20 × 15½), wove-antique (52 × 27). Printing-papers are distinguished in size as double foolscap (27 × 17½), demy (22½ × 17¾), royal (25½ × 20⅜), extra-royal (27½ × 20⅞), crown (20¾ × 17½), post and half (24 × 19½). Common letter-papers, usually quarto post or octavo post (note-paper size), are seldom of the size in which the sheets are made. They are sold in quires, each containing twenty-four sheets, unless they are quires known as outsides, when they contain twenty sheets; in reams, consisting of twenty quires, unless the ream is what is termed a printer's ream, which is twenty and a half quires. A bale contains ten reams. Drawing-papers are not made smaller than demy.

Paper Flowers.—There are in London, and in various places in the country, makers of artificial flowers of paper, and the latter can be obtained perfectly finished; but those who wish to make them at home can purchase every description of leaf, stamen, pistil, stem, and petal, and in colours of every shade suitable to each several flower. These are ready crimped and glazed when necessary, and are sold in dozens for the demands of home manufacture. Single flowers may be purchased as patterns. Sixpenny-worth of pink, red, and yellow paper will make several roses, and a great many single-poppies may be made out of one sheet of scarlet paper. These latter will require a "heart" made of black feathers, cut off straight at the top, and tied together in a small bunch. As certain accessories are required for the making of some flowers in addition to paper—as, for instance, in the case of buds, which must be formed over wadding—velvet may also be required, and beads, &c. French tissue-paper is the right kind for the purpose, sold at sixpence a sheet; the ordinary sort is not sufficiently good. But for some flowers, white cartridge-paper is required, which should be covered with whatever colour suits the flower. For example, the large pink lily is made of cartridge-paper, covered with pink. There are other flowers which require thick paper, such as the fuchsia, or else the tissue-paper must be doubled. Ends of coarse cotton will also be needed for the long stamens, and gum or melted wax to stiffen them. Amongst the rest of the appliances needed in paper-flower making, wire, a small gaufferer, a knife for crimping scissors, and cardboard, of which the models must be made, should be named as essentials. To make a model, a fresh petal should be laid between two sheets of blotting-paper placed under a weight for twenty-four hours, then laid on paper, and the outline traced, when the shape of the original leaf can be cut out in the cardboard.

Paper Hangings.—Paper taking the place of the old tapestry hangings, has partially retained their name, although paper is not, in the literal sense of the word, hung. It had its origin in the seventeenth century, and was at first made to imitate the woven hanging, or tapestry, then in use. One of the first large manufactories was that of François, of Rouen, which was carried on from 1620 to 1630. One of the earliest notices of English-made paper-hangings is in the Patent Office, where we find the record of a patent taken out for their manufacture, in 1712, by William Bayly, though a similar patent was granted in May, 1634, to Jerome Lanyer, who gave them the name of "Londrindiana." They were originally stained, and further decorated by the aid of stencilling; and a transfer process and blocks were not introduced for printing the patterns before the eighteenth century was near its close. The paper is manufactured in "endless" rolls, and coloured by machinery with pigments, rendered opaque with whiting, or the ordinary car-

bonate of lime, chalk, or carbonate of baryta, made into a paste with a size of animal glue, or from starch, &c., according to the purpose to which they are to be applied. The blocks with which the patterns are printed are made of wood, in three layers, so fastened together with "cheese-glue" that the fibres alternately cross, two being of pine and one of pear wood. These blocks do not warp, and they are sometimes coated with metal to increase their durability. We have no space wherein to dwell upon the different processes by which paper is made to imitate silk and satin, porcelain tiles, granite or marble, old tapestry, choice woods, stamped leather, &c.; nor, for the same reason, can we detail the means whereby it is adorned with landscapes and statues, decorative panels, flowers, or other ornaments with rich colours and gilding. The most elaborately pictorial, decorative, and costly paper-hangings come from France, and many of these are painted by hand, and some are, in their way, genuine fine-art productions. In selecting a paper for the walls of a room, its aspect, as well as the amount of light it admits, should not be forgotten. For a southern aspect, delicate tones of a cool nature are more suitable; for a colder northern aspect, colours or tints of a warmer kind are preferable; in a dark room the paper should reflect light, when in a lighter room it may absorb it. The patterns artistically to be avoided are those which ignore the idea of a flat surface and give dominance to that which should serve as a background, subordinated to the living figures, furniture, and more costly adornments of the room. The most uncomfortable are those which keep prominently before the eyes of each inmate a series of dots or figures, representing flowers or geometrical figures, ranged in regular order at uniform distances on a flat ground of some one colour. The best time for "hanging" papers is when the weather is not too hot. Never hang it over old papers and paste, but remove them by thorough washing and scraping. A little saleratus with the water will facilitate this process. Fill in cracks in the wall, if there are such, before papering, with plaster of Paris. The adhesive material employed is paste, and the best for this purpose is perhaps that made with rye-flour, having to each pint two ounces of glue and half an ounce of powdered borax.

Paper Hangings, To Clean.—Nothing is better for this purpose than a piece of stale bread, applied with a circular movement to the paper.

Paper-knives.—The leaves of books require to be cut with a blunt-edged knife, and therefore special knives are provided for the purpose. These are made of ivory, wood, horn, silver, and gold; the blades are broad and either edge is blunt. An ivory knife is the most satisfactory for cutting paper. There should be a paper-knife of some description in every sitting-room, for if one is not at hand persons are apt to use a penknife or scissors, and then the edges of books are usually torn or made ragged.

Paper, Marbling. (*See* MARBLING PAPER.)

Paper Models for Dresses. (*See* MODELS, DRESS.)

Paper, To Remove Grease from. (*See* GREASE, TO REMOVE.)

Paper, To Stain or Gild.—To stain paper yellow, a tincture of turmeric will be found serviceable. This is made by infusing the powdered root into spirits of wine, in the proportions of one ounce of turmeric to one pint of the spirit. To give the brilliant yellow thus obtainable a warmer character, annatto or dragon's blood may be added. For crimson stain, lake infused in the spirit may be used. Ordinary red ink used for writing forms a good stain. A solution of verdigris in vinegar will stain paper a rich green. For orange, use the turmeric as above, and afterwards a solution of half an ounce of pearlash in a quart of water after it has been filtered. A purple stain is given by the juice of ripe privet berries expressed, by tincture of logwood, or archil. For gilding paper, the ordinary leaf gold is used, with gum or parchment size, or white of egg and water, or isinglass dissolved in spirit. (*See* PARCHMENT, TO STAIN OR GILD.)

Paper, Tracing. (*See* TRACING PAPER.)

Paper Work, Ornamental.—Rosettes of paper are pretty ornaments for picture-frames, and especially suited for nursery pictures. When the rosettes are made of thick glazed brown paper and afterwards varnished, they closely resemble carved woodwork. Brown paper rosettes put on a scarlet-bordered frame produce a very good effect. White paper rosettes form effective letters for mottoes and texts when placed on a coloured ground. Mats can be made by folding tissue-paper into bands of an inch in width. Bands of two or more colours are plaited closely together: this forms the centre of the mat; all the ends are then cut in very fine strips, and these are afterwards crumpled and crushed in the hand, which method forms a thick but light border. In this way ornamental dish papers can be made of white glazed paper. Lace work can be imitated with paper; this has been described as Anglo-Japanese work (*which see*). Flowers also can be represented in paper, as referred to under the heading of ARTIFICIAL FLOWERS.

Papeterie, or Paper-case.—Papetaries are made of various kinds of leather, of wood, of papier-maché, and of ivory, choice being given according to the room in which they are to be placed, as well as the consideration of the money to be expended. Their use is that of holding writing-paper and envelopes of different sizes, for which different-sized partitions are provided. Every writing-table should be furnished with one of these cases, this arrangement being much more convenient for the purpose than a drawer. It is usual, but not imperative, for this case to match the other articles on the writing-table, more especially the blotting-case.

Papier-maché.—Although this substance bears a French name, it is of English invention. It was formerly used for mural decorations, also for picture-frames and articles of furni-

ture; but as its appearance was poor, and it was liable to crack and break, such uses were discontinued, and now only tea-trays, inkstands, and small knickknacks are made of papier-maché. There are several kinds of papier-maché, varying in quality according to the process of manufacture. The cheapest sort is made by pasting together sheets of prepared paper, and then subjecting them to great pressure; a superior quality is produced by reducing paper into pulp, which is then pressed into moulds, afterwards polished, and finally painted by hand. Another kind of papier-maché has been introduced, which resembles wood both in the closeness of texture as well as in its fibrous character; this semblance is produced by an admixture of gum and resinous bodies with the paper pulp.

Papyrography.—A mode of printing from a sheet of pasteboard coated with a calcareous preparation, the process being similar to lithography. The press used for the purpose is called a papyrograph, and is employed for the production of copies of limited numbers of documents in fac-simile. A machine called a papyrograph has been patented.

Papyrus.—This is a genus of plants which belong to the botanical order *Cyperaceæ*. It is a water-plant, growing either in running streams or in stagnant pools in Egypt, Syria, and Abyssinia. The stem is from three to six feet in height, and of a triangular shape, one of the edges of the stem, it is said, being always opposed to the current, as if to break its force. The flowers are in umbels, and are green. It is from this word papyrus that our word "paper" is derived, writing material having first been formed by the ancients from the soft flower-stem of this plant. Its use, however, is not confined to the manufacture of paper, for ropes are made from its stems. The roots, too, are sometimes used as food; and, according to some writers, Abyssinian boats are made from the papyrus.



PAPYRUS PLANT.

Par.—This word is most commonly used in relation to the rate of exchange between one country and another (*see* EXCHANGE); but it also denotes the equality (Latin, *par*, equal) between the nominal and the market value of any public security or stock. When the market price of a stock exactly corresponds with its nominal value, that stock is said to be *at par;* when the market price, either on account of the good security offered or the high rate of interest, is more than the nominal value, the stock is *above par;* while if the market price, for any reason, is less than the nominal value, the stock is *below par*.

Parachute.—An appliance shaped like an umbrella at the top, but without a stick, from which a number of cords ranged all round the edge depend, and are attached to a small car or basket, large enough to hold a man, the cords being drawn nearer together and secured to each other not far from the car, but sufficiently far from it to allow a man to stand upright. It is designed for the purpose of sending down any person or thing from a balloon without danger of too rapid a descent.

Paradise, Grains of. (*See* GRAINS OF PARADISE.)

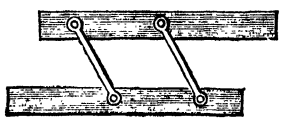
Paraffin and Paraffin Oil.—Paraffin is a combustible material, which is colourless and transparent, and is distilled from petroleum, coal and vegetable tar, &c. It is a pure hydrocarbon (composed of carbon and hydrogen), devoid of taste or smell, which melts readily at a low heat, and when burning gives a brilliant light. Paraffin has been obtained from the peat-bogs of Ireland; but the process was found so costly that the operations for procuring it were abandoned shortly after their commencement, the result being successful from a scientific, but the reverse from a commercial point of view. Large works exist for the production of paraffin in England, Scotland, and Wales, and we also obtain it from the United States of America. Ordinary paraffin melts at about 12° Fahr., a temperature which unfits it for use in hot climates—a difficulty which candle-makers avoid by its mixture with stearine or its greater refinement or purity. Paraffin oil was introduced by Mr. James Young. It gives a clear, strong, and comparatively white light when used for lamps, and can be heated to 140° Fahr. without fear of igniting the vapour. It is very extensively used for lamps. According to the experiments above referred to, one gallon of paraffin oil, weighing about 8¼ lbs., will give a light equal to that of 23¼ lbs. of spermaceti candles, or 27 wax candles, or 28¼ stearic candles, or 30¼ composite candles, or 40 best tallow-mould candles.

Paraffin Candles.—The superior and economical kind of candles made with paraffin are of comparatively modern introduction. This material is a kind of solidified gas, discovered originally by Reichenbach while carrying out the process of distillation from tar. To him its name, paraffin, is due. It was not, however, applied to any commercial uses until between twenty and thirty years ago. Dr. Letheby has pointed out that a paraffin candle possesses a greater illuminating power than those made of any other material. A spermaceti candle, for instance, weighing one-sixth of a pound, is consumed at the rate of 132 grains to the hour; and as compared with the standard illuminating power of a candle burning 120 grains per hour, its equivalent is 100. A paraffin candle of the same weight is burnt at the rate of only 122 grains to the hour, while its illuminating power is equal to 123, showing an illuminating power of 23 per cent. greater than the spermaceti; while as compared with wax its superiority is 40 per cent., and no less than 58 per cent. greater than composite.

Paraffin Lamps.—Paraffin oil requires for its combustion lamps of a very simple kind. The vessel holding the oil should be made of glass or stone, in order to prevent the oil from being made hot; and for the same reason there should be no metallic connection between the oil and the burner. A more rapid current of air is also required for the perfect combustion of this mineral oil than is required for animal and vegetable oils, and hence the adoption of a brass dome within the chimney, which causes the air to impinge more powerfully against the flame. The wick should be well dried before it is put into the lamp, as the oil does not readily rise in a damp wick. With good oil, the wick should last several months. In trimming the lamp, the wick should not be cut, but only wiped clean. Flat wicks are found to be rather more economical than annular wicks, but where a strong light is important the latter are better. The comparative illuminating power of paraffin oil is referred to in the preceding paragraph.

Paraguay Tea, or Maté.—Maté, or Paraguay tea, is extensively used in Brazil and South America as a substitute for ordinary tea. It consists of the leaf of a species of American holly, dried and roughly ground. The word maté originally belonged to the vessels in which the tea was prepared for drinking. These were generally made of gourds or calabashes, which were often trained during their growth to assume curious forms. The mode of drinking this tea is very peculiar, and unlike any English custom. Each person about to partake of the liquid is provided with a small tube, at one end of which is a bulb, made either of perforated metal or of very fine basket-work, and which acts as a strainer. The vessel, filled with hot tea, is then passed round, the tea being drawn into the mouth by means of the tube. In Paraguay and Brazil, maté tea is drunk largely as a beverage, and it is usual in these countries to take it exceedingly hot, much more so than with us. Maté tea is a stimulant and restorative.

Parallel-ruler.—A mathematical instrument used for drawing parallel straight lines.



PARALLEL-RULER.

In its common form it consists of two flat and parallel rulers, joined by two equal and parallel cross-bars.

Paralysis, or Palsy.—This is a condition of muscular relaxation of some part of the body, characterised by loss of sensation or motion, or both. It arises either from some interference with the conducting power of the nerve which supplies the part, from inflammation, softening, pressure of tumour, wound, poison (lead, for example), &c., or from some disease affecting the nerve-centres, or brain, from which the nerve has its origin. The following are some of the forms of paralysis which occur—viz., (1) facial palsy, (2) hemiplegia, (3) paraplegia, (4) wasting, local, or creeping palsy, and (5) palsy due to a specific poison. 1. *Facial palsy.* This form of paralysis will be found described under the heading of Face, Ailments of. 2. *Hemiplegia.* This is paralysis of one lateral half of the body, and is usually caused by pressure from a clot, tumour, softening, or exudation of either blood or lymph in some part of that side of the brain which is opposite the paralysed side. Hemiplegia, or, as it is frequently called, paralytic stroke, usually comes on quite suddenly, the person attacked falling to the ground and lying motionless. Consciousness may be retained, but there is generally more or less impairment, if not complete loss of speech. There is also deficient power of swallowing, the eyelids droop, the cheek hangs down, and the tongue when protruded is drawn towards the affected side. Hemiplegia occurring in connection with epilepsy is usually transient, lasting only a few hours or days; this is also the case when it is associated with chorea (St. Vitus's dance) or hysteria. 3. *Paraplegia.* This is a form of paralysis in which the lower half of the body, and frequently the bladder and rectum, are affected. The term embraces not only all those paralytic affections which originate in irritation of the spinal cord and its nerves, from local disease, or disorder occurring in the kidneys, bladder, womb, bowels (worms), and to which the name of reflex paralysis has been given, but also a somewhat similar condition which results from inflammation and softening of the spinal cord (myelitis). 4. *Wasting, local, or creeping palsy.* This form of paralysis comes on very gradually. It is usually due to disease of the spinal cord, but may result from sunstroke, injury, &c. The symptoms are a perceptible wasting of the muscles of the affected part, which lose their rounded outline, and are subject to twitchings, attended with more or less pain. There is also great sensitiveness to cold; and if the hand, as is frequently the case, is the part affected, there is increasing loss of power and grasp. 5. *Palsy due to a specific poison.* This may result from the action of lead, producing what is called lead palsy or wrist drop, or it may arise from mercury, or from some blood poison, as diphtheria (*which see*). The treatment of palsy in its various forms must have regard, as far as possible, to the causes which give rise to it. In hemiplegia, or paralytic stroke, the sufferer should be laid in bed and kept perfectly quiet; all sources of irritation or mental disturbance must be removed; the bowels should be thoroughly relieved by enemata or otherwise; and in certain cases bleeding, either from the arm, or by leeches, or cupping, will be found requisite. Blistering and hot douches to the spine have also been employed with advantage. In the early stages of the disease, belladonna, ergot of rye, and iodide of potassium are much used, and are said to lessen congestion of the cord. In paraplegia, arising from diseases of the bladder, womb, &c., injections and suppositories, chiefly composed of belladonna, are of considerable service in diminishing reflex action, and thus promoting the tendency to recovery. Strychnine is a most

useful remedy in these cases. Galvanism and shampooing, as well as sulphur baths, are also largely employed, and may do much good. Creeping paralysis is best treated by the application of Faradisation (electricity) at least twice a week, the use of mineral baths, hot or cold, according to the constitution of the patient, and in attention to the general health.

Parapet.—This word, derived from the Italian *parare*, to defend, and *petto*, the breast, is applied to the low wall or breastwork which conceals roofs, with their gutters, &c., or aids in the protection of the ramparts on fortified buildings. In the Norman style of architecture the parapets were usually plain, although occasionally they were varied by having narrow embrasures placed at wide intervals apart. In the Early English style they are straight and plain, unless the building happens to be enriched, when they may be panelled, and in some instances pierced with trefoil or quatrefoils or other geometrical forms, or have running patterns of tracery, &c. In the Perpendicular style they may be either plain or elaborately enriched, panelled and battlemented, &c.

Paraph, or Paraphe.—A peculiar mark or flourish added to a signature; usually one invented and regularly employed by the person who uses it as an authentication of his autograph. It is less common in this country than in France, from which we get the name.

Paraphernalia.—The goods reserved to a wife over and above her dower. It includes all the personal apparel and ornaments of the wife which she possesses, and which are suitable to her rank and condition in life. At law the husband may in his lifetime dispose of his wife's paraphernalia, excepting, indeed, her necessary apparel, and they are liable to the claims of creditors, subject to the like exception. But the wife is entitled to her paraphernalia against his representatives, for the husband cannot by will dispose of them or leave them to his representatives. Where the husband, either before or after marriage, gives to his wife articles in the nature of paraphernalia, they are not treated as absolute gifts to her as her own separate property; for if they were, she might dispose of them at any time, and he could not appropriate them to his own use. But they are deemed gifts *sub modo* only—*i.e.*, for the purpose of being worn by the wife as ornaments of her person. But if the like articles were bestowed upon her by her father, or by a relative, or even by a stranger before or after marriage, they would be deemed absolute gifts to her separate use; and then, if received with the husband's consent, he could not, nor could his creditors, dispose of them any more than they could of any other property received and held to her separate use. (*See* Husband and Wife.)

Parasites.—In botany, (1) plants which grow into the tissue of other plants and feed upon their juices—such are the mistletoe, the broom-rape, many of the fungus tribe, &c; (2) plants which grow on the bark of trees, like mosses and sundry orchids, but draw their nutriment from the atmosphere. Occasionally mere climbing plants are improperly called parasitic. In zoology, a vast number of insects and other creatures which live in or upon man and almost all other animals. Lice are external parasites, and worms are internal parasites. (*See* Entozoa.) A third, and indeed an earlier application of the word parasite is well known—viz., when it designates a person who lives at the expense of another, or flourishes as a mere hanger-on; hence Johnson defines him as "one that frequents rich tables, and earns his welcome by flattery;" and Milton stigmatises him as "a fawning parasite." There are other kinds of parasites, such as attach themselves to men of genius, or to a political leader; but under all their forms they are to be loathed and avoided, as good for neither use, nor ornament, nor imitation.

Parasol.—A small umbrella used to shade the person from the heat of the sun. The shape and construction of these vary, as well as the material of which both the top and the handle are made. Silk, alpaca, and cotton are all employed, and lace and fringe as trimmings—the former to cover the whole or to edge the brim, according to the fashion of the time. The handle may be made of cane, wood, ivory, horn, or other materials, and tipped and otherwise garnished with gold, silver, agates, or other more or less valuable stones. The end is formed as a crook or knob, or else it is straight and thick. Some handles have a hinge in the middle of the stick, so as to allow the top of the parasol to fall on one side, and accommodate it to slanting sunshine or to keep off a glare from the sea. To straighten a handle of this description there is a flat movable ring, which can be passed over the hinge or removed at pleasure. The antiquity of the parasol is very great, and can be traced back to the year 1200 B.C. It is represented on the sculptured remains at Nineveh in much the same form as that now in use. The modern umbrella—of which the parasol is the original—is less than a century old.

Parcel-gilt. — Silver plate and other articles, portions only of which are gilded, are said to be parcel-gilt. Some of the finest productions of the silversmith are of this description.

Parcels, Carriage of. (*See* Common Carriers.)

Parcels, Carriers' Liability for. (*See* Common Carriers.)

Parchment. (*See* Vellum.)

Parchment Glue or Size.—To make this glue or size, take one pound of parchment, and boil it in six quarts of water until by evaporation the quantity is reduced to one quart. Pour off the fluid from the dregs, and re-boil it until it is of the required consistence for glue.

Parchment, To Stain or Gild.—The same dyes may be used for parchment as are employed for staining paper. (*See* Paper, To Stain or Gild.) For gilding, leaf-gold, sold in books, may be used. It is used upon a leathern cushion

shielded from draughts, cut with a gilder's knife to the required sizes, and placed on the surface with a flat thin brush made and sold for the purpose, the adhesive medium being albumen (white of egg) with water. An adhesive composition used by bookbinders consists of four parts Armenian bole, with one of sugar-candy, ground together, and mixed with white of egg in water—about as much water as albumen. This is applied, and when dry moistened with a wet rag previous to gilding. A little cotton-wool serves to press the gold leaf down, and when dry the gold may be burnished in the usual way with a piece of smooth clean paper between the gold and the burnisher. To heighten the colour of the gold, and give it a greenish or deeper yellow tinge, a varnish, composed of four parts of beeswax, with one each of verdigris, red ochre, and alum, mixed with spirits of wine, and strained, may be used.

Pardesus.—A cape or mantle formerly much in fashion.

Paregoric Elixir.—This is the compound tincture of camphor of the Pharmacopœia. It is a useful medicine in the cough of old people. The dose for an adult is from half a tea-spoonful to a tea-spoonful in cold water.

Parement, or Parament.— Literally this word signifies ornament, but practically it is used either of the ornamental additions to sundry textile fabrics, or to ornamental hangings, furniture, and other decorations of a state room.

Parent and Child.—The universal and natural relationship proceeding from the union of husband and wife. The duties of parents to their children are comprised in their maintenance, their protection, and their education. 1. With regard to their maintenance, it is a principle both of law and nature that every man is bound to provide for his offspring. The father and mother, and also the grandfather and grandmother of feeble and poor descendants, are obliged to support them at their own expense (provided they are able) in such a manner as the quarter sessions or two justices in petty sessions shall direct; and if a parent run away and leave his children, the churchwardens and overseers of the parish shall seize his rents, goods, and chattels, and dispose of them towards their relief. (See Poor Laws 4 & 5 Wm. IV. c. 76; 11 & 12 Vict. c. 110; and 18 & 19 Vict. c. 87.) Our law makes no provision against the disinheriting of children, but heirs and children are peculiarly protected by courts of justice, lest they should be disinherited by any ambiguous or uncertain expressions, and it is necessary to prove beyond the possibility of doubt the testator's intention to deprive them of their right of inheritance. 2. The protection of children is a natural duty of their parents, and rather permitted than enjoined by our law. A father is, generally speaking, the guardian of his infant children; but this right ceases in some instances and for some purposes at the age of fourteen. By 24 and 25 Vict. c. 100, s. 56, whosoever by force or fraud shall take or entice away or detain any child under the age of fourteen, with intent either to deprive its parent or any other person having lawful charge of it of the possession thereof, or to steal any article about its person, shall be guilty of felony, &c. The mother has no legal power over the child in the father's lifetime, except that by 36 Vict. c. 12, the Chancery Division may, upon petition of the next friend of the mother of any infant or infants under sixteen years of age (the limit had been previously seven years of age), order that the mother shall have access to such infant or infants, or that they shall be delivered to or remain in the custody of the mother until sixteen years of age. No agreement in a separation deed is to be invalid only because it provides for giving up the custody or control of infants to the mother, but such agreement is not to be enforced unless it be for the benefit of the infant. After the father's death, the mother is entitled to the custody of her child, and if she is unmarried, her consent to the marriage of an infant child is necessary, but she cannot appoint a guardian by will. The Divorce Court has power to make such orders as it may think fit respecting the custody, maintenance, and education of the children of the parties to suits for judicial separation, nullity of marriage, or dissolution of marriage. The law has not made much provision for filial obligations; but it is held that a child is justified in defending the person and maintaining the cause or suit of a parent, as a parent is justified in doing for a child. 3. The most important duty of parents is that of educating their children in a manner becoming their rank in life. It must be confessed that here the law of England has till modern times been deficient, the Statutes for apprenticing poor children, and afterwards placing them in useful situations, being about the extent of the provision made in this respect. But by the Elementary Education Act, 1870 (33 & 34 Vict. c. 75), amended by 36 & 37 Vict. c. 86, provision is made for the establishment of educational districts; the providing for every such district of a sufficient amount of accommodation in public elementary schools, available for all the children resident in such district for whose elementary education efficient and suitable provision is not otherwise made; the management of such schools by district school-boards; the maintenance of the same by means of local rates; the enforced attendance of children at such schools, &c. A father may exercise proper severity to keep his children in due obedience; thus he may lawfully and in a reasonable manner chastise them, because such correction is sometimes necessary and conducive to their improvement. This authority of the parent extends only to the end of the child's minority, during which period the former is entitled to the benefit of the labour and assistance thus obtained while the latter resides with and is maintained by him. A parent may likewise allow or forbid the marriage of his children till they attain the age of twenty-one years. Then the legal power of the progenitor ceases, because adults are enfranchised by arriving at years of discretion, and the empire of the father or guardian is supposed to yield to that of reason.

Parfait Amour. (*See* Liqueurs.)

Parget.—A sort of plaster used by builders for the flues of chimneys and for the walls and ceilings of rooms. What is styled pargeting is the ornamental work in plaster which was formerly common in the interior as well as on the exterior of buildings. Of old examples the patterns are frequently curious and ingenious.

Parian Marble. (*See* Marble.)

Paring, Machines for. — These ingenious machines were invented to save time and labour in paring apples, pears, and potatoes. The apple is fixed on a rotary fork, and is pared by a knife which also rotates. When the operation is completed the knife is thrown back, so that the fruit can be easily removed from the fork. Apple or potato paring machines (*see* Apple-paring Machine) can be procured from the ironmonger at a reasonable cost. Fruit which has been pared by them needs to be carefully looked over, and any blemishes or specks there may be in it removed with an ordinary knife.

Paris Cord.—A thick rich silk fabric, with fine small ribs running across. It was first brought from France, and when genuine the cord is all silk, but in imitations the cord is sometimes of cotton. One of its principal uses has been for scarves and neck-ties.

Paris Diamonds.— Imitation diamonds made of glass, or, as it is usually styled, paste, cut and polished to resemble the true gem. (*See* Artificial Gems; Gems.)

Paris Fashions.—The first ideas on the subject of fashions in dress have, for a very great number of years, emanated from the French capital. The English probably commenced to derive their fashions from the French after the reign of Edward III. In the early part of the present century dolls carefully dressed in the fashionable garments of the day were sent from Paris to the leading English dressmakers and milliners to copy from. In the present day the connection between the two capitals is so intimate that buyers from the London houses of business visit Paris monthly, at all seasons of the year, in search of novelties.

Paris Green.—A French preparation of arsenic and copper, used in the arts for the colouring of wall-papers, in the making of artificial flowers, and for other purposes. It has latterly been used as an insecticide, and has been extensively employed throughout British America and the United States to destroy the Colorado beetle. For this purpose it is mixed with ashes or flour, one-quarter of a pound of Paris green being a sufficient proportion to a pound of the ashes or flour, and it is applied with a dredger over the potato-plants early in the morning before the dew has left them. Great care has to be observed in its application, as the hands of the operator would be poisoned were the dredging performed without gloves. Yet the potatoes are in no way injured by it.

Paris, Plaster of.—Under the heading of Casts, To Take, of Leaves, we have described the nature of plaster of Paris and some of its uses. It is a preparation of gypsum and sulphate of lime, consisting of one atom of sulphuric acid, one of lime, and two of water, and its specific gravity is 2·32. It is used for the ceilings of rooms, and sometimes for plastering walls or filling in cracks in walls, &c.

Parish Boards. (*See* Parochial Boards.)

Parish Settlement.—The right, depending on a variety of circumstances, which entitles a pauper to be maintained by a particular parish or union, which is consequently termed his settlement. In the case of a married woman, her settlement follows that of her husband, assuming a legal marriage to have taken place; if, however, her husband has no settlement, she retains her maiden settlement. As to children, if they are legitimate, the place of their birth is *primâ facie* their settlement, which continues so long as the child remains a member of the family; as to illegitimate children, the mother's settlement is that of the child. Formerly domestic servants acquired a settlement by one year's uninterrupted service in the same place, but such is not now the effect of service. Being an apprentice, and inhabiting any town or place, make that place the settlement of the child; also the renting of a tenement of the annual value of £10, and paying poor rates for one year, confer a settlement under 35 Geo. III. c. 101, and 4 & 5 Wm. IV. c. 76. Also acquiring property which is of the value of £30 or upwards, accompanied by a residence in the place where the property is situate, gives a settlement.

Parker's Cement. (*See* Cements.)

Parks, Public.—Extensive tracts of ground or country, enclosed with walls or palings, well variegated with wood and water for the support of cattle and preservation of venison and game. A park becomes such by the privilege of prescription, or by the Sovereign's grant. For a park three things are required: (1) a grant thereof; (2) enclosure by pale, wall, or hedge; (3) beasts of the park, such as the buck, doe, &c. There are many parks in possession of the Crown as well as of opulent persons. Of the former Windsor Park is the chief. Woodstock Park is said to have been the first in England; it was formed and enclosed about the year 1124, and bounded by a stone wall seven miles in circumference. This example was followed by Henry, Earl of Warwick, after which park-making became a common practice all over the country. The management of the Royal Parks is the subject of several Statutes. (See 14 & 15 Vict. c. 42, and the Parks Regulation Act, 1872, 35 & 36 Vict. c. 15; as to Victoria Park, 14 & 15 Vict. c. 46, and 35 & 36 Vict. c. 53; as to Battersea Park, 14 & 15 Vict. c. 77; and as to Kennington Park, 15 & 16 Vict. c. 29. As to Ireland, see 32 & 33 Vict. c. 28, and 35 & 36 Vict. c. 6.) The 34 Vict. c. 13, proceeding on the preamble that it is expedient to facilitate gifts of land for the purpose of forming public parks, schools, and museums, enacts that all gifts and assurances of land of any tenure, and whether made by deed, or by will or codicil, for such purposes, and all bequests of personal estate to be applied in or towards the purchase of land for such purposes,

shall be valid, notwithstanding the Statute of Mortmain. (See the restrictions contained in sections 5 & 6 of this Act.) (*See* MORTMAIN.)

Parliament.—The grand assembly of the three estates of this kingdom, summoned together by the Queen's authority to consider of matters relating to the public welfare, and particularly to enact and repeal the laws. The original or first institution of Parliament is one of those matters which lie so far hidden in the dark ages of antiquity that the tracing of it out is a thing equally difficult and uncertain. The word Parliament itself is comparatively of modern date, derived from the French, and signifying "the place where they met and conferred together." It was first applied to general assemblies of the states under Louis VII. in France, about the middle of the twelfth century. But it is certain that long before the introduction of the Norman language into England all matters of importance were debated and settled in the great councils of the realm—a practice which seems to have been universal among the northern nations, particularly the Germans, and carried by them into all the countries of Europe which they overran at the dissolution of the Roman Empire; relics of which constitution, under various modifications and changes, are still to be met with in the Diets of Poland, Germany, and Sweden, and more recently in the Assembly of the Estates in France, for what was there called the Parliament was only the Supreme Court of Justice, consisting of the peers, certain dignified ecclesiastics, and judges, which neither was in practice nor was supposed to be in theory a general council of the realm. In England, however, this general council has been held immemorially. We have instances of its meeting to order the affairs of the kingdom, to make new laws and to amend the old, so early as the reign of Ina, King of the West Saxons, Offa, King of the Mercians, and Ethelbert, King of Kent, in the several realms of the heptarchy. And after their union King Alfred ordained for a perpetual usage that these councils should meet twice in the year, or oftener if need be, to treat of the government of God's people, how they should keep themselves from sin, should live in quiet, and should receive right. Our succeeding Saxon and Danish monarchs held frequent councils of this sort, as appears from their respective codes of laws, the titles whereof usually denote them to be enacted either by the king, with the advice of his *wittena-gemote*, or wise men; or to be enacted by those sages, with the advice of the king; or, lastly, to be enacted by them both together. There is also no doubt that these great councils were occasionally held under the first princes of the Norman line. Glanvil, who wrote in the reign of Henry II., speaking of the particular amount of an amercement in the Sheriff's Court, says it had never yet been asserted by the general assize or assembly, but was left to the custom of particular counties. Here the general assize is spoken of as a meeting well known, and its statutes or decisions are put in a manifest contradistinction to custom or the common law. And in Edward III.'s time an Act of Parliament, made in the reign of William the Conqueror, was pleaded in the case of the abbey of St. Edmund's Bury, and judicially allowed by the Court. Parliament, then, is the legislative branch of the supreme power of Great Britain, consisting of the Sovereign, the lords spiritual and temporal, and the knights, citizens, and burgesses, representatives of the commons of the realm in Parliament assembled. The power and jurisdiction of Parliament are so transcendent and absolute that it cannot be confined, either for causes or persons, within any bounds. Parliament must be summoned by the Sovereign, and not by authority of either House, at least forty days before it sits, although the Convention Parliament (the House of Commons) was from necessity summoned by the keepers of the liberty of England, by authority of Parliament. It cannot begin without the Sovereign in person or by representation. The principal privileges of Parliament are the privilege of speech, which is essential to its existence, and to which the only exceptions are some precedents of information, filed for using free language during the reign of Charles II., which it is to be hoped will never be drawn into authority; and the privilege of freedom from arrest in civil actions, which, as to members of the House of Commons, lasts for forty days after every prorogation, and forty days before the next appointed meeting. Peers are always free from arrest. The property of members of either House is, however, liable to the legal claims of all other persons just as that of any private individual. Each House of Parliament is acknowledged to be the judge of its own privileges.

In the House of Lords business may proceed, however small may be the number of peers present; but forty members are required to form "a House" in the Commons. When any question arises upon which a difference of opinion is expressed, it becomes necessary to ascertain the numbers on each side. In the Lords, the parties in favour or against any particular motion, are called "content" and "non-content" respectively. In the Commons, those parties are described as "ayes" and "noes." When the Speaker cannot decide by voices which party has the majority, or when his decision is disputed, a division takes place. In addition to the power of expressing dissent by a vote, peers may record their opinion and the grounds for it by a protest, which is entered in the journals, together with the names of all the peers who concur in it. The method of making laws is nearly the same in both Houses. In the House of Commons, in order to bring in the Bill, if the relief sought be of a private nature, it is first necessary to prefer a petition, which must be presented by a member, and usually sets forth a grievance required to be remedied. This petition, when founded on facts of a disputable nature, is referred to a committee of members, who examine into the alleged matter, and report the result to the House, and then (or otherwise upon the mere petition) leave is given to bring in the Bill. In public matters, the Bill is brought in upon motion made to the House, without any petition. A Bill commenced in the House of Lords, if of a private nature, is

referred to two judges, to make report. After the second reading the Bill is said to be committed, that is, referred to a committee, which is selected by the House in matters of small importance, or upon a Bill of consequence the House resolves itself into a Committee of the whole House. A Committee of the whole House is composed of every member, and to form it the Speaker quits the chair, and may consequently sit and debate upon the merits of it as a private member, another member being appointed chairman for the time. In these Committees the Bill is usually debated clause by clause, amendments made, and sometimes it is entirely re-modelled. Upon the third reading further amendments are sometimes made, and if a new clause be added, it is done by tacking a separate piece of parchment on the Bill, which is called a rider. The Royal Assent may be given two ways:—1. *In person*, when the Sovereign comes to the House of Peers in his or her crown and royal robes, and sending for the Commons to the bar, the titles of all the Bills that have passed both Houses are read, and the Sovereign's answer is declared by the clerk of Parliament. If the Sovereign consents to a public Bill, the clerk usually declares in Norman-French that "the Sovereign wills it so to be;" if to a private Bill, "that it is to be as it is desired." If the Sovereign refuse assent, it is in the gentle language of "the Sovereign will advise upon it." When a Bill of Supply is passed, it is carried up and presented to the king or queen by the Speaker of the House of Commons, and the royal assent is thus expressed: "the Sovereign thanks his loyal subjects, accepts their benevolence, and also wills it so to be." 2. *By letters-patent.* By the Statute 33 Hen. VIII. c. 21, the Sovereign may give assent by letters-patent under the Great Seal, signed with his or her hand, and notified in his or her absence to both Houses assembled together in the Upper House. And when the Bill has received the royal assent in either of these ways, it is then and not before a Statute, or Act of Parliament. An Act of Parliament thus made is the exercise of the highest authority that this kingdom acknowledges upon earth. It has power to bind every subject in the land, and the dominions thereunto belonging, nay, even the Sovereign, if particularly named therein. And it cannot be altered, amended, dispensed with, suspended, or repealed, but in the same forms, and by the same authority of Parliament. Adjournment is no more than a continuance of the session from one day to another, as the word itself signifies; and this is done by the authority of each House separately every day, or for a longer period, but the adjournment of one House is no adjournment of the other. Prorogation is the continuance of the Parliament from one session to another, as an adjournment is a continuance of the session from day to day; and this is done by the royal authority, expressed either by the Lord Chancellor in the Sovereign's presence, or by commission from the Crown, or frequently by proclamation; and by this both Houses are prorogued at the same time, it not being a prorogation of the House of Lords or Commons, but of the Parliament. The session is never understood to be at an end until a prorogation, though unless some Act be passed, or some judgment given in Parliament, it is in truth no session at all.

A dissolution is the civil death of the Parliament, and this may be effected in three ways:—1. *By the Sovereign's will*, expressed either in person or by representation; for as the Sovereign has the sole right of convening the Parliament, so also it is a branch of the royal prerogative that he or she may at pleasure prorogue the Parliament for a time, or put a final end to its existence. 2. *By the demise of the Crown.* A dissolution formerly happened immediately upon the death of the reigning Sovereign, but the calling of a new Parliament immediately on the inauguration of the successor being found inconvenient, and dangers being apprehended from having no Parliament in being in case of a disputed succession, it was enacted by Statutes 7 & 8 Wm. III. c. 15, and 6 Anne, c. 7, that the Parliament in being shall continue for six months after the death of any king or queen, unless sooner prorogued or dissolved by the successor; that if the Parliament be at the Sovereign's death separated by adjournment or prorogation, it shall notwithstanding assemble immediately; and that if no Parliament is then in being, the members of the last Parliament shall assemble, and be again in Parliament. 3. *By length of time.* The utmost extent of time that the same Parliament was allowed to sit by the Statute of 6 Wm. and Mary, c. 3, was three years, after the expiration of which, reckoning from the return of the first summons, the Parliament was to have no longer continuance. But by Statute 1 Geo. I. c. 38 (commonly known as the Septennial Act), in order, as it was alleged, to prevent the great and continued expenses of frequent elections, and the violent heats and animosities consequent thereupon, and for the peace and security of the Government just then recovering from the last rebellion, this term was prolonged to seven years, so that as our Constitution now stands, Parliament must expire, or die a natural death, at the end of every seven years, if not sooner dissolved by the royal prerogative. There is one contingency upon which Parliament may meet without summons, under the authority of an Act of Parliament. It was enacted by the 7 Anne, c. 7, that in case there should be no Parliament in being at the time of the demise of the Crown, then the last preceding Parliament should immediately convene and sit at Westminster, as if the said Parliament had never been dissolved. But now, by the Representation of the People Act, 1867 (30 & 31 Vict. c. 102), s. 51, it is provided that the Parliament in being at any future demise of the Crown shall not be determined or dissolved by such demise, but shall continue so long as it would have continued but for such demise, unless it should be sooner prorogued or dissolved by the Crown. By the 33 & 34 Vict. c. 81, s. 2, it is provided that Parliament may be summoned by a royal Proclamation, in manner provided by the Acts therein cited, to meet on any day, not less than six months from the date of such proclamation. As the Sovereign appoints the time and place

of meeting, so also at the commencement of every session he or she declares to both Houses the cause of summons, by a speech delivered to them in the House of Lords in person, or by commissioners appointed by him or her. Until the Sovereign has done this, neither House can proceed with any business, except the election of a Speaker by the House of Commons, and the swearing of the members. The form of oath taken by the latter was settled by the 29 & 30 Vict. c. 19, but that form has now been superseded by the form of oath of allegiance prescribed by the 31 & 32 Vict. c. 72. After the speech, any other business may be commenced, and the Commons, in order to assert their right to act without reference to any authority but their own, invariably read a Bill a first time *pro formâ* before they take the speech into consideration. (*See* PARLIAMENTARY ELECTIONS; PETITION, PARLIAMENTARY).

Parliamentary Elections.—A candidate for election must be nominated by a writing signed by two registered electors of the same constituency as assenting to such nomination, and this paper must be delivered at the proper time to the returning officer by the candidate or by his proposer or seconder. If a poll is demanded, votes are to be given by ballot, recorded on a paper provided for the purpose, and *not signed* by the voter. At the close of the poll, the ballot-boxes are sealed up and taken in charge by the returning officer, to be counted and announced in due form. No one may personate a voter; bribery is forbidden, treating is not allowed, and other prohibitions are in force, in order to protect voters from all undue influence, and to prevent the reckless expenditure of money. Members of Parliament retain office during the life of the Parliament for which they are elected to serve; *i.e.*, in the case of a general election, possibly for seven years. The great points aimed at in the modern system of Parliamentary election are the freedom of the voter, secrecy of voting, and publicity of election. (*See* ELECTORAL FRANCHISE.)

Parlour.—The word parlour signifies a sitting-room, though now it is a term little used. It is derived from the French word *parler*, to speak. Formerly the room in a nunnery where the nuns were allowed to receive their friends and chat with them was called a parlour. The parlour is generally supposed to be on the first floor, for the convenient reception of visitors.

Parlour Games. (*See* AMUSEMENTS, INDOOR.)

Parlour Magic.—This term is applied to conjuring tricks which can be performed in a room without extra preparations or apparatus. There are numerous magical tricks which can be exhibited with string, with balls, cards, or pieces of money, all of which an amateur conjurer can perform by sleight of hand without the aid of accomplices or of any special apparatus.

Parlour-maid.—In those establishments where a parlour-maid is kept, the lighter duties of the upper housemaid and of the footman are usually allotted to her. The work which devolves upon her is not arduous, and for its successful performance, respectful and quiet manners, and a neat and pleasing appearance, are required, rather than great physical strength. At the same time there must be an acquaintance with the details of waiting at table, opening the door to callers, answering the drawing-room bell, and duties of a similar nature. Cleaning the plate, laying the table, dusting and polishing the furniture, will also fall to her share, and the leisure time which she has to spare will be devoted to needlework.

Parmesan Cheese. (*See* CHEESE.)

Parochial Boards.—The affairs of a large parish are more or less in the hands of various bodies elected by the parishioners or their representatives. These bodies, or boards, include guardians and overseers of the poor, vestries, trustee boards, board of works, sanitary boards, &c.; but some parishes have more and some fewer, according to local usages and other circumstances. Owing to the difference of usages and constitution of parishes, no one rule can be laid down regarding either the names and numbers of their boards, or of the officers employed; but each board has its own officers, generally elected by itself, paid for their services, and legally responsible. In the metropolis the local boards of works are under the general control of the Metropolitan Board of Works; and throughout the country the principal parochial boards are subordinate to others which form part of the Imperial Government, and have jurisdiction generally; the chief of these is the Local Government Board, which superseded the old Poor Law Board in 1871, and performs many additional functions.

Parochial Elections.—Guardians of the poor are elected by the duly qualified parishioners annually within forty days of the 25th of March, with the exception of *ex officio* guardians, as county magistrates, who of course need no election. Votes for the election of guardians must be in writing. Churchwardens are elected annually on March 28th or within fourteen days after, either by the minister or the parish, or by both combined. Overseers are appointed on March 25th or within fourteen days after. They are usually nominated by the vestry, and appointed by two or more justices of the peace. Parish clerks, sextons, and the like, are usually appointed by the incumbent. Vestry clerks are elected by their vestry, and a vestry itself in some cases must be elected by the ratepayers. Owing to the varied constitution of parishes there is considerable diversity in the method of conducting elections, but the combination of parishes as boroughs, corporations, unions, and the like, similarly affects the modes of procedure. This being the case, every ratepayer should make himself acquainted with the rules in force in his particular locality.

Parody.—A composition in prose or verse in which the form, language, and expressions of another composition, usually grave in its nature, are closely imitated, and oftentimes

ridiculed. Parody originated among the Greeks, but partook with them more of the nature of the burlesque. Of late years parody has been extensively cultivated in our own country, but perhaps the most successful specimens in English are the "Rejected Addresses" of Horace and James Smith, published in 1812.

Parol Agreement. — An agreement which is either by word of mouth or is committed to writing, but is not under seal.

Parol Evidence.—Testimony by the mouth of a witness. As a general rule, parol or oral evidence cannot be substituted for a written instrument, where the latter is required by law, or to give effect to a written instrument defective in any particular essential to its validity; nor to contradict, alter, or vary a written instrument, required by law, or agreed upon by the parties as the authentic memorial of the facts which it recites. But parol evidence is admissible to defeat a written instrument on the ground of fraud, mistake, &c., or to apply it to its proper subject, or in some instances, as ancillary to such application, to explain the meaning of doubtful terms, or to rebut presumptions arising extrinsically. In these cases the parol evidence does not usurp the place of written evidence, but either shows that the instrument ought not to be allowed to operate at all, or is essential in order to give to the instrument its legal effect. The general rule with regard to the admission of parol evidence to explain the meaning of, or to add to, vary, or alter the express terms of a deed, is, that it shall not be admitted except (1) where, although the deed is clearly enough expressed, some ambiguity arises from extrinsic circumstances; (2) where the language of a charter or deed has become obscure from antiquity; (3) where the grant is uncertain, owing to a want of acquaintance with the grantor's estate; (4) where it is important to show a different consideration consistent with and not repugnant to that stated in the deed itself; (5) where it becomes necessary to show a different time of delivery from that at which the deed purports to have been made; (6) where it is sought to prove a customary right not expressed in the deed, but not inconsistent with any of its stipulations; or (7) where fraud or illegality in the making of the deed is relied on to avoid it. If a clause in a deed be so ambiguously or defectively expressed that a court of justice cannot, even by reference to the context, collect the meaning of the parties, it would be void on account of uncertainty.

Paroquet, or Parraqueet. (*See* PARRAKEET.)

Parquetry.—Carpets entirely covering the floors of the apartments from wall to wall are comparatively speaking of modern introduction. Previous to the reign of Queen Anne they were confined to the centre of a room, so that they could be readily taken up and shaken, and thus kept far more free from the dust with which the atmosphere of modern rooms is unwholesomely loaded. But carpets fastened down over the entire room, and raised at long intervals for cleansing, hold less dust than the rough deal boards modern builders use for flooring. For this reason, in many of our best houses, parquetry has been adopted for flooring; and in consequence of the growing demand for it, by the aid of machinery this kind of decorative woodwork has become much cheaper. In parquetry, woods of various colours are let into the ground as a kind of stout veneer according to a design previously made, being tongued and grooved at the back to increase their strength and freedom from warping into ugly cracks and fissures. The woods chiefly used are oak, mahogany, ebony, maple, cherry, and walnut.

Parr, or Samlet. — A name usually given to young salmon.

Parrakeet.—This name, also spelled paroquet and parraqueet, is applied, commonly speaking, to any of the smaller kinds of parrots, but by naturalists to the *Palæornis* group of the *Psittacidæ* family. The parrakeets are small, extremely graceful in all their actions, and very prettily coloured. They are natives of Continental India, and some of the islands of the Indian Ocean; they are also found in large numbers in the woods of Australia. (*See* AUSTRALIAN PARRAKEETS.) When treated with kindness and well cared for, these charming little birds are easily domesticated, and their affectionate ways and powers of mimicry make them great favourites.

Parricide.—One who murders or destroys his father; one who destroys or invades any to whom he owes particular reverence, as a husband, wife, or master. Our laws, unlike the ancient laws, make no distinction between parricide and simple murder.

Parrot. — Parrots belong to the natural family *Psittacidæ*, and to the sub-family *Psittacinæ*, which have the upper mandible toothed and the lower longer than it is high.



GREY PARROT.

The tail is short, and either even or rounded. They are natives of the torrid zone, are very plentiful in Africa and America, and also in Australia, and even in Van Diemen's Land. They build their nests in the hollows of old trees, and their food consists of fruits of any kind.

In a wild state the voice is extremely harsh and dissonant; in a state of domesticity, however, they can be taught to speak in most wonderfully distinct tones, and altogether they make very entertaining pets, the African or grey parrot being usually the best talker, although hardly so loving and affectionate as other kinds. Cages for parrots should be large, roomy, and strong, and the perches of sufficient thickness; from the top of the cage there should hang a wide ring, swinging well clear of the perches: on this the bird will take exercise by day and roost at night. Although parrots live a great number of years, still they are subject to several ailments, among others to a kind of inflammation, probably from the effects of being placed in a draught. The bird becomes dull and listless, talks but little, and probably loses for a time the use of its legs. When this is the case, great care must be taken of the bird. Mix for his food hard-boiled eggs grated into bread and milk, and once or twice a week some boiled Indian corn. A few drops of castor-oil may also be given, or a little magnesia in water in the morning. His drink may be the juice of scalded rape-seed. But the great secret of keeping parrots well is in careful feeding and perfect cleanliness. The food may be any kind of grain and nuts and seeds, varied with milk and bread, or occasionally Indian corn well boiled and given cold. Parrots may also have fruit, and a bit of sugar, but no pastry or meat. Clean gravel is necessary, and plenty of pure water. The dishes should be porcelain or thick glass instead of zinc or tin.

Parsley.—This, the *Petroselinum sativum* of botanists, is a hardy biennial, a native of Eastern Europe. It has been cultivated in England from time immemorial, and is one of the most useful garden herbs we have. It is extensively employed for garnishes, and is much used to flavour broths and soups. Its cultivation is exceedingly simple, although it is a long time coming up after the seed is set, and is not a quick grower. The seed needs to be sown every year, but if the parsley is cut over and kept from flowering, it will last through the winter till the spring. To supply a constant demand, three or four successive sowings should be made from February to May. There are several varieties of parsley. The common kind has plain leaflets, but this is not so highly esteemed as curled parsley, which is much finer and handsomer for garnishing purposes. For general use, what is called the dwarf curled is perhaps the best. It is very pretty, grows close to the ground, and does not readily run to seed. Hamburg parsley is grown for the sake of its roots, which are eaten like parsnips. The leaves of parsley are nutritious, and at the same time stimulating. When bruised they are used occasionally as a poultice. The root is diuretic. The fruit (seed) is a deadly poison to many birds, particularly parrots, and when crushed to powder is sometimes used for killing lice.

Parsnip. — This vegetable forms, from custom, the usual accompaniment of salt fish. The plant (*Pastinaca sativa*) is a native of England, though not of Scotland, and is found in many parts of Europe and the north of Asia. It is cultivated for the sake of its root, which is more nutritious than either the carrot or the turnip, but has a peculiar sweet taste, which, though highly relished by some, is disliked by others. In colour the parsnip is paler than the carrot, but otherwise the two closely resemble each other. Cattle are exceedingly fond of parsnips, and their flesh, when they have been thus fed, is of excellent quality, while the butter of dairy cows fed on parsnips in winter possesses a superior flavour; yet, excepting in limited districts of Continental Europe, and in the Channel Islands, the roots are rarely employed for the purpose. The parsnip thrives in any soil, but the kind which suits it best is a deep rich dry sandy loam. The worst soil for it is gravel, and it does not like clay, yet no one who wishes to grow the roots needs to be prevented by unfavourable circumstances. The time for sowing is in March or early in April, and parsnips require the same cultivation as turnips. They may be used in September, but are not in perfection until they have been touched by frost, which decidedly improves them. There are several varieties in cultivation.

Parsnip Wine.—An excellent wine, with a flavour somewhat resembling malmsey. The best time for making it is in the months of October and March, when the parsnip is in good condition. The wine is not ready for use till it has been in the cask quite a year, when if it has been properly made it will prove a wholesome and refreshing beverage.

Parterre.—An ornamental garden plot, laid out in a regular pattern, and comprising flower-beds, greensward, and gravel walks.

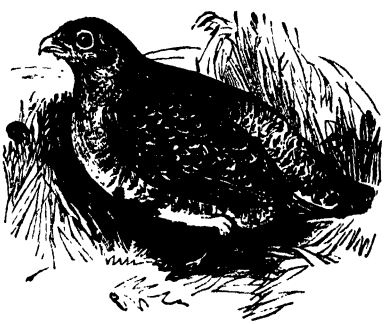
Parties, Evening. (*See* Evening Parties.)

Parties to an Action.— The persons concerned in any litigation; litigants. The Judicature Act, 1875, order 16, has made very full provisions as to the joinder of parties, and the consequences of misjoinder and nonjoinder. Among many others it is provided that all persons may be joined as plaintiffs in whom the right to any relief claimed is alleged to exist, whether jointly, severally, or in the alternative; and judgment may be given for such one or more of the plaintiffs as may be found to be entitled to relief, for such relief as he or they may be entitled to, without any amendment. A similar provision is made as regards defendants. The plaintiff may at his option join as parties to the same action all or any of the persons severally or jointly and severally liable on any one contract, including parties to bills of exchange and promissory notes.

Partition Walls and Party-walls.— Party-walls are partition walls of brick made between buildings in separate occupations for preventing the progress of fire. They are usually of a thickness greater than that of the outer walls, and their construction of a given thickness and their use are enforced by an Act of Parliament as a necessary precaution, passed in the reign of our present Queen.

Partnership is the result of a contract whereby two or more persons agree to combine property or labour, or both, for the purpose of a common undertaking and the acquisition of a common profit. Every person except a married woman may contract a partnership. Married women are by the common law legally incapable of this contract, although they frequently hold shares in banking-houses, and other mercantile concerns, in their husbands' names. The Married Woman's Property Act, 1870 (33 & 34 Vict. c. 93), however, enables a married woman now to hold as her separate property her own earnings, also deposits in savings banks, and shares and stocks in companies or benefit societies. An infant partner is entitled to all the benefits, although not liable to the losses of the partnership, if he avail himself of his minority; but if on attaining his majority he do not disaffirm the partnership, he is responsible on contracts subsequently made by the firm. Partnerships are either public or private. Public partnerships are usually termed companies or societies; they consist of a large number, definite or indefinite, of persons who have combined together to carry on some undertaking. Some of them are incorporated by letters-patent, or by Act of Parliament, or under the Joint-stock Companies' Acts, 1862 and 1867, while others are not incorporated, and are in fact ordinary partnerships. Their capital is commonly divided into shares, each partner holding one or more of them up to a certain restricted number, transferable under certain regulations; the business is entrusted to officers, under the superintendence of a board of directors, elected from the general body of the shareholders, and for whose acts the whole company is responsible. (*See* JOINT-STOCK COMPANIES.) Partners are of three kinds—(1) ostensible partners; (2) nominal partners; (3) dormant partners. An ostensible partner is one whose name is disclosed to the public, and who is held out as a partner. A nominal partner is one whose name only is used, but who has not any actual interest in the concern or its profits. A dormant partner is one whose name is concealed, *i.e.*, who does not appear as a partner, but nevertheless is a silent partner, and shares in the profits. A dissolution of partnership may take place in a variety of ways, as by the act or consent of the partners; by the decree of a Court of competent jurisdiction; by mere operation of law, as by the bankruptcy and insolvency of one or more of the partners; by a public war between the countries of which the partners are respectively subjects; by the death of one or more of the partners, &c. &c. By the 28 & 29 Vict. c. 86, it is provided that the advance of money on contract to receive a share of profit shall not constitute the lender a partner; that the remuneration of agents or servants by share of profits shall not make them partners; that no person, being a widow or child of a deceased partner of a trader, and receiving by way of annuity a portion of the profits made by such trader in his business, shall by reason only of such receipt be deemed to be a partner of such trader; that no person receiving by way of annuity or otherwise a portion of the profits of any business, in consideration of the sale by him of the goodwill of such business, shall by reason only of such receipt be deemed to be a partner of the person carrying on such business; and that in the event of any such trader, as aforesaid, being adjudged a bankrupt, or entering into an arrangement to pay his creditors less than 20s. in the £, or dying in insolvent circumstances, the lender of any such loan, as aforesaid, shall not be entitled to recover any portion of his principal, or of the profits or interest payable in respect of such loan; nor shall any such vendor of a goodwill, as aforesaid, be entitled to recover any such profits, as aforesaid, until the claims of the other creditors of the said trader for valuable consideration in money or money's worth have been satisfied. By the 31 & 32 Vict. c. 116, a member of a co-partnership guilty of stealing or embezzling partnership property may be tried, convicted, and punished as if he were not a partner. Partners may now sue in the trading title of the firm, subject to a right in other parties to obtain the names of the partners. Where a judgment is obtained against partners in the name or title of their firm, execution may issue as follows—(1) Against any property of the partners as such; (2) against any person who has admitted on the pleadings that he is or has been adjudged to be a partner; (3) against any person who has been served as a partner with the writ of summons, and has failed to appear; and a party who has obtained a judgment may get leave to issue execution against any person alleged to belong to the firm against which the judgment stands, and an issue may be directed to try the question of such person's liability.

Partridge.—The common or grey partridge (*Perdix cinerea*) is the most plentiful of all the game birds in England, and is abundant in various parts of Europe, Africa, and Asia. It is seldom found far from cultivated land. The birds vary considerably in size, the largest



PARTRIDGE.

being found in rich lowland districts, and the smallest inhabiting the bare uplands. Partridges are exceedingly prolific. Their nests are built on the ground in corn or clover fields or in long grass. They feed principally on ants' larvæ and the eggs of insects. The eggs are frequently hatched and the young birds reared by the domestic hen. Although very timid birds, partridges are strongly attached to

their young, and show great courage in defending them. They often employ stratagem to draw their enemies away from the brood. The grey partridge is highly appreciated in England as a table delicacy, and it is both wholesome and easily digested. The breast is the portion most esteemed, the legs being coarser and more highly flavoured. Yellow legs and a dark bill are the signs by which a young partridge may be known, while a rigid vent is a proof that it is fresh. The birds ought not to be eaten, however, until they have hung for a few days, as they gain both in tenderness and flavour by keeping. The time that they are to be kept must be determined by the weather and the taste of those for whom they are intended. The red-legged partridge (*Perdix rufus*) is a variety which is now plentiful in some parts of England, particularly Norfolk and Suffolk. It is more highly esteemed in France than it is with us, for the French consider it superior to the grey partridge, and it fetches a high price with them, although in this country it is not much valued. It differs from the English bird in this—that it is best when it has reached maturity, while the grey partridge is best when young.

Partridge Maple.—This is a species of bird's-eye maple-wood, so called from the resemblance its markings bear to those of a partridge. (*See* MAPLE.)

Partridge-wood.—This timber is largely employed in ship-building, and is known in the dockyards as cabbage-wood. It is sent from Brazil and the West Indian Islands in large planks and round or square logs.

Pasha. (*See* PACHA.)

Pasquin.—The name given to a mutilated statue standing at Rome, and so called from a facetious shoemaker from beneath whose shop it was dug up. This statue has been much used for posting political and other squibs and satires; hence the words pasquin and pasquinade have come to mean a lampoon or other similar satire.

Pass-books. (*See* BANK BOOKS.)

Pass-key. (*See* MASTER-KEY.)

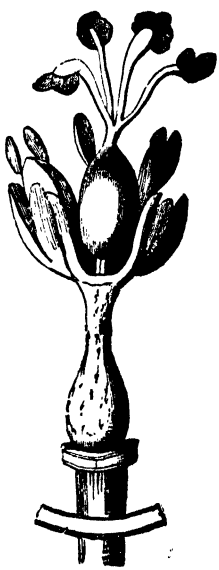
Passe-partout.—A sort of frame or mount such as is used by photographers for portraits, consisting of a sheet of glass over a piece of cardboard with an aperture in it for showing the picture, and closed at the back.

Passementery, or Passementerie.—The wares of one who sells lace, ribbons, &c.; but more strictly lace and lace-work as applied to ladies' garments.

Passengers.—Persons carried from one place to another for hire. Passengers by ship may be called on by the master or commander to give assistance for the general safety in time of imminent danger from tempest or otherwise, and if they refuse they are liable to be punished for their disobedience. The case, however, must be strictly within the principle referred to. A passenger is, however, not compellable to remain on board ship in time of danger, but may leave if he have opportunity; nor is he called upon to take any responsibility. If he do so, or perform extraordinary services in relieving the vessel in distress, he is entitled to adequate reward. The goods of a passenger contribute to general average. The Passenger Acts are 18 & 19 Vict. c. 119; 16 & 17 Vict. c. 84; 26 & 27 Vict. c. 51; 33 & 34 Vict. c. 95; and 35 & 36 Vict. c. 73. (*See* RAILWAY PASSENGERS.)

Passing.—In order to execute work with the article known as passing, but little special preparation is necessary. Gold passing, as it is often called, has been described already in the article on that subject; it is therefore needless to do more here than say that it is made of a fine flat silver-gilt wire spun round a thread of yellow silk. It may be used like silk for flat embroidery, by threading a needle with it in the ordinary way; but the needle for this should be large in the eye, and big enough to prevent the metal from fraying in its transit to and fro through the work. It may also be used in crochet, knitting, netting, &c. In a work on the subject we are told that in ancient embroidery passing "was seldom pulled through the linen or other foundation, but was couched, *i.e.*, laid on the surface by being sewn down, one or two threads at a time, by stitches taken either somewhat irregularly, or with such precision and method as to produce by a series of them a perfect diapered pattern of colour on a gold ground." This plan was easy to carry out, and while adding to effect, greatly economised the material. (*See* LAYING.)

Passing-bell.—Originally the ringing of a church bell to give notice that some one was passing away in death, and admonishing the hearers to offer prayers in behalf of the dying. Hence the ringing of a bell to announce the actual death of some one, and to indicate by the concluding strokes whether it was man or woman: "three times three for a man; three times two for a woman." The bell rung at a funeral before the body reaches the church is also sometimes called the passing-bell.



PASSION-FLOWER.

Passion-flower.—This is the *Passiflora* of the botanist, the genus containing a very large number of specimens, which are great favourites in gardens and hothouses, owing to their very beautiful flowers. They are trailing plants, and the fruit is a kind of gourd. They require a moderate heat (about 70°), and if planted in pots containing a compost of rich manure and old tan, they grow well. In Brazil, where the passion-flower grows wild, the fruit is very large, and is called grenadilla. The water-melon of the West Indies and the sweet

calabash both belong to this genus, while from the pulp of one species a flavouring for ices and confectionery is obtained.

Passion Week.—The week immediately preceding Easter. It is thus called from its being the week of Christ's passion, *i.e.*, His sufferings between the Last Supper and His death.

Passover.—A festival held by the Jews in commemoration of the deliverance of the Israelites from their Egyptian bondage. The observance is kept on the fourteenth day of the first month of the sacred year. This month is called Abib, which word signifies "an ear of corn." Commandment was given that on that particular day a lamb should be roasted whole and eaten by Hebrews alone, in remembrance of the destroying angel passing over their dwellings. Passover is from the Hebrew word *pesach*, leap or passage.

Passport.—A licence or document issued by competent authority, permitting the bearer to enter into and remain in a particular country, or some part of it, for an indefinite or a specified time, and sometimes for a specified purpose. Every independent State has the right to exclude such individuals as it pleases from its territory, and it consequently has the right to require all strangers to bring with them properly-authenticated documents, showing who they are and for what purpose they desire to visit the country. The use of passports is generally to prevent persons hostile to the Government or institutions of the country from crossing the frontier; but travelling facilities are now so great that any obstructive regulations as to passports merely hinder that free intercourse between well-behaved and peaceable inhabitants of different nations which is so desirable. For this reason many Governments, and especially those of Europe, have dispensed (except in times of national emergency) with the use of passports, but not with the right to demand them. In 1851, in order to give facilities to those English who wished to visit France, the formality of a passport was done away with; and in 1853 and later years this favour was extended to the Swiss, Belgian, and other nations. In 1870, however, owing to the war with Germany, the use of passports was revived. In April, 1872, at the request of the English and Belgian Governments, passports were again made unnecessary as between the countries referred to. Foreign Office passports are granted upon the application or recommendation of any banker or banking establishment in any part of the United Kingdom, which application must be enclosed under cover and seal of the establishment, and directed to her Majesty's Secretary of State for Foreign Affairs in form as follows:—"We request that your Lordship will authorise the grant of a passport for travelling on the Continent (Spain or elsewhere) to A. B., a British subject, or C. D., a naturalised British subject, residing at ———, accompanied by his wife, &c. (or as the case may be)." In the absence of a banker's application or recommendation, a certificate of identity must be procured, signed by a mayor, magistrate, justice of the peace, a minister of religion, physician, surgeon, solicitor, or notary; and such certificate of identity must bear the signature of the applicant, in addition to the signature of the party giving such certificate. The following is the form of certificate:—"The undersigned (mayor or other person, as above), residing at ———, hereby certifies that A. B. (Christian and surname to be written at length), a British subject, whose signature is written at foot, is a naturalised British subject, and requires a passport to enable him to travel on the Continent (accompanied, as the case may be, by his wife, sons, daughters, &c.)." When the various members of a family travel together they may be included in one passport, but the degree of relationship should be stated. If attended by a manservant, his name in full must be stated, and if a foreigner he must obtain a passport from his own Government. Friends travelling together, although not related, may also be included in one passport, but in this case each of their names and addresses should be given in the application. While abroad the passport should always be kept about the person for production when required. The duty on passports was reduced from 5*s.* to 6*d.* by 21 Vict c. 24. The same rate is continued by the Stamp Act, 1870 (33 & 34 Vict. c. 97).

Paste. (*See* Pastes; Pastry.)

Paste Blacking. (*See* Blacking.)

Pasteboard.—An inferior kind of cardboard used for the cheaper sorts of boxes, &c. (*See* Cardboard.)

Paste Cutters and Jaggers. (*See* Cutters for Pastry; Jagger.)

Pastes, Adhesive.—The more common form of paste is that made with flour and water, a pint of the latter to a table-spoonful of the former, boiled. Bookbinders increase its strength by adding a little alum or resin to it after mixing and before boiling. Paste containing alum will keep fresh longer than that without it. The addition of brown sugar is recommended so as to keep the paste in a flexible condition. A paste used by naturalists is composed of three parts of gum-arabic, two of starch, and one of brown sugar. An excellent paste for mounting scraps in books is made with rice-flour. The paste used for artificial flower making is commonly made with starch and gum-arabic; it does not keep well. Flour and barley-water, with a weak solution of gum-arabic, form a good cold paste. By incorporating with starch paste a quantity of turpentine equal in weight to half the starch employed, while hot, and mixing well by stirring, the paste is rendered more adhesive, and less liable to be affected by moisture. (*See also* Cements; Gum.)

Pastes, Cosmetic.—Among the more common of these are sundry preparations of almonds, which are blanched and reduced to a paste in a mortar, and mixed with other ingredients, such as perfumes and white soap, honey, white of eggs, rose-water, and eau de Cologne, in various proportions. Besides almond pastes, there are some made of cocoa-nuts, pistachio nuts, marshmallow, starch, and flour,

variously compounded and scented. As it is difficult to make them privately, it is useless to give formal recipes. They are mostly used for softening and whitening the hands, but some, especially the Russians, apply them to the face. While they are fresh and good there is no danger in their use, but when they are stale and rancid they are said to irritate the skin.

Pastes, Jewellers'.—These are artificial gems made of brilliant kinds of glass coloured with metallic oxides. The topaz is prepared by adding oxide of antimony to the base; the amethyst by manganese with a small proportion of the purple of cassius; the beryl by antimony with a very little cobalt; the yellow diamond and opal with chloride of silver; the sapphire with cobalt. The base of all pastes is composed of silex, potash, borax, oxide of lead, and sometimes arsenic.

Pastes, Medical.—These are prepared from sugar and gum dissolved in some medicinal fluid, and then evaporated so as gradually to unite the ingredients and form them into a paste. The British Pharmacopœia does not contain pastes, their place being filled by confections and lozenges. The French Pharmacy contains many kinds of *pâtes*, or pastes, but they are so little known or used in this country that it is unnecessary to describe them in the present work.

Pastes, Polishing. (*See* POLISHING PASTES.)

Pasticcio.—This is an artist's technical term for a work of art, which, although its subject may be original, is in treatment and execution a direct copy from the work of another. De Pile says those who paint pastici may be detected by a careful comparison of the taste, design, colouring, and characteristic pencilling of the copy and the original. David Teniers was famous for the way in which he imitated the style and treatment of Rubens, many of his subjects being executed in such close imitation of that great master as to baffle even the best and most experienced collectors. Giordano and Bon Boullongne were also famous for their skill in painting pastici.

Pastiles.—This name is given to a dry mixture of sweet-smelling resins and odorous substances made up into small cones, and burned as a means of diffusing an agreeable odour or of clearing and perfuming the air of a room. Pastiles are lighted at the apex, and are usually placed on a dish or a penny-piece, that they may burn slowly away and their scent rise with the smoke. Those who are in the habit of constantly using them generally place them upon a tasteful vessel made of porcelain, and named a pastile-burner, or a pastile-house, and made for the purpose. Another kind of pastile is made in the form of a pill, and chewed in order to make the breath sweet.

Pastils, or Crayons.—The former name is that given by the French to a class of coloured crayons which are made of pulverised earths combined together with gum-water. (*See* CRAYONS.)

Pastimes. (*See* AMUSEMENTS; GAMES.)

Pastry.—Food made of paste, or in which paste that has been made to assume a light flaky appearance by being worked up with butter or fat, forms a principal ingredient, is generally spoken of as pastry. The varieties mostly used are puff-paste, short paste, paste for raised pies, and brioche paste. *Puff-paste*, called by the French *feuilletage*, is very light and flaky, and more difficult to make than any other. It is used for vol-au-vents and for superior pies and tarts. Its peculiarity is that it rises during the process of baking to five, six, and even eight times its original height. In making it the butter and paste are not kneaded together, but the flour is first made into paste with cold water, and is then rolled into thinner and thinner layers, separated from each other by layers of butter, which are also rolled to make them thinner and thinner; and the skill of the pastrycook consists in guarding the coldness of the butter and preserving it free from moisture and stickiness, so that the laminæ of butter and paste which have been thus formed may not interpenetrate. The excellence of puff-paste depends upon the quality of the materials used, the lightness of hand and dexterity of the cook, and the coolness of the surroundings and utensils employed. This coolness is so important that a marble slab is used to roll the preparation upon, and the paste is cooled by being placed either upon ice or in a current of fresh air between the "turns," a turn being the technical name for rolling out the pastry once. What is called half puff-paste is made with half the ordinary quantity of butter. In *short paste*, the butter and flour are kneaded together before the water is put in. For the best short paste, equal quantities of flour and butter are taken, but the quantity may be varied at will, according to the quality of pastry that is desired. Short paste has not the flaky appearance of puff-paste, but it is more suited for ordinary purposes. Lard, or even good beef dripping, is sometimes used instead of butter in its preparation, and finely-shred suet is employed when boiled fruit puddings are to be made. *Paste for raised pies*, such as are baked without either dishes or patty-pans, needs to be stiff and firm. This is made both with hot and cold water, and frequently it is not intended to be eaten, but is used only as a case for the contents of the pie. The French use yolks of eggs in making pastry of this kind. For *brioche paste*, *see* BRIOCHE. Pastry, though generally liked, is regarded as rather indigestible. The strong and healthy may eat it with advantage, but it is apt to derange the delicate stomach.

Pasty.—It is usually understood that a pasty is distinguished from a pie or a tart in having pastry both under and above its contents. Small pasties are called turnovers.

Patches.—Many years ago it was the fashion for ladies to stick small patches of black court plaster upon various parts of the face. These were cut into all sorts of forms, and were regarded as essential to the completeness of a lady's toilette. They were satirised by poets,

moralists, and artists, and gradually went out of use.

Patchouli.—1. A plant of the genus *Pogostemon*, a native of India. 2. A perfume made from the essential oil derived from the *Pogostemon patchouli*. This scent was formerly much in favour, but has now ceased to be so greatly in request.

Patchwork.—Small scraps of silks, satins, velvets, and cottons can be utilised by sewing them together. Of the silken materials ornamental and handsome articles can be made in this style of work, such as cushions, couvre-pieds, borders for curtains, table-covers, &c., the introduction of black satin greatly enhancing the effect. Of cambrics and calicoes, counterpanes can be made; in these white patches should preponderate. This work requires the observance of regularity, exactness, correctness, and neatness in its execution. All the patches are cut in a certain form, octagonal, hexagonal, diamond, oblong, or square, according to fancy. The shape decided upon is marked and cut out in pasteboard, and when one is obtained which is perfectly exact in measurements it is kept as a pattern, and by it a number of others are cut in writing-paper; old letters and envelopes serve for the purpose. The material is then cut rather larger than the papers it is placed over; the edges are turned over and tacked down to the paper with strong cotton thread; and finally the patches are seamed together on the wrong side with small stitches and fine strong silk. The papers remain in until the whole is completed, when the tacking threads are taken out and the paper removed. It is necessary that all papers should be exact in size, or the work will not be flat. To ascertain the number of pieces in the work, the papers should be counted.

Pâté de Foie Gras. (*See* Liver, Animals', as Food.)

Patent Lace. (*See* Lace.)

Patents are exclusive rights granted by the Crown (in writings sealed with the Great Seal of England, and known as letters-patent), by virtue of which any person or public company is authorised to do or to enjoy anything which he or it could not do or enjoy without such authority. Letters-patent are so called on account of their form, being open with the seal affixed ready to be exhibited for the confirmation of the authority delegated by them. In consequence of the abuse of the prerogative in granting monopolies, the Statute 21 James I. c. 3, was passed, which, after declaring that the letters-patent theretofore granted were contrary to the laws of the realm, and therefore utterly void and of no effect, provided that such declaration should not extend to any letters-patent for the term of twenty-one years or under theretofore made, or thereafter to be made, of the sole working or making of any manner of new manufacture within this realm to the first and true inventor or inventors of such manufactures which others at the time of the granting of such letters-patent did not use, so that they be not contrary to the law nor mischievous to the state by raising of the prices of commodities at home, or hurt of trade or generally inconvenient. The whole of our patent law is substantially built upon this Statute. It is competent on petition to the Crown to obtain an extension of this patent right after the expiration of the fourteen years allowed by the Statute of James for such further period as the Privy Council shall think fit or proper for the due remuneration of the inventor. This extension is authorised under the Statutes 5 & 6 Wm. IV. c. 83, and the Patent Law Amendment Act, 1852 (15 & 16 Vict. c. 83). The former Statute imposes a penalty of £50 upon any person unlawfully using the name, &c., of a patent, to be recovered by action of debt, bill, plaint, process, or information, one-half to the Sovereign, his or her heirs and successors, and the other to any person who shall sue for the same. If a person have been long in the exclusive use of a patent, a special injunction may be obtained against any one invading it, until the right is tried. Letters-patent usually provide that if the complete specification filed does not particularly describe the nature of the invention, &c., or if none has been filed, then if the applicant does not file one in a given time in Chancery, the grant is void. The object of the specification is to put the public in full possession of the inventor's secret, so that any person may be in a condition to avail himself of it when the period of exclusive privilege has expired. It should be such a description as will enable persons of ordinary skill to make the patent article by simply following the directions given without resorting to contrivances of their own. The specification is bad when (1) its terms are ambiguous; (2) necessary descriptions are omitted; (3) parts are claimed which are not original; (4) things are inserted to mislead; (5) the drawings are incorrect; (6) one of different ways or of different ingredients named fails; (7) one of several effects specified is not produced; (8) the things described are not the best known to the patentee. A patent right may be assigned by deed, which, however, requires registration under the Act of 1852 in the Patent Office. The patentee may also grant licences to any one or more persons to manufacture the article without entirely parting with his interest.

Paternoster.—This is a combination of two Latin words which mean literally "Our Father." By this term the Lord's Prayer, which all liturgies contain, is often designated, because it commences with those words. The name of Paternoster has also been assigned to strings of beads by means of which Roman Catholics keep count of the number of repetitions they make daily of that prayer.

Pathology.—The science which relates to such derangements of the bodily functions as constitute disease. It aims to discover the causes which interfere with the normal action of organs, and to decide the symptoms, so as to distinguish between diseases which closely resemble each other. It concerns itself much with diseases of the fluids of the body, as blood and various secretions, and is greatly assisted by animal chemistry, the microscope, &c. The importance of it to the medical profession is universally admitted.

Patina.—As applied to coins and such-like, this word denotes the coat of oxide or rust which in the course of ages has been formed upon their surface. Upon bronze and copper it is sometimes very delicate and beautiful, showing every letter and lineament, usually in an exquisite brown or green tint. In such cases it is a great attraction and addition to value, and is therefore carefully protected against injury by collectors. Gold may be affected by iron-mould, and silver in several ways; but coins in these metals are best without the patina or rust in any form. The term patina is also used of the coat of dirty varnish so often found on old pictures, and not seldom hiding their defects. Restorers and cleaners are apt to conclude their operations by covering pictures with an imitation patina, in order to make them assume the appearance of age.

Patois. — The French term for dialects peculiar to different provinces: thus the Breton, the Normandy, the Provençal patois are dialects spoken by the natives of those districts, whose phraseology, although containing the elements of the real language, would yet be unintelligible to persons who were acquainted only with pure French.

Patriarch.—A term applied to dignitaries in the Eastern Church, whose authority therein is similar to that of an archbishop. There are four patriarchs connected with the Greek Church—viz., those of Alexandria, Antioch, Jerusalem, and Constantinople. The word patriarch is derived from the Greek *patria*, family, and *archon*, ruler.

Patrick, Order of St. (*See* KNIGHT, KNIGHTHOOD.)

Patrimony. — An hereditary estate or right which has descended from one's ancestors.

Patron (Church).—One who has in his gift the disposition of an ecclesiastical benefice, which is termed his patronage. (*See* ADVOWSON.)

Patronymic.—A name which is derived from or relates to one's ancestors. Thus Tydides, the son of Tydeus; Fitz-Clarence, the son of Clarence; Johnson, the son of John, and the like, are patronymics. The word is also used for a surname or family name, as Smith, Jones, Brown, and so forth.

Pattens.—1. A clog of wood, sometimes having a patent-leather toe nailed on to it to prevent the foot overlapping the wooden sole, and a pair of side straps fastening it on over the instep. It has also an iron oval-shaped ring placed on iron supports, which raises the wooden sole about three inches from the ground, and enables the wearer to walk through mud and water without fear of getting soiled or wet. 2. In architecture, the word patten is used to designate the foot or base of a column.

Patterns. — Small specimen cuttings of all kinds of fabrics which are sent by post from drapers' and tailors' shops to those who desire to purchase but may not have the opportunity of making a selection in the warehouse where the entire pieces might be seen. The scale of the prices and a memorandum of the width of the material are usually attached to the patterns.

Patties are small pies made of puff-paste, and either baked in patty-pans or without them, and filled with a savoury preparation. They are served either hot or cold, and are generally very popular.

Patty-pans.—These little pans, which are used for baking patties, are made of tin, and are usually of a round shape. They should be lightly greased before being lined with puff-paste, and when they are done with should be washed in hot water, dried thoroughly, and kept in a dry place. They are sold by the dozen.

Pauper. (*See* POOR LAWS.)

Pavilion.—A temporary erection, such as a tent. Also a kind of turret, usually insulated and under its own roof. The word is less properly applied to a summer-house in a garden. In such a case as Brighton Pavilion, the use of the word is arbitrary. Occasionally a flag or banner is called a pavilion; but in all its forms and applications the word is derived from the Latin *papilio*, which means a butterfly.

Pawn. (*See* CHESS.)

Pawn, Pawnbrokers. — A pawn is a pledge lodged as security for the payment of a sum of money borrowed, he to whom it is given being the pawnee or pawnbroker. As the party who pawns the goods has a general property therein, they cannot be forfeited by the pawnbroker for any offence of his, neither can they be taken in execution for his debt; on the other hand, where goods are pawned for money, if judgment is obtained against the pawner for debt, the goods in the pawnbroker's hands are not liable to execution until the money lent is paid to him. He that borrows money on a pawn is to have again the pledge when he repays the same, or he may bring an action for detaining it, and his very tender of the money revests the special property in him. Likewise it has been held that where a broker refuses on tendering the money to re-deliver the goods, he thereupon shall be indicted. The Acts upon this subject formerly in force were the 39 & 40 Geo. III. c. 99, and 23 & 24 Vict. c. 21; but both these Statutes have been repealed, and the whole law consolidated and amended by the Pawnbrokers' Act, 1872 (35 & 36 Vict. c. 93). That Act divides loans into two classes—(1) Loans above 10s. and not above 40s., on which class of loans a charge of 1d. is allowed for the ticket, and ½d. per 2s. per calendar month by way of profit, all fractions of 2s. or calendar months (unless under a fortnight) being chargeable at the same rate; and (2) loans above 40s. and not above £10, on which class of loans a charge of 1d. is allowed for the ticket and ½d. per 2s. 6d. per calendar month by way of profit, all fractions of 2s. 6d. or calendar months being chargeable at the same rate. The Statute directs that every pledge shall be redeemable within twelve months from the day of pawning, exclusive of that day,

with seven days of grace. And by sec. 17, a pledge pawned for 10s. or under, if not redeemed within that time, becomes the absolute property of the pawnbroker; but by sec. 18, a pledge for above 10s. continues redeemable beyond that time until the actual sale thereof. The sale shall be only by public auction (sec. 19), and the pawnbroker is to account for the surplus (if any), allowing for costs of sale and any set-off. The Act does not prohibit special contracts between the pawnbroker and his customer (sec. 24). Upon production of the ticket and payment of all sums owing on the pledge within the period for redemption, the pawnbroker is bound to deliver up the same; and by sec. 27 he is made liable for all damage or destruction occasioned by fire. Sec. 29 makes provisions for cases in which the ticket has been lost. As to goods illegally pawned, by the common law a pawnbroker could not retain them against the true owner; but under the above-cited Act the Court may, on conviction of the thief, either allow the pawnbroker to retain the goods as a security for the money advanced, or order their restitution to the true owner.

Pax.—This word is Latin for "peace," and in the Roman Church is the name of a small plate, with a representation of Christ on the cross, which the people used to kiss after the service, an action which signified the "kiss of peace." The word pax is used by school-boys in some of their games when they claim some respite or exemption of the nature of a truce.

Payments into and out of Court.—When a defendant against whom an action is brought admits the plaintiff's claim in part, he can pay money into court under a plea of payment into court, by which he alleges that he brings a sum of money into court ready to be paid to the plaintiff if he will accept the same, and that the plaintiff has no claim to a larger amount. The money is paid at the proper office of the court (the master's), where the plaintiff or his solicitor may upon application obtain it. If the plaintiff afterwards proceeds with his action, he takes the risk of being defeated and of having to pay the defendant's costs, if he fails to prove that an amount beyond what has been paid into court is due to him. Money can be paid into court in all actions (except actions for assault and battery, false imprisonment, libel, slander, malicious arrest or prosecution, and certain graver offences), and one or more of several defendants can, upon such terms as to the Court or a judge shall seem fit, pay into court a sum of money by way of compensation or amends. As money may now be paid into court without leave at any time after service of the writ and before defence, summonses to stay on payment of a smaller sum than the sum demanded are no longer necessary. Instead of this course, the money is paid into court, and the copy of the receipt sent to the plaintiff's solicitor.

Peace, Articles of the.—Where a person says that his life is endangered through the hostility of another, he may exhibit what are known as articles of the peace (being a formal statement of the danger) to the Court or a magistrate, who will thereupon require the party informed against to give security to keep the peace. But the Court must be satisfied that there is on the face of the articles a reasonable ground of fear. The articles are put in upon oath, and the defendant cannot controvert the allegations contained therein, even by affidavit.

Peace, Breach of the. (*See* BREACH OF THE PEACE.)

Peach.—The fruit (*Amygdalus Persica*) known by this name is the product of warm or temperate climates. The peach-tree is a native of Persia and the north of India, and very much resembles the almond-tree; so much alike are the two trees that some have doubted whether there is any specific distinction between them. The blossom appears on the tree before the leaves, and is of a delicate pink colour. The nectarine is merely a variety of the peach, having the skin of the fruit smooth, while that of the peach is downy and velvety.



PEACH BLOSSOM.

Both peaches and nectarines are divided into two classes—the freestones and the clingstones. The former are the better kind, and may be known by the flesh of the fruit parting easily from the stone; in the latter the flesh adheres to the stone. There are many varieties of peaches, and all are cultivated as standards in the south of Europe, North and South America, and Australia. In England the tree is generally trained on walls, and in some places in hothouses. The leaves of the peach-tree when fresh have the smell and taste of bitter almonds, from which by distillation peach-water, so valuable as a flavouring article in cookery, is obtained.

Peacock.—The peacock (*Pavo cristatus*) is a native of the East Indies, and is remarkable for the magnificence of its plumage. It is generally supposed to have been known to the Hebrews in the time of Solomon, and became known to the Greeks on the occasion of Alexander's expedition to India. In the latter days of Roman greatness no banquet was considered complete unless a peacock formed

one of the dishes; and not content with this only, peacocks' brains and tongues were cooked as a separate dish. The peacock is common in most parts of the world, and both the flesh and



PEACOCK.

eggs are very good. In warm countries, however, the bird is kept for ornament rather than for use. Though beautiful, the peacock is not considered an amiable bird, and it is always supposed that he is fully aware of the beauty of his personal appearance. (*See next paragraph.*)

Peacock's Feathers.—The plumage of this bird is very varied, as well as extremely beautiful. The feathers of the neck are blue and have a peculiar sheen; those at the back of the wings are green and black; those of the tail, which form the far-famed splendour of the peacock, are brown, green, violet, and gold, and these have an eye-like spot at the end of each feather. In addition to these are some stiff brown feathers, which are longer, and act as a support and a background to the former. It is not only the beauty of colouring which gives special value to these feathers, but also the gracefulness and pliancy of the fibres or barbs—that absence of stiffness observable in the wing and tail feathers of most birds. The tips of the eye-feathers are made into trimmings for dresses and hats; those of the neck for hats and bonnets. Fans, mats, and many ornamental articles are made of the different feathers, more especially in India and China, whence they are brought over to this country, and sold in the bazaars and shops which exhibit Oriental wares. In China the right to wear three peacock's feathers is a mark of high honour, to which all Mandarins aspire. A peacock's crest was in former days one of the ornaments of English kings.

Pear.—The cultivation of the pear (*Pyrus communis*) was probably introduced into Britain by the Romans. The pear-tree is of the same genus as the apple-tree, and, like it, is one of the most valuable fruit-trees of temperate climates. It grows wild in some parts of Britain and elsewhere, though the wild pear is very inferior in quality to that produced by cultivation. The varieties of the pear are more numerous than those of the apple. Among these the jargonelle, the bergamot, and the Beurré form three of the most highly-esteemed varieties. Some pears ripen early in autumn, and others not until the beginning of winter. The latter, which are called winter pears, require to be kept a short time before they are used, in order that they may become mellowed; whilst some pears are not good if kept for more than a few days. As a rule, pears cannot be kept so easily as apples. (*See next paragraph.*)

Pear-wood.—The wood of the common pear (*Pyrus communis*). This is a reddish, fine-grained wood, very hard, and not liable to warp. It is much used by joiners and turners, and also by wood-engravers as a substitute for boxwood. Pear-wood is sometimes dyed black, when it forms a very good imitation of ebony.

Pearlash.—A carbonate of potassa, which is obtained by calcining potashes upon a reverberatory hearth, when the sulphur is driven off, and the carbonaceous matter has been burned out of the potash. The carbonic acid, however, combines with it and forms it into a carbonate. It is then broken up to produce pearlash, dissolved in water in a wooden cistern, having a perforated bottom covered with straw, through which it filters, and is afterwards evaporated in flat-bottomed iron pans. Approaching dryness, it is stirred with iron rods, which break it into round lumpy masses of a pearly-white colour; and in this state it is the pearlash of commerce, and contains about 50 per cent. of the pure potassa. The latter is procured from the ashes of the burned timber-trees of British America, which go through a certain process to reduce the substance to potash. All land plants yield potash when burned, and some in greater proportion than the Canadian timber-trees. (*See* POTASH.)

Pearl Barley. (*See* BARLEY.)

Pearl Dentifrice.—A popular tooth-powder, for which Cooley gives the following recipe:—Heavy carbonate of magnesia or precipitated chalk one pound, finest smalts three drachms, essence de petit grain half a drachm. As the smalt is merely the blue used in starching, and the petit grain a preparation from the orange-leaf, the one is to give colour, and the other to flavour and scent the preparation, which has no virtue beyond that of prepared chalk.

Pearl Powder.—A well-known cosmetic for the skin; it is a mixture of equal parts of French chalk and pearl white. The latter ingredient is sometimes employed in smaller proportions, and advisedly so, as pearl white is a preparation of bismuth, the free use of which is said to injure the skin, and to be otherwise objectionable.

Pearl White. (*See* COSMETICS.)

Pearls are naturally produced within the shells of certain molluscs, especially the pearl oyster and the river pearl oyster. They vary in colour, some being white, others black, pink, &c., and their value is dependent on their size, shape, and quality. Certain pearly excrescences are sometimes cut from the interior of the shells, and are used for different purposes, being often mounted and sold as real pearls. (For artificial pearls, *see* the article on that subject.) Pearls are sometimes imitated from pink coral, and real pearls are occasionally dyed black or brown; but these are of small value. It is said that hematite, a kind of iron ore, is frequently

used in the manufacture of imitation black pearls. Owing to the delicacy of their structure, pearls require to be treated with care; when discoloured, they may be soaked in hot water in which some bran and a little tartar and alum have been boiled. Rub them gently with the hands for some time, then rinse them in lukewarm water, and lay them on writing-paper in a dark place to cool.

Peas.—Peas have been cultivated in the East from time immemorial, and were introduced into Europe very early in the Middle Ages. As a plant the pea grows rapidly and withers quickly. Common or garden peas are extensively cultivated in England and used as a vegetable, and being richer in phosphates than most other table vegetables, are particularly adapted for invalids. Although, however, peas are a delicious and profitable vegetable, they cannot be well produced without proper care and management. They like a deep rich moist soil, in which there is some amount of well-decayed manure; and as the difference in produce is very great between peas well grown and peas grown carelessly, the cultivator should not be sparing of attention in any particular.

Peat.—Peat, as fuel, derives its value from its compactness and freedom from earthy matter. In its heating power it ranks next to wood, one pound of peat being sufficient to raise from twenty-five to thirty pounds of water from the point of freezing to that of boiling. It is chiefly composed of the decayed fibres of mosses and other vegetable substances, and in its nature is closely allied with coal. Peat differs in character with the locality in which it is found, according to the vegetable matter composing it. Peat procured from the upper or exposed surface usually assumes the appearance of an entire mass of vegetable fibres in a nearly unchanged condition; but at a little depth these become less loose and more heavy and compact, and lower they lose their character as mossy fibres, and assume that of a dense black substance, having a strong chemical identity with jet.

Pebble Glasses.—These are used instead of glass for spectacles, and made from a transparent rock crystal or quartz, the chief advantage they have being a decreased liability to be injured by scratching, in consequence of their superior hardness and their coolness. The best pebbles are those imported from the Brazils.

Pebble, Scotch.—A roundish stone used for jewellery.

Peck.—A measure of capacity for grain and other dry goods, and equivalent to two imperial gallons, or the fourth part of a bushel. (*See* Weights and Measures.)

Pede-mat.—A mat for the feet, otherwise called a pede-cloth. It is chiefly used as a sort of carpet for the floor of a chancel in close proximity to the communion-table, and is frequently a somewhat elaborate piece of needlework.

Pedestal.—The base upon which a statue, obelisk, or column is erected. A pedestal consists, classically, of three divisions—the base, the dado, which is the intermediate part, and the cornice. Roman pedestals are distinguished by being ornamented at the base of the plinth with mouldings, and at the top with a cornice. (*See* Dado.)

Pedestal Cupboard.—These cupboards are useful pieces of furniture, as they occupy little space, have a neat appearance, and will often fill agreeably a corner in which no other piece of furniture would stand as conveniently.

Pediculi. (*See* Lice.)

Pediluvium.—A term sometimes used by medical men for a foot-bath, or bathing the feet.

Pediment.—The triangular termination used in classical architecture over porticoes at the ends of buildings. These may be seen above the porticoes of Greek and Roman buildings, supported by pillars, taking the form of an obtuse gable. It is frequently enriched within the gable, or *tympanum*, with sculpture of an emblematic description. In Roman work we sometimes see the pediment over the door and windows. The term is frequently applied in modern works to small gables and triangular decorations over doors, niches, and windows in Gothic architecture. It is considered by architects that no more than eight, or at the most ten, columns should be placed beneath the pediment, as otherwise it will either be too low to be proportionate, or else too lofty and heavy, overwhelming the columns, and giving them a poor and mean appearance. The height of the tympanum should be very nearly in accordance with that of the entablature beneath the pediment, and should never greatly exceed it.

Pedlars. (*See* Hawkers and Pedlars.)

Pedometer.—This is an instrument of a useful kind, not larger than a small watch, so constructed that when the body of the bearer is raised, either in the act of walking or by the motion of a horse in riding, a lever acts upon the wheel-work of the instrument, and an index or hand points out on a dial-plate figures denoting the number of miles traversed.

Peduncle.—This is a name given by botanists to the stalk of a flower.

Peel, Baker's.—The article which goes by this name among bakers is used for lifting loaves in and out of the oven. In form the baker's peel is like a flat shovel fixed at the end of a long stick, by means of which access may be had to the furthest part of the oven.

Peel, Candied.—The skin of the orange, citron, and lemon is preserved by being candied, and in this state is extensively used in cookery. As in candying these peels it is desirable to preserve the form and character of the rind, the substance is boiled in water until soft, and is then suspended in concentrated syrup until transparent. After this the rind is dried in a stove or in a current of warm air.

Peer, Peerage.—The peerage of Great Britain, the term peerage indicating equality of rank (Latin, *par*, equal), includes the five degrees of nobility—duke, marquis, earl, viscount, and baron—and a sixth order, consisting of the archbishops, bishops, and the lords of appeal

in ordinary, who are entitled to a seat in the House of Peers, and possess during their tenure of office all the rights and privileges of peers. All peers of England, of Great Britain, and of the United Kingdom, certain representative peers of Scotland (sixteen in number) and of Ireland (twenty-eight in number), together with the archbishops and certain of the bishops, constitute the House of Peers. The peerage is as a rule hereditary, but the lords spiritual (the bishops and the archbishops) and certain of the law lords are life peers only. The wives of all peers are styled peeresses. Ladies may also be peeresses in their own right, either by creation or inheritance. Some account of each order of the peerage, and of their rights and privileges, will be found under the headings BARON; DUKE; EARL; MARQUIS; PARLIAMENT; VISCOUNT.

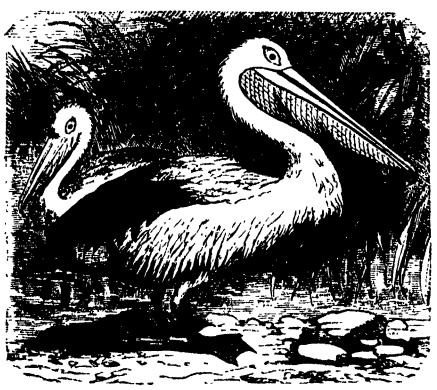
Peers, House of. (*See* PARLIAMENT.)

Peewit. (*See* LAPWING.)

Pekoe Tea. (*See* TEA.)

Pelerine.—A cape worn by ladies, short at the waist behind, with long ends in front, which either hang down straight with square ends, or are tied once at the waist. In France, pelerines are usually made for walking dress only, of what is called "Cashmere de l'Inde," a rough woollen cashmere, exquisitely soft and warm; but in England they are made of every kind of material, from muslin to cloth. The word *pèlerin* means, in French, a pilgrim or palmer, and the original garment was probably a tippet worn by the pilgrims in their long wanderings, and had a hood to be put over the head if needed.

Pelican.—A bird most commonly found in the more easterly countries of Europe, such as Russia and Hungary. It is called by naturalists *Pelecanus onocrotalus*, and belongs to the family *Pelecanidæ*. Pelicans are large heavy



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birds, with long wings and great swimming power. Under the lower portion of the bill is a large pouch, in which, in their fishing expeditions, they store for a time the fish they do not swallow. These the male takes home to the female if sitting on her eggs, or the female carries to her young. There are several species of pelicans, and their habitat is always near rivers or lakes, or the sea itself. The colour of the common pelican is white, with a rose or salmon tint; the spurious wings are black, the crest and pouch yellow, and the feet flesh-colour. The bird measures about six feet; the tail is short, but the expanse of wing about thirteen feet.

Pelisse.—A word of French origin (from the Latin *pellis*, a skin), but adopted into the English language centuries ago. As originally worn, this garment was a heavily-wadded robe or coat, usually trimmed and lined with fur. The name was afterwards applied to an over-dress worn as an out-door garment by ladies only, cut rather in the style of the modern princess polonaise. It covered the dress completely, and was fastened with small buttons down the front, and had no cape or hood. The word pelisse is at present only used in children's dress for the little out-of-door garment of French merino, trimmed with quilted silk, worn by babies from six months to two years old. It has a shoulder-yoke and plain skirt, with a large cape over all. The pelisse is first heard of in England in 1185, in the reign of Edward the Confessor, when the nobles wore dresses of fur or skins called *pelles*.

Pelote.—A French term applied to a fashionable moss-fringe used for dresses.

Pelt.—The skins of fur animals when dried, but not dressed, are known by this term. In this condition they are sent from the countries in which they are captured, when the furrier prepares them for use. The term peltry is applied to furs in general. The word arises from the Latin *pellis*, a skin or hide

Pemmican.—The preparation known by this name belonged originally to the North American Indians, but latterly it has been introduced into our country, and has formed a valuable addition to the stores of food supplied for the Arctic expeditions. Pemmican is composed of lean meat made thoroughly dry, reduced to powder, and then mixed with melted fat. Sometimes currants and sugar are added to it to improve the flavour. After the ingredients are well mixed together, the preparation is transferred to large tin canisters. These are made perfectly air-tight, and may be kept for a long time. Pemmican made by the Indians consisted of the lean portions of venison; that made for the Arctic voyagers was chiefly of beef.

Penal Laws, Penal Actions.—Penal laws are those Statutes which not only prohibit certain offences, but impose penalties on the commission of them. These are generally made recoverable by the Crown, the party aggrieved, or a common informer. Actions brought for the recovery of such penalties are known as penal actions; where one part of the forfeiture is given to the Crown, and the other to the informer, it is designated a popular or *qui tam* action. Inasmuch as a penal statute is, in regard to the penalty imposed, a money bill, the House of Commons claims the exclusive right of legislation thereon, the Crown and the House of Lords having merely an assenting vote. As to

the Crown's power of remitting penalties under these Statutes, see 22 Vict. c. 32.

Penal Servitude.—A punishment which has taken the place of transportation. The duration of it varies from five years to the remainder of the life of the convict. (See 16 & 17 Vict. c. 92; 20 & 21 Vict. c. 3; 27 & 28 Vict. c. 47; 34 & 35 Vict. c. 112; and 33 & 34 Vict. c. 23.)

Penalty.—Where in any agreement between two or more parties it is provided that in case of failure in the performance of the same the defaulting party is to pay a certain sum of money, this is generally considered in the nature of a penalty, and does not create a forfeiture of that entire sum, but only damages proportioned to the breach of contract. It is, however, competent to the parties to a contract to agree between themselves that in the event of a breach by either a given sum shall be recovered from him by the other, as stipulated or liquidated damages, and in this case the whole of the sum thus agreed on may, on a breach of the contract, be recovered from the defaulter. The sum so agreed on is not properly called a penalty, for the law regards a penalty as a security only for the damage actually sustained, although the use of the word penalty will not prevent the whole sum from being recovered, if this be clearly the intention. But where a sum of money is stipulated to be recovered as liquidated damages in case of the breach of an agreement to do several acts, and such sum will, in case of breaches of the agreement, be in some instances too large, and in others too small a compensation for the injury occasioned, such sum will not be allowed to be recovered in case of any breach, but damages only proportioned to the actual injury which the breach has occasioned. In such case, if the parties wish to bind themselves to pay liquidated damages, they must contract in clear and precise terms that for the breach of each and every stipulation contained in the agreement a sum certain is to be paid; and then, although the stipulations may be of various degrees of importance, the parties will be held to their contract.

Pencil-cases.—There are three descriptions of pencil-case, or cylindrical case designed to hold and preserve a pencil from being broken. The old-fashioned kind is designed to contain a cedar pencil, which is fixed into a band inside, attached to another encircling the case outside, a narrow slit being left all down one side to connect the inner and outer rings, and enable the pencil to be moved out or in at pleasure. Another description of pencil-case is so contrived as to contain a pen at the opposite end to that enclosing the pencil. A third kind is designed to hold black-lead without a cedar casing round it. The lead is placed within a pointed metal receptacle, having a screw by which it is attached to the case. At the other end the seal-top unscrews, and some five or six little cells are disclosed, designed to contain a supply of leads. The receptacle in which the lead is placed for the purpose of writing is projected or drawn inwards by means of a screw.

Pencils, Chalk. (*See* CHALK PENCILS.)

Pencils, Lead. (*See* LEAD PENCILS.)

Pendant. (*See* PENNON.)

Pendants.—In jewellery, pendants are such ornaments as hang or are suspended, as ear-drops, lockets, and decorative appendages to larger pieces. The jewels attached to a ribbon in connection with various orders of knighthood are often spoken of as pendants.

Penelope Canvas.—Made especially for Berlin wool work. In this canvas the threads are divided into small squares, each containing four threads; a square is covered by one cross-stitch. This open division saves much trouble in counting and separating the threads—an extra labour which the original canvas, wherein all threads were evenly placed, necessitated when stitches of this description were worked on it.

Penholder.—The handle to which a pen is affixed to enable the writer to use it. These are usually made of common wood stained black or otherwise. Some are of ebony, others of tortoiseshell, bone, silver, gold, base metal, and carved ivory, and vary in length from five to upwards of about six inches. These handles are round like pencils, tapering towards the end, but the ornamental kinds terminate in different styles, sometimes shaped like the feather of a quill pen. A receiver for the gold or steel pen—made of silver, steel, or other metal—is affixed to the other end of the penholder, bent round to fit its shape, and having sides turned inwards beyond the stick of the penholder, by which the pen is held. Some penholders are constructed like pencil-cases, and the pen is drawn within it by means of a sliding ring round the outside attached to one into which the pen is fixed. Another and a more modern penholder is one made of cork, with a small round metal receptacle inserted at the large thick end, in which the pen is held. These are designed to preserve the fingers from the cramp induced by the long holding of the pen, being very much thicker in circumference than the ordinary kind; besides which, cork is supposed to act as a preventative and a cure in cases of cramp. (*See* PENCIL-CASES.)

Penknife.—A small knife which was first introduced for the purpose of making and mending quill pens, these being in universal use up to a late period, when steel pens were invented. Penknives have narrow blades of fine steel; these are made to shut up into a handle, in which they are protected from injury. The handles are made of ivory, tortoiseshell, wood, buckhorn, and mother-of-pearl. This class of knife should be kept for the exclusive purpose of cutting pens or pencils, for the fine edge is soon turned or the delicate blade broken if applied to rougher purposes.

Pennant. (*See next paragraph.*)

Pennon, otherwise called a pendant or pennon, is a peculiar kind of flag. Boutell says, "Pendants are long and very narrow streamers, either red, white, or blue, and charged at the head with a cross of St. George." They are the symbols of command in the Royal Navy, and indicate that a vessel is in

commission, but commanded by an officer of lower rank than an admiral.

Penny.—A British coin, the twelfth part of a shilling, and the two hundred and fortieth part of a pound. It is one of the most ancient English coins, having been in common use among the Anglo-Saxons, when it was composed of silver, and weighed 22½ grains, or the $\frac{1}{240}$th part of a Saxon pound weight. In the early days of their history, pennies were deeply indented with a cross-mark, so that the coin could easily be divided into two or four pieces: hence the origin of the terms halfpence and farthings. Halfpence and farthings as separate coins were not known prior to the reign of Edward I. From this time the weight of the silver penny gradually decreased, until in the reign of Elizabeth it was fixed at $7\frac{23}{31}$ grains, or $\frac{1}{62}$ of an ounce of silver. In 1672 the first copper coinage of pennies was authorised, the value being approximately that of the silver pennies of Elizabeth; and this value was retained until the establishment of the bronze coinage in 1860, a bronze penny being about half the value of the old copper one.

Penny Banks. (*See* BANKS, PENNY.)

Penny Readings.—A popular kind of entertainment, so called because a penny was usually the price charged for admission. Extracts in poetry or prose are read or recited, and in many cases additional attractions are provided in the form of music. When prudently arranged and conducted, they are a useful and wholesome amusement, very suitable for the evening recreation of the industrial classes.

Penny Weddings, or Penny Bridals.—A sort of marriage festivity once common in Scotland among the poorer people. The guests paid a small sum, seldom more than a shilling, to defray expenses and leave a surplus for the benefit of the newly-wedded couple. The practice led to so much abuse that it was discouraged by the authorities, and has long been obsolete.

Pennyroyal.—This herb (*Mentha pulegium*)



PENNYROYAL.

is used both as a flavourer and as a medicine. It is allied to the mints, having like them a pleasant aromatic smell and a warm pungent taste. Pennyroyal tea is a popular expectorant, and is in common use in asthma, bronchitis, hysteria, and female complaints. Water, essence, oil, and spirit of pennyroyal are made from the herb, and are used in the mixture of medicines.

Pennyweight.—The twentieth part of an ounce troy, and equivalent to twenty-four grains troy. It is abbreviated *dwt.* (*See* WEIGHTS AND MEASURES.)

Pens, Metallic. (*See* METALLIC PENS.)

Pens, Quill. (*See* QUILL PENS.)

Pens, Reed. (*See* REED PENS.)

Pensions.—Sums paid to individuals in consideration of past services. The pensions granted by the Government, so far as they form part of the civil list, are explained under the heading of CIVIL LIST. Army pensions are granted for distinguished service and for long service. Good service pensions are given in the navy to officers of different ranks, and those for long service include petty officers, seamen, and marines. Pensions for wounds are granted in both army and navy, as also are pensions to widows, so long as they remain such, provided they had been married twelve months when their husbands died. What are known as compassionate allowances are small pensions to the children of deceased officers when left in poor circumstances. Dr. Johnson's definition of a pension is satirical. It is—"An allowance made to any one without an equivalent. In England it is generally understood to mean pay given to a state hireling for treason to his country."

Pentagraph.—A name sometimes given to the pantograph (*which see*).

Pentecost.—The name given to a Jewish feast held on the fiftieth day after the Passover (Greek, *pentēkostē*, fiftieth). The Christian Church also holds this day as a solemn festival, because it was the occasion of the descent of the Holy Ghost on the Apostles. It is Whit-Sunday of the English Church. (*See* WHIT-SUNDAY.)

Penthouse.—An open shed, or the projecting roof protecting a window, door, or a flight of steps, bears this name.

Penwiper.—An appliance for removing ink from a pen. Penwipers are composed of a few pieces of black linen, black silk, or cloth, with an outer leaf of velvet or leather, cut round, and fastened together in the centre with a button. Sometimes they are made in the form of a large butterfly, and embroidered; others have shells for outer leaves. Another kind of penwiper, and one which is very useful, is a hare's foot, well dried before use, and with a small mount in silver or white metal at the joint end.

Peony.—A large, showy, somewhat gaudy flower cultivated in our gardens. It is called by botanists *Pæonia*, and belongs to the natural order *Ranunculaceæ*. There are several species of

peony, all of which are very easily cultivated by division of the root. Some are mere plants,



PEONY.

others are shrubs. They will thrive well on almost any kind of soil.

Pepper.—Of this aromatic berry or fruit there are six or more different kinds; the black, Cayenne, cubeb, cherry, Guinea, and long pepper being the principal sorts. *Black pepper*, or *Piper nigrum*, is the fruit of a climbing vine, a native of the East Indies, cultivated extensively in Malabar, Sumatra, Java, Borneo, Malacca, Siam, Ceylon, and in Cayenne. The best East Indian pepper comes from Malabar. The berries grow in spikes of from twenty to thirty, at first green; when ripe they change in colour to a bright red. "White" pepper is not a produce of a separate plant, but is made from the black, by steeping it in lime-water and rubbing it between the hands till the coats come off. It is only the best grain that will bear this operation. The white, being of the superior kind, fetches a higher price; it is milder than the black, prized much in China, and is little brought to England. Black pepper is much used as a condiment; it contains a concrete acrid oil, a volatile oil, starch, malic and uric acids, and lignine. The oil is too pungent to be tasted. *Cayenne pepper* (*which see*) is of a different substance, and is the most stimulating of spices, pungent and acrid. *Cherry pepper* is a species of capsicum (*Capsicum cerasiforme*), the fruit of which is small and shaped like a cherry. *Cubeb pepper* is composed of the dried pedicelled berries of the shrub *Piper cubeba*, a native of Java, Nepaul, Sierra Leone, and the Isle of France. These are about the size of black peppercorns, but somewhat wrinkled, and have a short slender stalk. Their taste is warm and camphoraceous, their smell aromatic, their colour grey. They are imported from Batavia and Canton, and are employed medicinally. *Guinea pepper* consists of the aromatic seeds of two kinds of *Amomum grana Paridisi* and *Amomum grandiflorum*, natives of the west coast of Africa, and imported from Sierra Leone and other places. They are powerfully stimulant and cordial, and are used for the same purpose as cardamoms. This pepper is a variety of the capsicum, introduced into England in 1548. The plant rises two feet, has white flowers, succeeded by pods, which when ripe turn yellow or red. *Long pepper* (*which see*) is the fruit of two species of *Piper*, growing respectively in Malabar and the Indian Archipelago.

Pepper, Adulterations of. (*See* ADULTERATIONS OF FOOD, &c.)

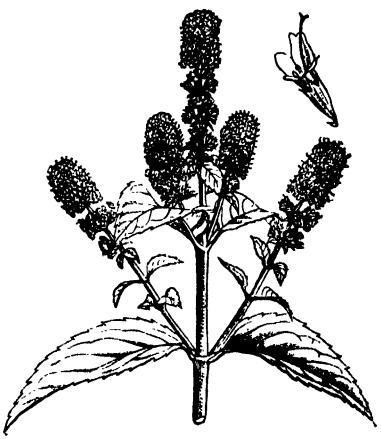
Pepper, Bird. (*See* BIRD-PEPPER.)

Pepper Box and Caster.—Pepper-boxes are sold separately for kitchen use. They are provided with a perforated lid, through which the pepper can be distributed lightly and equally over the food. The pepper-caster forms part of the cruet. It is made after various ornamental designs, and answers the same purpose in the dining-room that the pepper-box does in the kitchen.

Pepper, Jamaica. (*See* PIMENTO.)

Pepper-mill.—Pepper-mills are used for grinding pepper-berries to powder. They may be so regulated that the pepper shall be either fine or coarse.

Peppermint.—Peppermint (*Mentha piperita*) is one of the species of perennial herbaceous plants which are common in Britain. It belongs to the common mint family, and grows abundantly in all temperate regions. It may easily be recognised by the peculiar pungency of its odour and its taste. It is a powerful diffusible stimulant, and is much employed in the treatment of flatulent colic. It is also used by chemists for destroying the taste of drugs used



PEPPERMINT.

in their mixtures. Peppermint lozenges are made of sugar and oil of peppermint, carefully mixed with very clean mucilage, and are very efficacious in relieving flatulence and nausea. The demand for these lozenges is so great that there is no doubt about their being highly esteemed by the public. The commoner lozenges are made by using inferior ingredients; and in some instances it has been proved that plaster of Paris has been introduced into their composition. (*See also* LIQUEURS.)

Pepsin.—This is the active principle of the gastric juice, the digestive fluid secreted by the stomach. It is obtained by first washing, and then scraping with a blunt knife, the mucous membrane of the stomach of some animal—usually the pig—rapidly drying the pulpy substance thus obtained at a temperature of about 100°, and then powdering, and keeping in a well-stoppered bottle. Pepsin appears as a yellowish powder, possessing but little taste, and having a somewhat pleasant smell. It is largely used as a remedy in certain conditions of dyspepsia, especially those which are characterised by want of tone and deficient secretion of gastric juice. It has also been used with marked benefit in that form of spasmodic asthma which is caused by gastric derangement. The dose of pepsin is from two to five grains, to be taken with each meal. If a few drops (five or six) of dilute hydrochloric acid are taken at the same time, the efficacy of the pepsin is thereby very much increased. One kind of prepared pepsin is made from an aqueous extract of the mucous membrane of the stomach, by first adding acetate of lead, then removing the latter with sulphuretted hydrogen, and leaving the pepsin in solution. Lactic acid is then added, and the result evaporated to pulp, subsequently powdered, and mixed with starch. This pepsin is only one-fifth of the strength of the ordinary form of pepsin, supposing the latter to have been carefully prepared.

Perambulators, when rightly used, are most valuable vehicles, affording enjoyment to children and help to nurses or mothers; where abused, as they too frequently are, they are fruitful sources of danger. They should be regarded as *aids* only to open-air exercise, useful to put the little one into when the nurse's arms require a temporary rest. If the child can walk, they should on no account be allowed to supersede active exercise, but should be employed at intervals to prevent the child from becoming over-fatigued. Perambulators are abused when they are made to favour idleness, negligence, and gossip; and they can only be mischievous when the child is fastened in and left unnoticed and uncared for in the hot sun, damp air, or cold and wind, with its head shaking about, its body half in and half out, or it may be in a cramped, uncomfortable position, fast asleep. That they are thus abused is known to every one who walks in our streets. All perambulators should have a movable hood attached, to afford shade in sunshine, and yet allow free access of air. The back should be slightly sloped to fit that of the child, and the seat level—neither too hard nor too soft. A footstool should be placed under the child's feet, to sustain the weight of the body. The springs of the vehicle should be easy, and the perambulator should only be wheeled on smooth ground, to avoid undue shaking and injury to the spine. If the perambulator is a double one, the seats should be divided, so that one child may not lean upon another; and in winter-time a shawl should be put under the apron round the child's feet and legs, to keep them from getting cold. When these points are attended to, and when, in addition, the child is carefully watched and cared for, never allowed to sleep in the vehicle, but wheeled in it for a while, then taken out, and either carried in the arms or allowed to run about, the perambulator is a decided boon to those who have the care of children.

Perch.—The common perch is called by Linnæus the *Perca fluviatilis*, and belongs to the natural family *Percidæ*. It is a hog-backed fish, with two unequally-sized pectoral fins, and scales having a roughish outside. It is a darkish-green colour on the back and sides, with transverse black bands, with a white belly, and the anal, caudal, and ventral fins red. The upper dorsal fin is armed with sharp spikes, as a means of defence against its enemies. In length it may measure as much as fifteen inches, and weigh four or five pounds. Perches are considered very delicate eating, and are generally fished for from September till February. They spawn about the beginning of May, and come into condition again in July. They haunt deep eddies near to weirs, and like pools which are overshadowed by trees, and where weeds are to be found. Gentles may be used as bait, or minnows, shrimps, or lobworms, and the tackle must be strong but fine.

Perch (Measure).—A measure of length and surface, variously known by the three names of rod, pole, and perch. The lineal perch is equivalent to 5½ yards, or the fortieth part of a furlong. The perch of square measure consists of 30¼ square yards, or the fortieth part of a rood. (*See* WEIGHTS AND MEASURES.)

Percolator.—By the process of percolation soluble properties of various bodies are extracted by filtering a liquid through them. As the fluid passes through the substance acted upon, it carries with it the strength and essence therein contained. The forms of apparatus for percolation are numerous, but the principle is the same in all. The process is employed in pharmacy and in some other arts. The preparation of coffee by means of percolation has proved to be a great success. The name percolator is given to a French coffee-pot that has within the last few years been extensively used. It was invented by Count Rumford, and consists of an upper cylindrical vessel perforated at the bottom. In this the ground coffee is placed and covered with a perforated disc, having a stem by which it may be pressed down, so as to compact the coffee and allow boiling water poured thereon to percolate the mass and fall into the vessel below. Coffee thus made is perfectly clear, and the full strength and flavour of the coffee-berry are thoroughly extracted.

Perforated Cards.—Pretty frames for photographs can be made by cutting patterns out of this kind of cardboard. The design is marked in pencil round the border, the cardboard is then placed on a deal board, and the pieces of card are cut with a sharp penknife. A piece of red or any bright-coloured ribbon velvet is placed at the back of the border, and sewed round the edge of the frame with fine silk; the velvet shows through the interstices,

and gives depth and substance. The space for the picture is then cut away, the photograph is put there, and a piece of perforated card is put over it, and sewed down by means of the holes; if the frame is intended to stand on a table, a short piece of card is gummed to the back for a support. By another method useful book-markers and ornaments for frames can be made, bearing a resemblance to carved ivory. The desired form and size are cut out, and then the same form several times; each time the size of it is regularly diminished. Exactness in this must be observed, but there is no difficulty with ordinary thought, because the holes are correct and helpful guides. When as many of these are cut as can be, they are gummed one on the top of the other in regular order, the largest, of course, being the foundation for the others to rest upon. The former should be quite dry before another is put on the pile. Many little articles can be made of this cardboard which can be ornamented by needlework devices in silk or wool, or by gumming on painted flowers or figures. As this cardboard is liable to crack and tear, it will not bear much usage, and therefore it is not wise to make of it things which are often handled, such as needle-books or mats.

Perfumery.—This word includes a great variety of articles which in many forms and combinations are used as scents. Generally speaking, the word perfumery, as Cooley observes, "embraces not merely perfumes, but also cosmetics, and other articles of a closely-allied character employed at the toilet, the manufacture and sale of which constitute the trade of the modern perfumer." Various items belonging to this category are referred to under their respective headings in this work.

Perfumes (Various Ingredients of).—Notwithstanding the immense number of the names which perfumes bear, and of their forms and uses, they are perhaps without exception either of animal or vegetable origin. 1. Those of animal origin are ambergris, civet, and musk. 2. Those of vegetable origin are derived from the flowers, seeds, bark, roots, and wood of various plants and trees. The principal flowers, according to a high authority, are jasmine, rose, orange, tuberose, violet, jonquil, and narcissus. Among aromatic plants are lavender, spike, peppermint, rosemary, thyme, marjoram, geranium, patchouli, and winter-green, which yield essential oils by distillation. Among fruits, bergamot, sweet and bitter oranges, lemons, the cedrat and limette, all of which supply essential oils. Use is also made of spices, as cassia, cinnamon, cloves, mace, nutmegs, and pimento. Of woods we may mention sandal-wood, rose-wood, rhodium, cedar-wood, and sassafras. The roots are orris-root and vetivert. The seeds include aniseed, dill, fennel, and caraway. The balms and gums are balsam of Peru, balsam of Tolu, benzoin, styrax, myrrh, and camphor. Lastly, there are bitter almonds, tonquin beans, and vanilla. By means of special chemical processes, certain flavours are produced by artificial combination; such are the artificial essence of almonds, and those of lemon and cinnamon. Factitious fruit flavours are chiefly used in confectionery, such as so-styled essences of pears, apples, and pine-apples. The above list is not perfect, but it will be nearly so if we add the cascarilla and the laurel. There are, of course, many other plants which are more or less aromatic or otherwise scented, but they appear to be but little used in actual practice. It is mainly by different mixtures and combinations that the number of perfumes is multiplied, and appear as oils, essences, powders, pastes, &c. The varieties of smelling salts, which owe their pungency to ammonia and their scent to other ingredients, can scarcely be regarded as perfumes. Alcohol, vinegars, animal and vegetable fat and oil, and other ingredients much used by perfumers, are not properly perfumes, because they derive their scent from additions made to them.

Pericarditis. (*See* HEART.)

Pericranium.—This is the tough fibrous membrane which closely adheres to and invests the bones of the cranium, or skull. Although it has received a special name in this locality, the pericranium is identical in structure and function with the periosteum, the membrane which covers all the other bones. It is in this membrane that the blood-vessels ramify which afford nourishment to the bones; and hence it happens that when from any cause it has been lacerated or otherwise seriously injured, the bone beneath is liable to exfoliate or become necrosed (dead).

Peridot. (*See* CHRYSOLITE.)

Perigee and Apogee are derived from Greek words signifying respectively "near about" and "away from the earth." The orbit of the moon is not such that our satellite is always at the same distance from the earth; but it is elliptic in its character, the earth occupying one of the foci. When, therefore, she is nearest the focus of the ellipse which is occupied by the earth, the moon is in perigee, and when nearest the other focus she is in apogee.

Peripteros.—Of the same architectural character as the peristyle (*which see*), but on the exterior instead of the interior of a building.

Perishable Goods.—Goods which decay and lose their value if not soon consumed, such as fish, fruit, and the like. By the Judicature Acts, such goods, when the subject of an action, may by order of the Court or a judge be sold.

Peristaltic.—This is the term used to express the peculiar wave-like movement which characterises the action of the stomach and intestines during digestion and subsequent expulsion. It is derived either from a Greek word signifying "to contract," or from the French *péristaltique*.

Peristyle.—The open court within an interior colonnade, under which were the entrances to the principal apartments.

Periwig.—An artificial head of hair, more commonly called a wig. The latter word is an abbreviation of periwig, which is itself a corruption of the French *perruque*. (*See* WIGS.)

Periwinkle (Flower).—This is a plant called by botanists *Vinca*, and belonging to the natural family *Apocynaceæ*. It is a well-known spring flower in our gardens, and is sometimes found growing wild. It is, however, really a native of the middle and more southern parts of Europe. There are two kinds—the larger and the lesser periwinkle. The flowers are



PERIWINKLE.

a beautiful purple-blue colour. The plant likes a shady situation, as the foot of a hedgerow or a site among shrubberies, and although flowering in spring, it keeps on blooming throughout the summer. There are many superstitions about this flower. In Italy it is made into garlands to tie around the bodies of the dead; it was formerly used in France in sorceries; and in England it was at one time a principal ingredient in love philtres.

Periwinkle (Shell-fish). — A well-known shell-fish, of no great value as an article of food, but considered a delicacy by many. Periwinkles are common on the rocks all round our coasts, from which large quantities are collected and boiled for the markets. They belong to the natural family *Littorinidæ*.

Perjury is, as defined by Sir Edward Coke, a crime committed when a lawful oath is administered in some judicial proceeding to a person who swears wilfully, absolutely, and falsely in a matter material to the issue or point in question; in some cases, perjury is committed when a false oath is taken in proceedings not judicial, and is visited by penalties. Under several modern Statutes, offences against veracity, though not on oath, are made indictable and punishable as perjury, particularly so in the case of the declaration (commonly known as statutory declarations) substituted for oaths. The common law penalty for perjury was fine and imprisonment at the discretion of the Court; the statute law penalty is, under 2 Geo. II. c. 25, s. 2, transportation, or imprisonment with hard labour in the House of Correction for any term not exceeding seven years; and now penal servitude is, under 20 & 21 Vict. c. 3, and 27 & 28 Vict. c. 47, substituted for transportation. Two witnesses are required to ensure a conviction for perjury. Subornation of perjury is the offence of procuring another to take such a false oath as amounts to perjury in the principal. To constitute the offence of perjury, it is necessary—1. That the false oath be taken wilfully, *i.e.*, with some degree of deliberation and *malo animo*. It must be positive and absolute, not merely owing to surprise or inadvertency, or a mistake of the true state of the question. 2. The oath must be taken either in a judicial proceeding, or in some other public proceeding of the like nature, except in certain cases provided for by statute. 3. It must be taken before a person lawfully authorised to administer it. 4. It must be taken by a person sworn to depose the truth. 5. It is not material that the person who swears it in truth knows nothing of it, if he takes a false oath that he knows it to be true. 6. It must be taken absolutely and directly; therefore if a man only swears as he thinks, remembers, or believes, he is not guilty of perjury; but if he swears that he believes a fact to be true which he knows to be false, he is guilty of perjury. 7. The thing sworn ought to be in some way material; for if it be wholly foreign to the purpose, or immaterial, and neither pertinent to the matter in question nor tending to aggravate or extenuate the damages, nor likely to induce the jury to give credit to the substantial part of the evidence, it cannot amount to perjury, because it is wholly insignificant. 8. It is not material whether the false oath were credited or not, or whether the party in whose prejudice it was taken was in the event damaged by it; for the prosecution is not grounded on the damage to the party, but on abuse of public justice.

Permit.—A licence or instrument granted by the officers of excise, certifying that the excise duties on certain goods have been paid, and permitting their removal from some specified place to another. The Acts relating to this subject were consolidated by 2 Wm. IV. c. 16. The commissioners of excise provide moulds or frames for making the paper used in the printing of permits, which has the water-mark "excise office" visible in its substance; and the counterfeiting of such frames or paper, or the possession of the latter without being able satisfactorily to account for it, constitutes felony, punishable by penal servitude. Permits are not delivered except on the receipt of "request notes" specifying the place from and to which the goods are to be conveyed. A penalty of £500 is imposed on any one counterfeiting "request notes" or fraudulently procuring or misapplying permits; and all goods for the removal of which permits are necessary, if they be removed without them, are to be forfeited, and the various parties engaged in their removal are each to be amerced in a penalty of £200. (*See* Customs, Custom House; Excise.)

Pernancy signifies, in legal phraseology, the taking, receiving, enjoying, &c. Thus the pernancy of the profits of an estate means the receipt or enjoyment of the profits; *e.g.*, "estates in possession are those where the tenant is entitled to the actual pernancy of the profits," and he who is so in the receipt of the profits is termed the pernor of the profits.

Perpendicular Style.—By this term architects designate the later modifications of Gothic architecture belonging to the middle of the fourteenth century, when it commenced, and lasting to the close of the sixteenth, when the Elizabethan style took its place. It arose gradually from the Decorated, and lost character as it acquired age, becoming debased. We have an example of the Perpendicular style in Henry VII.'s Chapel at Westminster. Fan-

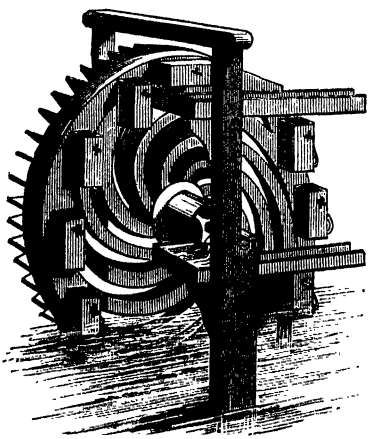
fern tracery, with panelling, forms its more prominent characteristics. (*See* ARCHITECTURE.)

Perry. — A very agreeable fermented beverage is made from the juice of pears, and known by the name of perry. It is prepared in the same way as cider is from apples, and in the districts famous for its manufacture it forms with cider the chief diet drink. Perry should, however, be used in moderation by those liable to stomach and bowel complaints, as it sometimes causes colic. The best pears for making perry are those which from their rough taste are least agreeable for eating.

Persian Carpets, Rugs, &c.—These have been famed for their beauty and excellence from ancient times. The Persians are extremely skilful in producing dyes, and the wool of their flocks is exceedingly fine and of a superior quality; thus the articles of their manufacture are noted for these excellencies. The carpets are not rough and shaggy like those of Turkey, nor are they equally as smooth as English carpets. The patterns, in which cones form a distinctive feature, have a certain amount of formality, but are not actually stiff in character. A great variety of colours is always exhibited, but these are always harmonious. The rugs are larger than those made in this country, and are often introduced into rooms which have not carpets of the same kind, as from their diversity of colours and indiscriminate patterns they agree with most carpets. They look well either in place of hearth-rug, or before a window or writing-table.

Persian (Silk Fabric).—This is very soft, fine, and almost of a transparent character. It is manufactured largely in Persia, and sent chiefly to Turkey and Russia. It is the least expensive of silken materials, and one which is used in this country for lining purposes. It is not, however, durable, and for this reason is not used by us to any great extent.

Persian Wheel.—A machine for raising



PERSIAN WHEEL.

water to a higher level. It consists principally of one large wheel so placed that by its revolution on its axis certain buckets attached to its circumference are dipped and filled with water when at the bottom, and are emptied when at the top. The water discharged falls into troughs or channels, and is thence conveyed to any point determined on. The contrivance is of Oriental origin; and the idea of it is turned to practical account in the gigantic dredging-machines employed on the Thames and elsewhere.

Persicat, or Persico.—A liqueur made of spirit, flavoured with peach-leaves, and sweetened with syrup.

Personal Estate, or Personalty.—Goods and chattels which are of a movable nature, as opposed to real estate or land, which is immovable. In ancient times, property was divided into lands, tenements, and hereditaments on the one hand, and goods and chattels on the other: the last two terms are synonymous. In process of time, however, certain estates and interests in land grew up, which were unknown to the ancient feudal system, the foundation of our system of land tenure (*see* FEUDAL SYSTEM), and could not be conveniently subjected to its rules. Of these the more important were leases for years. Such interests were therefore classed among chattels; but as they savoured of the realty, they acquired the term of chattels real. In more modern times, chattels real have been classed with other chattels within the division of personal property. Personal estate is generally alienable by different modes of conveyance from those employed for the conveyance of land; it devolves, in the first instance, on the executor of the will of their owner, or on the administrator of his effects if he should die intestate. Property in personalty is either in possession—which is absolute where a person has such an exclusive right in the thing that it cannot cease to be without his own act or default—or qualified, arising upon some contract, and recoverable by action. The title to things personal may be acquired or lost by occupancy, prerogative, forfeiture, custom, succession, marriage, judgment, gift or grant, invention, contract, bankruptcy, testament, and administration.

Personation, False.—Frauds of this kind were formerly indictable at common law as misdemeanours, and punishable by fine and imprisonment. They are now made penal by the express provisions of several Acts of Parliament. By 7 Geo. IV. c. 16, s. 38, and 2 Wm. IV. c. 53, s. 49, to personate any soldier, in order fraudulently to receive his pay, pension, wages, or prize-money, is felony, and is punishable by penal servitude for life or such term of years as the Court shall adjudge; or if the personation be for the purpose of obtaining prize-money, with penal servitude for life, or for not less than three years (now five years, by Statute 27 & 28 Vict. c. 47). By 11 Geo. IV. and 1 Wm. IV. c. 20, s. 84, to personate any seaman or marine with a like fraudulent intention is also felony, and is punishable with penal servitude for life, or not less than three (now five) years, or imprisonment for not more than four or less than two years. By 24 & 25 Vict. c. 98, s. 3, whosoever shall falsely

personate the owner of any share or interest of or in any stock, annuity, or other public fund transferable at the Bank of England or Ireland, or in the capital stock of any body corporate, company, or society, established by charter or by virtue of an Act of Parliament, or the owner of any dividend or interest payable in respect of such share or interest, and shall thereby transfer or endeavour to transfer any such share or interest, or thereby receive or endeavour to receive any money due to such owner, shall be guilty of felony, and be liable to penal servitude for life, or any term not less than three (now five) years, or to imprisonment for not more than two years. (See also the Forgery Act, 1870, 33 & 34 Vict. c. 58, s. 4.) By 32 Geo. III. c. 56, if any person shall personate a master and give a false character to a servant, or assert in writing that a servant has been hired for a period of time or in any station or capacity other than that for which he was hired, or was discharged at any time, or had not been hired in any previous service, contrary to truth; or if any person shall offer himself as a servant, pretending to have served where he has not served, or with a false certificate of character, or shall alter a certificate, or shall pretend not to have been in any previous service, contrary to truth, such offenders are liable, on conviction before two justices of the peace, to be fined £20, and in default thereof to be imprisoned with hard labour for any time not more than three nor less than one calendar month. By 6 & 7 Vict. c. 18, s. 83, the false personation of voters at an election of a member of Parliament is made a misdemeanour, punishable with imprisonment and hard labour for any term not exceeding two years. By the Ballot Act, 1872, personation of voters is made a felony. By 37 & 38 Vict. c. 36, personation with intent to deprive any person of real estate or other property is also made a felony.

Perspective.—The art of perspective rests upon the scientific principles of optics and mathematics, and means the representation of objects as they would appear if seen through a window and drawn upon the glass from a fixed situation. The term is obtained from the Latin *per*, through, and *specio*, to look, and is founded upon the appearance objects present to a supposed spectator in a certain position on an imaginary transparent plane, called the perspective plane, between his eye and the objects perceived. It is divided into linear and aerial perspective. In the former the point opposite the spectator is the point of sight, and the height of this indicates that at which the imaginary plane is intersected by the line of the horizon, which is parallel to the base line of the imaginary plane. The retirement of all surfaces going from this plane, rising from below, or descending from above, tend towards the horizon, in degrees depending upon the nearness or remoteness of the spectator and the consequent angles at which they are seen. Aerial perspective refers to the effect produced upon objects retiring from the eye by the constantly increasing body of air through which they are seen. The most difficult phase of perspective is that known technically as foreshortening, because here only careful observation and comparison can assist us in arriving at accuracy in depicting form. (Some articles on "Practical Perspective," with the necessary diagrams and illustrations, will be found in "Cassell's Technical Educator.") A variety of instruments have been from time to time introduced to facilitate the study of perspective, the chief of which are the camera obscura and camera lucida (*both of which see*).

Perspiration.—This is the fluid which passes out of the body by the skin. It is called sensible when it is poured out in large quantities under the influence of exercise or of any of the emotions, as fear, anger, &c.; it is called insensible when it passes off as it does in the ordinary way, without showing any sign. Perspiration consists chiefly of water, containing some salts of soda, ammonia, &c., some lactic and carbonic acid, with traces of fatty matter and urea. Insensible perspiration, in a state of health, is continually going on, and by it the body is maintained at a regular temperature, certain objectionable matters eliminated, and the function of respiration materially assisted. The quantity which passes off in the course of twenty-four hours has been calculated to be, under ordinary circumstances, about three pints. Sensible perspiration may, however, be produced in a much larger quantity than this by exercise or straining, by the use of baths, and by certain medicines called diaphoretics (*which see*). When it is remembered how much fluid passes out of the body by the skin, it need scarcely be said how important it is that this excretion should not in any way be checked. There is no more frequent cause of catarrh, rheumatism, pleurisy, and a host of other ailments, than sudden check of the perspiration; and it should be the main object, in the treatment of any of the diseases which may have arisen from this cause, to induce perspiration as soon as possible, by the use of the hot bath, wet pack, and, if advisable, by Dover's powder.

Peru, Balsam of. (*See* Balsam of Peru.)

Peruke, Perruke, or Perruque. (*See* Wigs.)

Peruvian Bark. (*See* Cinchona.)

Pestle and Mortar.—The mortar is a vessel made for domestic purposes of stone or earthenware, and the pestle a short round-headed instrument of the same material, with a wooden handle. They are used for pounding and grinding various materials into powder.

Peter's Pence.—Originally an annual tribute of one penny paid at Rome out of every family at the feast of St. Peter. It was first granted by Ina, a Saxon king, in A.D. 740, and continued till the time of Henry VIII., when it was abolished. Under this name, in later times, voluntary contributions to the pope have been revived in many countries, but with no limitation as to the amount given.

Petersham.—A very thick shaggy cloth, usually dark blue in colour, used for overcoats and pilot coats. This cloth is extremely

thick and heavy; it is only fitted for wear in very cold weather or for seafaring purposes. A thick belt ribbon, to which the skirts of dresses are attached, and by which bodices are held in place, is also called Petersham.

Petition in Bankruptcy. (*See* BANKRUPTCY.)

Petition in Chancery. — This is a written document setting forth a series of facts and containing a prayer for the direction or order of the judge. During the progress of an action (formerly termed a suit) in the Court of Chancery (now the Chancery Division of the Supreme Court), the interference of the Court is frequently necessary for the regular and effectual prosecution or defence of the action, and in order to the immediate attainment of many objects connected with it. When such interference is required, an order of court, embodying the particular object, is applied for; and such application is frequently made by a petition, which is a statement in writing made to the Lord Chancellor or the Master of the Rolls, showing the cause which the petitioner has for some order of the court. Petitions to the Chancery Division are either made in an action or under a Statute, or both.

Petition of Right.—One of the common law modes of obtaining possession or restitution from the Crown of either real or personal property is by *monstrans de droit*, manifestation or plea of right. It is said to owe its origin to Edward I. It may now be prosecuted either in the Chancery or Common Law Divisions of the Supreme Court, although formerly in the Chancery and Exchequer only. (See Petitions of Right Act, commonly known as Bovill's Act, 23 & 24 Vict. c. 34.) A *monstrans de droit* lies when the right of the party, as well as the right of the Crown, appears upon record, which is putting in a claim of right, grounded on facts already acknowledged and established, and praying the judgment of the Court whether upon those facts the Sovereign or the subject has the right.

Petition, Parliamentary.—A supplication made by an inferior to a superior, and especially to one having jurisdiction. It is used for that remedy which the subject has to help a wrong done by the Sovereign, who has a prerogative not to be sued by writ. There are several regulations respecting petitions to Parliament, which, if neglected in any particular, will prevent their reception. When intended for the House of Lords, a petition should be addressed "To the Right Honourable the Lords Spiritual and Temporal in Parliament assembled." When to the Commons, it should be directed "To the Honourable the Knights, Citizens, and Burgesses of the United Kingdom of Great Britain and Ireland in Parliament assembled;" or, which is more usual, "To the Honourable the Commons of the United Kingdom in Parliament assembled." Its commencement should describe the petitioners thus: "The humble petition of the inhabitants of the parish of —— showeth that" (the statement of complaint then follows); and the whole must conclude with a specific prayer, no mere remonstrance or detail of grievance being sufficient without this. The prayer may be as follows: "Wherefore your petitioners humbly pray that your Honourable House will be pleased to," &c. (the particular relief expected being here stated). To the whole petition should be added the words—"And your petitioners, as in duty bound, will ever pray;" and immediately following should be the signatures, of which one at least must be on the same sheet of paper or skin of parchment as the petition, and not pasted or otherwise appended. The signatures or marks must be original, not copies nor signatures of agents in behalf of others. Thus the chairman of a public meeting cannot sign for the whole meeting (which is sometimes done in petitions to other bodies). The common seal of a corporation is, however, received as the petition of the corporate body. A printed or lithographed petition will not be received; it must be in writing on parchment or paper, free from erasures or interlineations, and composed in English, or accompanied by a translation which the presenting member certifies as correct, but no letters, affidavits, or other documents can be annexed. Petitions are uniformly rejected if not respectful and temperate in language, free from imputations upon the character and conduct of Parliament, the courts of justice, or other constituted tribunals. No reference is permitted to any debate or to any motions supposed to be in preparation; while petitions for the remission (not abolition) of customs, stamps, or other duties, can only be received on the recommendation of the Crown. The member who presents the petition is expected to inquire whether these conditions have been complied with, and the committee on public petitions subsequently subject all these documents to a severe scrutiny. Petitions for presentation to either House of Parliament may be forwarded by post, free of charge, to any member of either House, in parcels open at the ends, marked outside "Parliamentary Petitions," and not exceeding thirty-two ounces in weight.

Petrifaction.—A general term by which naturalists designate the conversion of vegetable or animal materials into a stony substance. It also denotes the results of such conversion; hence Brande adds that it is equivalent to such expressions as organised fossils, organic remains, &c. But it is often the proper word to describe the various objects which are petrified, as it is called, by the action of what are called petrifying springs, the calcareous matter in which insinuates itself into the pores of wood, leaves, &c., and coats them with a strong deposit.

Petroleum.—This is native naphtha or rock oil, an oil exuding from the ground in various parts of the world—Persia, Japan, Siberia, Italy, France, and North and South America. Petroleum varies greatly in consistency, that from Persia being a thin light fluid, while other countries produce a thick oil, of almost the same specific gravity as water. The manufacture, keeping, sale, and conveyance of petroleum are now regulated by the Explosives Act, 1875 (38 Vict. c. 17).

Petroleum Soap, or Petroline, somewhat resembles brown Windsor soap in appear-

ance, but is much darker in colour. It is used as a disinfectant.

Pets, Domestic. (*See* DOMESTIC BIRDS, &c.)

Petticoats.—For under-petticoats a good quality of Welsh flannel is the best kind, that flannel being thicker than Saxony and warmer than Lancashire flannel. Crocheted wool petticoats are very warm, but they are very apt to pull and drag until they become much longer than when made originally. Eider-down skirts are warm and light, but they do not fall in folds like flannel, and so are not suitable when a tight style of dress is prevalent. For over-skirts, wadded silk or satin is very comfortable for winter wear; fine cloth is a serviceable material, because it can be brushed and cleaned satisfactorily; felt petticoats are exceedingly warm, but unless of fine texture are rather heavy. White petticoats should be made of longcloth or cambric, for these are smoother and not so thick and heavy as the ordinary calicoes. The style and method of making petticoats vary with the fashion of the dresses: whether the latter be full or scanty in width, the petticoats are made accordingly; the style of trimming, whether flounced or plain, braided or embroidered, altering likewise with each season. As the gracefulness of a dress skirt depends much upon the petticoat worn under it, it is necessary that the latter should be made or altered to suit the prevailing style of dress.

Pettifogger.—A term of reproach for a lawyer of the meanest grade. Hence sometimes spoken of any person who deals in petty schemes and quibbles.

Pettitoes.—This word (signifying "little feet") is employed to denote the feet of a sucking pig. The pettitoes are usually sold with the pig, and are stewed with the liver and heart, or fried in batter. They are much liked by some people.

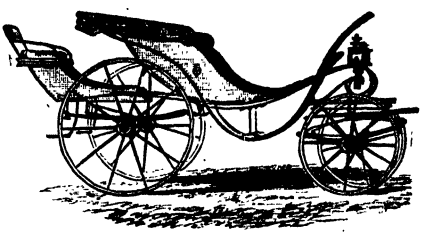
Petty Bag Office.—An office appertaining to the Common Law branch of the jurisdiction of the Court of Chancery (now the Chancery Division of the Supreme Court) for suits for and against solicitors and officers of the court, and for process and proceedings by extents on statutes, recognisances, &c. The writs issued and the returns to them were in former times preserved in a little sack or bag, whereas other writs relating to the business of the subject were originally kept in a hanaper, or hamper. Hence has arisen the distinction of the Hanaper Office and Petty Bag Office. By the 37 & 38 Vict. c. 81, s. 5, provision is made for the abolition of the office of Clerk of the Petty Bag and the transfer of his duties.

Petty Sessions.—Sittings of one or two justices of the peace, who are empowered by Statute to try in a summary way and without jury certain minor offences. (See 10 & 11 Vict. c. 82, and 12 & 13 Vict. c. 18; 13 & 14 Vict. c. 37; 19 & 20 Vict. c. 126; and 22 & 23 Vict. c. 65.)

Pews (often called *pues* in old books).—Enclosed seats in church or chapel, which Dr. Hood says "enable people to attend church and hear sermons comfortably and luxuriously." The same writer adds that pews, according to modern use and idea, were not known till long after the Reformation, and were not in general use till the middle of the seventeenth century. The history of pews is curious and instructive. At first they seem to have been isolated structures erected for the squire and his family, the incumbent and his family, and other important personages; then they covered the whole space available; and now they have gone much out of fashion. In some churches they were identified with certain properties in the parish, and in fact were not seldom dealt with as purely private property. Very commonly they were let quarterly or annually, and pew-rents became a recognised source of income, as they still are in a variety of cases. The law on the subject is somewhat complicated, but its fundamental principle is thus stated:—All the pews in the parish church are the common property of the parish; they are for the use in common of the parishioners, who are entitled to be seated orderly and conveniently, so as best to provide for the accommodation of all. The distribution of seats rests with churchwardens as officers, and subject to the control of the ordinary; neither vestry nor incumbent has a right to interfere. When a person leaves a parish his right to a seat in the church has ceased, and a non-parishioner has no right to a pew in the body of the church. In churches erected under certain Acts, free seats must be provided to the extent of at least one-fifth of the whole, pew-rents may be levied and recovered, and pews may be sold by auction to the best bidder.

Pewter.—A common alloy of tin and lead, largely used in the manufacture of vessels of various descriptions; it generally consists of one part of lead to four of tin. *Plate-pewter* is an alloy of tin, antimony, bismuth, and copper, containing about 90 per cent. of the first metal.

Phaeton.—A four-wheeled open vehicle, usually drawn by one but sometimes by two horses. The front body of a phaeton very much resembles that of a Stanhope, with an



PHAETON.

open seat supported on a kind of large box. There are several kinds of phaetons—viz., the pony phaeton, the Stanhope phaeton, the mail phaeton (drawn by two horses), the cab phaeton, and the Victoria phaeton.

Phantasmagoria.—A sort of magic lantern, by means of which the images of objects can be magnified or diminished at will, and motion given to them, producing a very illusory

effect. Its chief use is as a popular entertainment.

Pharmaceutical.—This is the term used to signify anything relating to pharmacy. (*See* PHARMACY.)

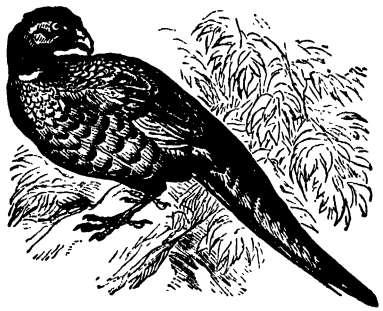
Pharmacopœia.—This is a book which describes all the medicines in use, how obtained, their preparation, doses, &c. Every civilised country has its own Pharmacopœia, and until a comparatively recent date both Edinburgh and Dublin had theirs; but these have now been merged into what is called the British Pharmacopœia—a much more convenient arrangement. The term is derived from two Greek words signifying "to make or manufacture medicine."

Pharmacy.—This may be defined to be the art of preparing, compounding, combining, and preserving all those medicinal agents which are used in the treatment of disease. The term pharmacy is derived from a Greek word signifying "medicine."

Pharynx.—This is a musculo-membranous sac, measuring about four inches in length, which lies behind the mouth and soft palate, and is continuous below with the œsophagus, or gullet. Communicating with the pharynx are the openings for the nostrils, Eustachian tubes from the ears, and larynx; and thus it happens that when this part is attacked by catarrh or inflammation of any kind there may be running from or obstruction of the nose, deafness, loss of voice, &c. (*See* QUINSY.)

Pheasant.—The pheasant is said to have been brought originally from the banks of the Phasis, a river of Colchis, in Asia Minor, and its introduction to the south of Europe is ascribed in classic legend to the Argonauts. It derived its Greek name, *Phasianos*, from the Phasis, and this was the origin of the English name also. It has long been held in high esteem both for the beauty of its plumage and for its excellence as food. It is now abundant in England, but this is owing to the trouble and expense which have been devoted to its preservation by great landed proprietors. Without this care the race would doubtless, by this time, have become extinct, for no kind of game falls so easy a prey to the poacher. It has been calculated, however, that by the time pheasants are of an age to be shot, each bird has cost 2s. 6d. for its rearing.

The common pheasant (*Phasianus Colchicus*) is too well known to need description. The male is an exceedingly handsome bird; the female is of a pale yellowish-brown colour, and falls far below the male in appearance. The favourite resorts of pheasants are woods with a thick undergrowth, or moist grounds overgrown with rushes and brambles. They make their nests roughly on the ground, and feed indiscriminately on grain, seeds, green leaves, berries, worms, and insects. They roost in low trees, although during the moulting season they do not ascend the trees, and then they fall an easy prey to foxes. In many English preserves the eggs are taken by the gamekeeper and placed under common fowls, then reared as poultry till they are old enough to turn out into the woods. Many hundreds of pheasants' eggs are hatched in this way, and the whole difficulty of rearing the birds is in their earliest stage. The succulent qualities of the pheasant as an article of food have long been highly appreciated. If cooked



PHEASANT.

fresh, however, the bird is not to be compared for excellence with an ordinary chicken. It requires to be kept till the fumet is fully developed, and then the rich delicacy of its flavour is beyond dispute. The rule in a French kitchen is that a pheasant is not ready to be cooked until, having been hung up by the tail, it drops down. This, however, would be too much for the average taste; for though game should be "high," as the enjoyable state is called, it should not be offensive. The age of the birds may be known by the length and sharpness of the spurs; these in young birds are short and blunt. Besides the common pheasant so abundant in England, there are numerous species natives of the warm and temperate parts of Asia. Among these are the golden pheasant and the silver pheasant, both natives of China; Reeves's pheasant, a native of the same country, a bird with splendid plumage, in which white is the prevailing colour, and with a tail of extraordinary length, the feathers of which are nearly six feet long; Diard's pheasant, a native of Java; and many others.

Phials.—A name commonly given to small glass bottles such as are used for medicine. The word is of Greek origin, and primarily denoted an open dish, saucer, or plate.

Philanthropic Institutions.—Institutions for benevolent purposes, such as public hospitals, refuges, reformatories, and associations for the relief and comfort of the poor. They exist in great variety among us, and are largely supported by the generosity of the nation. The term philanthropic is not properly applied to institutions which are founded and maintained by legal enactments, or otherwise than by voluntary beneficence.

Philology in its primary sense signified merely a love of words or discourse. The term soon came to have a secondary and more extended meaning, and denoted that branch of literature which considered the origin, history, and various combinations of words. Of late years a still wider signification has been given to philology, which is now understood to be the science of language,

considered philosophically in its relations to the progress of human intellect and knowledge, and historically with reference to the comparative structure of different languages, and the consequent connection existing between various peoples and races. The whole of this new branch of philology is sometimes termed comparative philology.

Philosopher's Stone.—A substance which the ancient alchemists believed could transmute all baser metals into gold, and which was therefore continually sought by them, but, it is needless to add, never discovered. But some good after all grew out of the search for this marvellous substance, for in the prosecution of their work the old alchemists made many valuable discoveries, such as that of the composition of gunpowder, of the nature of gas, and of the properties of acids.

Philosophical Trees.—These are otherwise called metallic trees and metallic vegetation. For the mode of producing them, *see* VEGETATION, METALLIC.

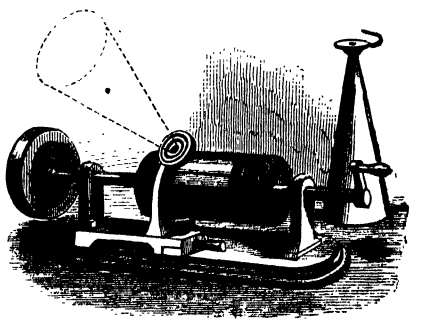
Philosophy.—In its literal signification, a love of wisdom (Greek, *phileo*, I love; *sophia*, wisdom). Philosophy is, in ordinary acceptation, a general term, comprising within its limits the whole sum of human knowledge. It is generally divided into three great branches—metaphysics, physics, and ethics. The word philosophy was first used by Pythagoras, who called himself *philosophos*, a lover of wisdom, as distinct from the sophists, *i.e.*, those who arrogated to themselves the title of *sophos*, a sage.

Philtres, or Philters (also called love-potions), are certain draughts administered, and expected to act as a charm, and to cause those who receive them to love the persons at whose instance they are administered. The belief in them is ancient, but has now died out, except in countries where ignorance and superstition prevail.

Phlegm.—This is the popular name for the expectoration which occurs in catarrh, bronchitis, consumption, &c. (*See* EXPECTORATION.) The term had formerly, and to some extent still has, a wider signification, being often used to express dulness and stupidity, the idea being that persons suffering from phlegm were necessarily made dull and stupid by it. It need scarcely be said that there is no ground for such an opinion.

Phlox.—This is the name given to a garden flower, of which there are a great many very pretty varieties, such as the *Phlox Drummondi Hortensiflora*, the *Phlox Drummondi Heynhold*, &c. &c. They are exceedingly beautiful annuals, and invaluable as bedding plants, their colours being rich and varied, and their habits compact. They bloom all the summer, and are very easily cultivated.

Phonograph.—This, as its name implies, is an instrument (invented in 1877) which registers sounds, whether they be articulate or inarticulate; and by its means these sounds can be reproduced at any future period whenever desired. It is the invention of Mr. Thomas A. Edison, of New Jersey, U.S.A. Borrowing an idea from Mr. Graham Bell's telephone (*see* TELEPHONE), in which metal discs are made to receive and give out sound-waves, he conceived the idea of making the disc record the vibrations thus produced, and he has accomplished it as follows:—The annexed diagram shows the ordinary form of the apparatus. The cylinder in the centre is of metal, round the surface of which is cut a fine spiral groove, each turn being about one-tenth of an inch apart, and on the axle is a screw-thread of corresponding pitch. At the end opposite the handle is a heavy fly-wheel, for the purpose of maintaining a uniform speed of revolution. In the front of the apparatus is a travelling stage, clamped to the stand, from which rises an arm supporting the metal plate or diaphragm, and to the under side of this is attached a fine steel style, which just reaches as far as the cylinder, and is so adjusted as to be exactly opposite the spiral groove. The cylinder is covered quite smoothly with a sheet of tinfoil. The speaker places his mouth near the diaphragm, and speaks against it pretty loudly, while the



PHONOGRAPH.

cylinder is being turned by the handle. The vibrations of the diaphragm make the point of the style press upon the tinfoil at intervals corresponding to the sounds uttered, and so records them permanently. To reproduce the sounds, the machine has to be reset as at the beginning; and on turning the handle the point of the style, as it passes over the indentations in the tinfoil, causes the diaphragm to vibrate accordingly, and thus give out the sounds as they were originally uttered. To make the sounds louder, a horn may be attached, as shown by the dotted lines. In some of the larger instruments two diaphragms are used, the one for receiving, and the other for reproducing the sound. The former is usually made of thin sheet iron; the latter sometimes of paper. If the instrument, when speaking, is turned at the same rate as when receiving a message, the pitch of the voice will be exactly represented; but if the speed of rotation is accelerated, the pitch will be raised, and *vice versâ*. The quality or timbre of the sounds will in like manner be reproduced exactly, as that is also recorded in the form of the impressions upon the tinfoil; and the relative loudness by the depth of the indentations.

For most practical purposes this form of apparatus is inconvenient; and Mr. Edison has devised a modification, by which he substitutes for the cylinder a flat plate on which a spiral groove is engraved, and the movement is regulated by clockwork; the sheet of tinfoil with a message upon it can be removed and transmitted to a corresponding plate in the possession of another party, and thus the communication in the actual sounds of your own voice can be heard by your friend at any distance and at any future time.

Phonography. (*See* STENOGRAPHY.)

Phonotype.—A character or type used in phonotypy.

Phonotypy.—A name given to a mode of printing which represents sounds systematically by means of peculiar characters or types. As each of these characters always represents the same sound, words and sentences printed in them can be read and pronounced, whatever the language, and whether the reader understands the language or not. Phonotypy is an application of the principles of the stenographic system known as phonography. (*See* STENOGRAPHY.)

Phosphates are compounds of phosphoric acid with a base. The most important of these is the phosphate of lime. It is a constituent of bone, and also occurs in large quantities in the mineral kingdom, both as coprolite, which can be traced to an animal origin, or as apatite, which is a crystalline mineral. Phosphate of lime, digested with sulphuric acid, yields the superphosphate (or acid phosphate), in which form it is used as a manure; for the purpose of making this phosphate, all the sources of supply, whether animal or mineral, are availed of, and the superphosphate is now an article of very large consumption. It is especially to be used when raising root crops, such as turnips, mangolds, &c. The phosphate should always be bought according to analysis, so as to ensure obtaining the proper per-centage of the fertilising ingredient for your money. Farmyard manure also contains a considerable proportion of soluble phosphates, as well as ammonia, and this is one reason why it is so highly valued. Phosphate of soda is used medicinally as a purgative salt.

Phosphorescence. — A luminosity exhibited by certain bodies, bearing a resemblance to that emitted by phosphorus when exposed to the air in a dark chamber. The phosphorescence of the sea is a familiar and often very beautiful phenomenon, caused by the presence of myriads of the lower orders of marine creatures, which at times emit considerable light. Many fishes are also phosphorescent, both when alive and after death. The light of the glow-worm and of fire-flies is also of the same character. But little is understood of its nature. In the case of living creatures, it varies in brilliancy, apparently at will; in the case of dead fish and other animal matter, it seems to be a product of decomposition. Rotten wood also, in some cases, becomes phosphorescent.

Phosphoric Acid consists of the element phosphorus combined with hydrogen and oxygen. There are three modifications of it, due to the varying quantity of water that enters into combination with the acid, distinguished by the prefixes "ortho," "meta," and "pyro." The salts produced by the union of these three modifications are similarly distinguished, the prefix "ortho" being, however, very frequently dropped, as the ordinary acid is understood to be meant when not otherwise expressed. Phosphoric acid combines with a great number of bases, but care should be taken in experimenting with it, as the fumes given off in many of these preparations are highly noxious. The acid acts medicinally as a tonic, and is used with advantage whenever there is a tendency to form bony tumours, and in some forms of urinary concretions.

Phosphorus is usually made from burnt bones, which contain a large proportion of phosphate of lime. These, when finely powdered, are put into very dilute sulphuric acid, by which means the superphosphate is obtained; this is evaporated down to a syrupy consistence, mixed with powdered charcoal, and heated nearly to redness. It is then placed in a retort, and slowly raised to a full red heat. Phosphorus gradually comes over in vapour, and is condensed in water. This is purified by melting it under warm water, heating it with chloride of lime, and forcing it by pressure through wash-leather; it is then moulded, while in the fluid state, by allowing it to flow into tubes, which are then chilled in cold water, and the phosphorus becomes solid. It is a soft, semi-transparent, waxy-looking substance, which fumes in the air and gives off white vapours, smelling something like garlic. The fumes are feebly luminous in the dark, and hence its name, the "light-bearer." It is extremely inflammable, and must therefore be kept under water, and should not be handled with warm fingers. If a bit is allowed to remain on the skin by accident it will produce a bad burn, which is usually very difficult to heal. Phosphorus can be altered both in its character and appearance by heating it for several hours to about 500° Fahr., in closed vessels filled with nitrogen or carbonic anhydride; it then becomes crystalline and of a deep red colour, and will not fume in the air, or take fire, even if heated up to 400° Fahr. This red or amorphous phosphorus is not poisonous; but the ordinary kind is, and has often caused the death of children who in ignorance have sucked the tips of common lucifers. Two grains of the latter are sufficient to prove fatal to a man, and unfortunately there is no satisfactory antidote. Phosphorus exists in the animal system in large quantities in the flesh as well as in the bone. It is also an essential ingredient in the brain and nervous tissue; and it passes out of the body constantly in the form of soluble phosphates in the urine, and as insoluble earthy phosphates in the solid excreta. Fish contain even a larger quantity than animal flesh. Phosphorus, in both the ordinary and the red form, is very largely used in the manufacture of lucifers (*see* MATCHES), those made of the red kind being appropriately termed safety matches.

Phosphorus Pastes.—A compound of phosphorus and lard is found useful in destroying black beetles. A similar mixture, worked up with flour and sugar, when laid in rat-holes, will attract the animals by its luminosity in the dark, and be readily eaten by them. Mice will also eat it, and the result in both cases is quite certain. As their thirst becomes intolerable, they do not die in their holes, as is the case when some other poisons are used, but they go out in search of water, and then die.

Photo-lithography.—An art of much utility in multiplying fac-similes. The stone is prepared and rendered sensitive in accordance with the methods adopted in photography, and the picture is photographed upon it with perfect accuracy. The lithographs produced from this picture are called photo-lithographs.

Photograph Albums.—These are made for the reception of cartes-de-visite, incisions being made for the purpose of putting them in and taking them out at the owner's pleasure. It is therefore requisite that these albums should be well made and strongly bound, otherwise the weight of their leaves pulls them asunder and from the outer cover. Another desirability, if the album be an expensive one, is that it have a lock and key in the clasp to prevent its pages being soiled by constant inspection. Leather of all kinds, carved wood, carved ivory, and mother-of-pearl, are all employed for the covers of these albums. That size in which each page is arranged to contain four photographs is most in vogue. It is well to select a book which affords some variety; that is, one fitted for pictures of different sizes and shapes. In some, blank pages are left at intervals for large photographs to be mounted on them; some also have designs etched, painted, or illuminated, which form a framework round the pages.

Photographs, Arrangement of.—Uniformity to a certain extent, which should not diverge into stiffness or monotony, should be the rule observed. This cannot be rigidly followed, because the possessors of albums often like to place family pictures together, and to classify public characters and celebrities, and these are not always obtainable in forms which agree with one another; but, if possible, a vignette should have one of the same style placed opposite to it, and photographs taken on a large scale should have similar ones as their neighbours. Disproportions in size, when placed in juxtaposition, cause erroneous ideas relative to their representations, besides giving an uncomfortable effect to the page.

Photographs, Colouring.—The best class of water-colours and the best quality of sable brushes are required for this delicate work. Previous to colouring it is requisite to clean the photograph with india-rubber, in order to free it from grease; it must be rubbed with a gentle hand, for if the albumen is rubbed off, the colours cannot be put on. Cartes-de-visite are usually selected for this process, which, if judiciously and finely done, gives a more life-like effect to the face and figure. The chief fault committed by amateurs is that of using too much colour; a pale wash is all that is usually necessary. Folds of drapery have to be re-touched, but even here much colour should not be laid on; the first wash should always be dry before a second is applied. For the face, a pale wash of vermilion should be used; this colour also for the lips, and rose madder for the cheeks. Chrome yellow best represents flaxen hair, burnt sienna that of light brown shade; sepia is for dark brown, and black hair is resembled by sepia with a slight infusion of indigo. Vandyke brown, sepia, and burnt sienna are the colours best adapted for furniture; green, brown, and black are the least difficult to manage, while ultramarine and mauve will be found to be the most difficult.

Photographs, Copyright in. (*See* PAINTINGS, COPYRIGHT IN.)

Photographs, Mounting.—Exact and precise measurements should be taken first of the cardboard or page on which the picture is to be placed, for the whole appearance much depends upon the margin being exactly of the same width on each side. Little pencil-dots should be made at the four corners between which the picture is to lie. The back of the photograph is then damped with cold water, a thin layer of gum is brushed round the picture about an inch in depth, the photograph is put exactly in its place, a small round ruler is rolled over it from one side to the other, a double piece of blotting-paper is put over it, and then pressure is used. Very little gum is required; if much is used it exudes, and is apt to injure the photograph. If these are mounted in a book, only one should be done in a day, because it is essential that one should be quite dry and fixed before another leaf is touched.

Photography is the art of fixing the images conveyed by light upon a surface chemically prepared for their reception, upon which they are impressed by the actinic influence of the sun's rays. It is easily learnt, and affords much pleasure in its pursuit as an amusement to those whose tastes run in the direction of optics and chemistry or pictorial art. Complete sets of apparatus may be obtained from the different dealers, expensive or inexpensive, according to materials and finish; handbooks for those who wish to instruct themselves in its mysteries are plentiful; and there is a weekly publication devoted exclusively to the art. It is advisable to have a small set of apparatus at the start for what is known as "half-plate" pictures (6 in. × 4½ in.). In addition to the camera, lens, camera-stand, dark slides, baths, chemicals, glass plates, printing-press, &c., a room will have to be fitted up as a laboratory or dark room, the window of which must be covered with a blind of orange-coloured calico. (In "Cassell's Popular Recreator" and "Household Guide," practical instructions are given for amateur photographers.) Photography was introduced by Daguerre in France, who produced his pictures upon plates of copper, thinly coated on one side with silver; and by the late Fox Talbot in England, whose pictures were upon paper. The first public announcement of photography was made by M. Arago, in a

paper read before the Academy of Science at Paris, on the 7th of January, 1839. Photography is now practised upon glass, metal, paper, wood, china, enamel, and many other materials; and the art plays an extremely important part in various branches of scientific investigation and experiment.

Phrenitis.—This is another name for cerebritis or encephalitis, and means inflammation of the substance of the brain. It is a very serious disease, which, if it does not prove fatal at the outset, usually terminates in abscess and softening of the brain. (*See* CEREBRAL AFFECTIONS.)

Phrenology.—A system of mental philosophy based upon the physiology of the brain, and asserting that the inequalities upon the surface of the head are a certain index to the nature and peculiarities of the mind. The founders of the system were Dr. Gall and Dr. Spurzheim, and its chief promoter in this country was Mr. Combe. It ranges our faculties into three classes—the intellectual or perceptive, sensations or emotions, and animal propensities. The first are allotted to the forepart of the head, the second to its middle and upper portions, and the third to the cerebellum and hinder part. Each of the three divisions is subdivided, and to every subdivision a name is given, supposed to represent an organ. With the exception of those occupying the centre of the head from between the eyebrows to the posterior part of the skull, the organs are reckoned by pairs, one being on each side of the central row. The faculties recognised are thus generally arranged:—Order I. Feelings, comprising Genus I., Propensities, Nos. 1 to 9; Genus II., Sentiments, Nos. 10 to 21. Order II. Intellectual faculties, comprising Genus I., External senses (touch, taste, smell, hearing, sight); Genus II., Knowing faculties, which perceive the existence and qualities of external objects, Nos. 22 to 26; Genus III., Knowing faculties, which perceive the relations of external objects, Nos. 27 to 33; Genus IV., Reflecting faculties, which compare, judge, and discriminate, Nos. 34 and 35. The details of the arrangement have been much objected to as both deficient and redundant; it has been especially urged that no faculties are given for memory, reasoning, and judgment, and that some which are distinguished are identical. It has also been maintained that the anatomy of the brain does not justify the scheme. Many cases in favour of it have been adduced, and many alleged against it. The system has no doubt been useful as provoking investigation, but its opposers say it has been the cause of many delusions and an encouragement to others. The general opinion seems to be that, although a certain conformation of the head is a sort of index to character, as has long been believed, it is futile to hope by a manipulation and measurement of the skull to ascertain all the peculiarities of mental structure.

Phrensy.—This is another name for insanity (*which see*). The term is often used to denote a state of excitement and passion temporarily approximating insanity. It is derived from the Greek, and is frequently spelt thus—frenzy.

Phthisis.—This is the technical name for consumption (*which see*). It is derived from a Greek word signifying "a consuming or wasting away."

Phylactery (otherwise called a frontlet).—A strip of parchment on which certain passages of Scripture were written with ink specially prepared for the purpose. The parchment was rolled or folded up and enclosed in a case, to which thongs were attached. The phylactery, which the modern Jews call a *Tephillah*, was worn either on the left arm or on the forehead. Everything connected with it was decided by minute regulations, and no doubt a superstitious importance was often attached to it, whence the name phylactery, which in Greek means "an amulet" or "a charm." At present the Jews only wear it at morning prayers, or at noon.

Physic.—This may mean either the science of medicine, or the remedies used in the treatment of disease. The term is derived from a Greek word signifying "nature," and originates in the fact that the early writers and disciples of the healing art for the most part founded—or at least claimed to do so—their doctrines upon their observations of nature and its laws.

Physical Training.—This is the process by which, under certain conditions of good air, exercise, &c., the human body is developed, and the healthy action of its various organs promoted. (*See* EDUCATION; EXERCISE; GYMNASTICS.)

Physician.—There is a distinction between a physician and a surgeon, though the same person may be both. A physician as such holds a regular doctor's degree; he cannot legally charge for his visits, nor can he recover at law; he cannot make a profit on his medicines, and therefore writes prescriptions for the apothecary or druggist; he cannot perform surgical operations, however slight. Nevertheless, he usually charges a fee of one or two guineas for ordinary visits, and more under special circumstances. The physician is usually called in or waited upon in order to be consulted, when he investigates the symptoms, gives an opinion and advice, and often adds a written prescription. (*See* SURGEON.)

Physicians, College of.—The Royal College of Physicians of London was founded in 1518. It is one of the three examining bodies (the remaining two being the Royal College of Physicians of Edinburgh, and the Society of Apothecaries) from whom diplomas in medicine may be obtained. Most medical men now hold what is known as the double qualification—*i.e.*, diplomas in medicine and surgery, this latter being obtained from the Royal College of Surgeons. (*See* SURGEONS, COLLEGE OF.) In the Royal College of Physicians of London there are three grades—Fellows, Members and Licentiates. The first of these is purely an honorary grade, all Fellows being elected from Members of at least four years' standing who have specially distinguished themselves. The Membership is also to a

certain extent honorary, while the Licentiateship is obtained as the result of examination at the close of a student's hospital career. The by-laws of the college impose certain restrictions upon Fellows and Members—such as prohibiting them from entering into partnership with another medical man, and from dispensing their own medicines—and in consequence the higher qualifications are seldom held by ordinary general practitioners.

Physiognomy.—The art by which some profess to interpret the indications of the inward disposition supposed to be visible in the outward appearance, particularly the features of the face. Within certain limits the doctrine of the system is generally allowed, but grave objection is by many taken to the particularisation attempted by Lavater and his disciples.

Physiology, Human.—The name of the science which is occupied with the history and functions of the body and its several parts. It teaches the function and nature of every texture and portion of the body, and enlightens us as to the economy and use of the organs of the physical system. Taken as a whole, physiology is divided into animal and vegetable, and also into human and comparative physiology.

Phytozoon. — This is a name given by naturalists to an animal belonging to any of the families *Rotifera*, *Rotatoria*, or *Infusoria*.

Pianoforte (Hammer-clavier).—One of the most popular amongst musical instruments. The "piano-forte" was so named on account of the ability of the performer to produce loud or soft effects at will by means of the hammers—an advantage which at once secured the triumph of this instrument over its predecessor, the harpsichord (*which see*). The principle of the pianoforte was first discovered in the early part of the eighteenth century, probably by Cristofali (1711); but others have claimed a share in the invention of the instrument, among them Wood, Marius, and Schröter. Silbermann made excellent pianofortes about the middle of the last century, when pianoforte playing was introduced into England. Contemporaries and successors of Silbermann were Broadwood, Stein, Erard, Collard, and other well-known names. The shape and action of the pianoforte, its construction and capabilities, are so familiar to all that we need not take up our space with details, except to say a word respecting the two great varieties of "make"—viz., the *Grand* and the *Cottage*. The latter has two recommendations in the case of an ordinary house and household: first, it is compact; secondly, it is of a more moderate price than the "grand." But the "grand" is, after all, the true form of the instrument, giving the full tone to be obtained only from wires that are made of the proper length and thickness. The usual compass of a pianoforte is seven to eight octaves, but the highest octave is useless excepting for the most frothy dance-music or "transcriptions."

Piccallilli, or Indian Pickle, may be made of almost any kind of vegetable, except red cabbage and walnuts. The flavouring ingredients are a compound of curry-powder, with a large proportion of mustard and garlic. The vegetables must be allowed to remain a short time in strong brine, and after being perfectly dried, the boiling vinegar and seasoning are added. Additions of various vegetables may be made as they come into season, but it must be remembered that whatever vegetable is added must first be scalded in brine and dried before being put to the rest of the pickle.

Pick-me-up.—This is a slang expression denoting a kind of warm, stimulating, restorative drink, intended to raise the spirits and promote circulation. The beverage is considered particularly beneficial when taken in the morning by those who are suffering from the effects of dissipation over-night. The "pick-me-up" is concocted and sold by the druggist.

Pickerel.—A name sometimes given to a small pike. There is also a weed of the same name.

Pickle, Pickling.—The custom of pickling food seems to have been practised since very early times. The ancient Greeks and Romans held their pickles in great estimation. They consisted of herbs, roots, and vegetables, preserved in vinegar with great care, the various ingredients being macerated in oil, brine, and vinegar, with which they were often impregnated drop by drop. Meat also was treated in the same way, having been previously cut into very small pieces. Nearly all vegetables and many fruits are made into pickles, and these, when made properly and used judiciously, are wholesome and agreeable additions to our food. Very great care, however, is required in the manufacture of pickles. The vinegar should be of the best quality, metal utensils should be avoided in their preparation, and glass bottles or unglazed earthen jars should be used for keeping the pickles when made. The pickling of meat is accomplished by allowing it to remain for a certain time in a solution of salt and water, and for this purpose bay-salt will be found to make the meat more tender than common salt. Salt alone has the effect of whitening the meat, and to counteract this effect saltpetre is added. Although, however, saltpetre imparts colour, it tends to make the meat hard, dry, and indigestible. Instead of saltpetre, a little cochineal is often used for colouring. It should be remembered that meat kept immersed in pickle gains in weight, although it loses a great amount of its nutritious element. Meat that is dry-salted loses in weight. Pork requires a longer time to cure in proportion to its weight than beef. Although it is necessary, owing to the great demand for meat, that a certain amount should be pickled and preserved in other ways, it must not be supposed that pickled and dried meats can be used as substitutes for fresh meat. Pickled meat is harder than cooked fresh meat, and the introduction of so much salt into the system is prejudicial to health, very often inducing a craving for fluids, thereby causing indigestion and skin diseases. A given weight of salted meat is certainly not equal in nutritive value to that of fresh roasted meat.

Pickles, Adulterations of.—Copper or verdigris is frequently added to pickles to

impart a green colour, or the vinegar is boiled until perfectly green in a copper pan before being poured on the vegetables. It is needless to say that such a practice is highly injurious, and many serious accidents have resulted from the presence of poison imparted in this way. If a green colour be desired, it may easily be obtained by soaking vine-leaves, or the leaves of parsley or spinach, in the vinegar. A little olive oil may also be added to each bottle, to keep the pickles white and to promote their preservation.

Picklock Key.—A contrivance by means of which ordinary locks can be opened. Locksmiths and burglars alike make use of picklock or skeleton keys, which often have no resemblance whatever to an ordinary key, but are made without wards, or of iron wire bent and flattened in a peculiar way.

Picnic.—There are two kinds of picnics—those given privately, and those arranged by subscription. With regard to the former, it is of course unnecessary to give any minute directions, as so much will depend upon circumstances. We may, however, remark that it is advisable, when large numbers are invited, that the guests should be conveyed to the place where the picnic is to take place by different routes if possible—some going in carriages of various descriptions, some on horseback, and some, when practicable, by boat—and that all appearance of a procession should be studiously avoided. For the provisions it will be found useful, in similar circumstances, to have a separate conveyance, rather than that baskets and hampers should be distributed among the different carriages; and the greatest care should be taken in packing the various articles, so that, for instance, when unpacked, the pies and patties may not be found to be crushed, or condiments such as pepper and salt to be unpleasantly mingled with sweets. The vehicle containing the eatables should, with any servants who may be needed, precede the guests, so as to be at the destination when the latter arrive; for it is the better plan to partake of the luncheon or tea, whichever it may be, first, and disperse at pleasure afterwards. The particular characteristic of a *subscription* picnic is that, instead of its being given by a private individual who invites the guests, it is mutually arranged by various persons, by whom the viands, &c., are jointly provided. When a picnic of this kind is decided upon, one or two persons should be chosen to organise and superintend the party, to receive suggestions, and to make the necessary preparations. Thus arrangements should be made beforehand as to the modes of conveyance, and that accommodation be provided for all; and the superintendent for the nonce should ascertain what provisions each party proposes to contribute. Where practicable, the best plan is that of each agreeing to provide separate things: thus for one to bring pastry, another fruit, a third poultry, and for so many to provide wine and joints of meat. A further avoidance of confusion on these occasions is obviated by one household bringing the required silver, another the knives, a third the glass, &c. A large supply of table requisites is burdensome, but it is not wise to try and dispense with all the necessaries which modern civilisation has brought into daily use. A certain amount of conventionality is pushed aside at picnics, and therein lies the greater part of their charm.

Picquet. (*See* PIQUET.)

Picric Acid is produced by the action of nitric on carbolic acid. It is used as a yellow dye, and also in combination with the coal-tar blues for the production of excellent greens, which possess the property of remaining green by lamp-light. The picric yellows are very brilliant, but articles dyed with them are found to produce irritation if in contact with the skin. The combinations of this acid with potash and other bases are generally violently explosive, and their manufacture is attended with much danger. (*See* EXPLOSIVE MIXTURES.)

Picture Albums.—The possession of these gives great pleasure, for in them can be put pictures of places that have been visited, and scenes that have been witnessed, at the sight of which all the recollections associated with them rise up in the mind. Besides this, fac-similes of well-known and admired pictures can be placed in these albums. A certain amount of arrangement is required to give proper effect to a collection of this kind. Each page should differ in the mode of placing, in the sizes and character of the pictures. There should be a considerable amount of diversity, or else monotony will pervade the book. An etched or painted border often sets off the pages of an album, particularly when the pictures are not coloured.

Picture Frames, To Clean. (*See* FRAMES, GILT, TO CLEAN.)

Picture Frames, To Gild. (*See* FRAMES, PICTURE, TO GILD.)

Pictures, Arrangement and Care of.—It is impossible to give strict directions as to arranging pictures, as so much depends upon the room, its size and position, suffice it to say that pictures do not show to advantage when hung immediately opposite to a window; also that no valuable picture should be placed on an outside wall, for fear of damp. Pictures should be placed at a medium height; when very low or very high, the general effect is not good. Above all, they should hang straight. This is more easily attained when rods are fixed near the ceiling, from which they can be hung by chain or cord. Oil-paintings and engravings are considered to be the most suitable decorations for dining-room, library, and hall; water-colours and crayons for drawing and breakfast rooms. Damp and dust are the two enemies of pictures; therefore it is necessary to protect them against such—to remove them if the wall is damp, and to see that the frame is secured should the back become loose. As a further protection, pieces of brown paper should be pasted over the interstices at the back of the frame.

Pictures, Cleaning. — Oil-paintings should be carefully dusted with a silk handker-

chief, then sponged with cold water, and finally wiped with a damp wash-leather. This method will free the picture from all dust and smoke. If any more scientific treatment be required, it should be placed in experienced hands. Water-colour and crayon pictures are invariably sheltered by glass; it is only necessary to clean the glass in the same manner. Gilt frames should be wiped with a soft silk duster. Carved oak frames require a brush to take the dust out of the interstices.

Pictures, Copyright in. (*See* ENGRAVINGS, COPYRIGHT IN; PAINTINGS, COPYRIGHT IN.)

Piebald.—A corruption of *pie-balled*, or speckled like the bird called a magpie. *Ball* in Gaelic signifies a "mark," and *ballach* "speckled." The words "ball," "dun," and "favel" are frequently applied as descriptive names to cows—ball denoting the cow with a mark on her face, dun the cow of a brownish-yellow colour, and favel the bay cow. Parti-coloured horses are those which are described as piebald.

Piepoudre Court.—An ancient court of record, of the lowest and at the same time the most expeditious character, formerly incident to every fair and market in the kingdom. It was called Piepoudre from the dusty feet of the suitors, or, according to Sir Edward Coke, because justice was there done as speedily as dust can fall from the foot, upon the same principle that justice among the Jews was administered at the gate of the city, that the proceedings might be the more speedy as well as public. Another explanation of the term exists, according to which it signified the court of such petty chapmen or pedlars as resorted to fairs and markets. The steward of the proprietor of the toll of the market was the judge. It was instituted to administer justice for all commercial injuries done in that very fair or market, and not in any preceding one; so that the injury must be done, complained of, heard, and determined within the compass of one and the same day, unless the fair continued longer. It has in modern times fallen into disuse, its title being its chief remnant of interest.

Pier-glass. — The practice of putting looking-glass—a pier-glass—between the windows of a room is a very common one, and the effect is not in any way to be despised, adding as it does to the amount of light and the general effect of space, lightness, and brilliancy of a well-furnished, handsomely-decorated room.

Piercer.—A small instrument made entirely of steel. One end is round and pointed like that of a stiletto, the other is wider and flat-sided. A piercer is indispensable to, and the chief help of, those who embroider in gold. By its aid the worker lays the bullion in its place, guides the fine cord round the edges of embroidery, arranges the silk threads into different forms, and pierces the small holes when required. This little instrument is not capable of piercing large holes such as those required for cord, and therefore it does not obviate the use of a stiletto.

Piers.—Usually columns of brick or stone erected in order to support arches or openings in buildings. The same name is given to the structures erected by the river-side or at the sea-side as landing-places for passengers and goods, or other uses. Some of these so-called piers are floating, and rise or fall with the tide; others are fixed, whether of wood, stone, or other material.

Pies.—The origin of the word *pie* is involved in obscurity. Some authorities declare that it is a corruption of the word *pastye;* others that it is derived from the French *pain*, a loaf, because it was something baked in a crust. Whatever ambiguity there may be about the name, there is none about the thing. M. Alexis Soyer, the celebrated cook, gives the following directions for making pies:—"To make a pie to perfection, when your paste (half puff or short) is carefully made, and your dish or form properly full, throw a little flour on your paste-board; take about a quarter of a pound of your paste, which roll with your hand until, say, an inch in circumference; then moisten the rim of your pie-dish, and fix the paste equally on it with your thumb. When you have rolled your paste for the covering, or upper crust, of an equal thickness throughout, and in proportion to the contents of your pie (half an inch is about the average), fold the cover in two, lay it over one half of your pie, and turn the other half over the remaining part; next press it slightly with your thumb round the rim, cut neatly the rim of the paste, form rather a thick edge, and mark this with a knife about every quarter of an inch apart, observing to hold your knife in a slanting direction, which gives it a neat appearance; lastly, make two small holes on the top, and egg over the whole with a paste-brush or else a little milk and water. Any small portion of paste remaining may be shaped to fanciful designs, and placed as ornaments on the top. For meat pies, observe that if your paste is either too thick or too thin, the covering too narrow or too short, and requires pulling one way or the other to make it fit, your pie is sure to be imperfect, the covering no longer protecting the contents. It is the same with fruit; and if the paste happens to be rather rich it pulls the rim of the pie to the dish, soddens the paste, makes it heavy, and therefore indigestible, as well as unpalatable."

Pietra-dura.—A fine Florentine mosaic work, in which hard stones, such as agate, amethyst, carnelian, and jasper, are used. The work has been carried on for three centuries. Imitations are produced of inferior materials, such as coloured shells; but Florence is the head-quarters of the true manufacture.

Pig. (*See* PORK.)

Pig-nut, or Earth-nut.—The root of a common British plant found in pasture lands. The botanical name is *Bunium flexuosum*, an umbelliferous one, which grows twelve or fifteen inches high. The root is tuberous, and can be eaten raw, but when boiled or roasted it is better, and somewhat resembles a chestnut in flavour. It has many local names, such as ar-nuts, jur-nuts, yur-nuts, and kipper-nuts. Some writers

wrongly identify it with the ground-nut (*which see*), the pod of the *Arachis hypogœa*, a native of tropical countries.

Pigeon-holes.—These are little wooden nests for the convenience of those who desire to preserve MSS., bills, letters, &c., in a classified form ready for immediate use.

Pigeons.—The rearing and breeding of pigeons afford a vast amount of most innocent and useful recreation, and if properly carried out according to natural and hygienic rules, sickness need hardly ever be feared among the birds. Pigeons are placed by the naturalist in the large natural family *Columbidæ*, which comprises also the doves and the turtles, and the species of each are very numerous and freely distributed over a large portion of the globe. Those that are domesticated with us have names bestowed upon them which generally indicate some peculiarity of their character or appearance, as the tumbler, the runt, the carrier, the owl, &c. The most remarkable of all is the carrier pigeon (*which see*), from the faculty it possesses of finding its way home from immense distances, even hundreds of miles. Pigeons are grain-eaters, and feed freely on peas, vetches, barley, wheat, hemp-seed, and tares. If beans are given to them they should be the smallest kinds procurable; and it is well to be sparing in the use of hemp-seed, remembering its well-known stimulating character. A good supply of gravel should always be scattered about the floor of the loft or house in which they are confined, and a little salt should also be allowed them. Fresh water, daily administered, is necessary to keep them in health and feather. They must never be exposed to damp or cold. Cleanliness is also most essential to their well-being, and their houses should be carefully cleansed and well washed out at least once in six months, care being taken to have them well dried ere the birds are readmitted. People who keep pigeons, especially in the country, ought to have a proper pigeon-house erected, well out of the reach of vagrant cats. If many pairs are kept, the shelves in front of each cell should be separated by wooden partitions; this prevents quarrelling and fighting. The dishes from which they drink and eat ought to be kept scrupulously clean, the latter being covered with wirework to prevent the birds from scattering and wasting their food. A little hemp-seed, and a little saffron in their water, often help them about moulting-time. (*See* Dove-cot; Doves.)

Pigeons as Food.—The flesh of the pigeon is very tender and easy of digestion. It is therefore a valuable article of food for the sick-room. By the healthy it is not much cared for, excepting when made into a pie, but in this form is highly esteemed. Young pigeons only are eaten, and they should be plump and well fed. Wild or wood pigeons should hang a few days before being dressed; tame pigeons, on the contrary, should be cooked quite fresh, as they quickly lose their flavour. Dark-coloured birds are thought to possess the highest flavour, and light-coloured ones to be the most delicate. If the legs are large and dark, the pigeon is old, and will in all probability be tough when dressed. Pigeons may generally be met with all the year, excepting in the winter. They are, however, in perfection from Midsummer to Michaelmas.

Piggin.—This is a name given to a small drinking-vessel.

Pigments.—Colouring matters mixed by painters with oil and other vehicles to form paints. (*See* Oil Colours, To Prepare.)

Pigtail.—1. The hair of the head tied together at the back in a cue, or tail—a fashion which obtained in the last century, and was adopted both by the army and navy. It has been universally in vogue in China from time immemorial, but the Chinese shave all round the head, leaving the hair on a portion of the crown. This they allow to grow very long, and plait with thick skeins of black silk to increase its proportions, and it hangs down their backs, which fashion has procured for them the appellation of the "Pigtails." 2. A roll of twisted tobacco, having a peculiar colour and flavour. Tobacco converted by a kind of spinning process into a cord rather larger than a pipe-stem, and then wound into a ball.

Pike.—So voracious is this fish that it might well be called the fresh-water shark. It is a strong and swift swimmer, darting through the water with almost lightning speed, and attacking every other fish that comes in its way; it will even devour such birds as water-hens, moor-hens, and all small animals it can get near to; indeed, it has been known to severely wound men while swimming. The pike is said to be the longest-lived as well as



PIKE.

the largest of our fresh-water fishes. It may live for 200 years, and obtain a weight of as many pounds. The pike is termed by Linnæus *Esox lucius*. It is found in lakes and rivers, where it spawns among weeds about the beginning of April. The smaller and consequently younger pike are called jack. The colour of the pike is a dingy olive on the back, with yellowish spots; the belly is white, with olive spots or stripes. This fish is in season from October until March, and may be caught with bait of any small fish, or with mice or frogs.

Pilasters.—In classical architecture, the pilaster is a square pillar, attached to the wall of which it apparently forms part, and projecting a fourth, fifth, or sixth of its breadth.

Greek pilasters are of equal breadth from top to bottom, and have capitals and bases varying from the orders they are associated with. In Roman architecture, the pilaster has a base and capital according with the columns, and frequently diminishes as it ascends.

Pilchard.—This is a fish somewhat like the herring in appearance, called by naturalists the *Clupea pilchardus*, and belonging to the natural family *Clupeidæ*. It is about eight or nine inches long, bluish on the back and silvery white beneath, with a compressed head and toothless mouth. Pilchards probably remain all the year round on the parts of the coast they frequent, notably Cornwall, but in the colder seasons they keep near the bottom. They assemble for spawning in immense shoals about the month of July, feeding voraciously on a small sea-shrimp not much bigger than a flea. The pilchard fishery then begins, and continues till about the equinox. They are caught by what are called driving-nets and seans, chiefly about sunset and towards morning.

Pile (of Velvet).—The short thick nap observable on the right side of this material is so called; the closeness and thickness of the pile enhance the beauty of the velvet. It is formed by the weaver putting part of the warp threads over a needle, more or less thick, according to the desired quality of the velvet; the needle is withdrawn, and a sharp steel tool is afterwards taken through this channel, which cuts the loops in its passage. The pile of velvet lies in one direction, and for this reason it is always necessary to observe this when cutting garments or joining pieces for any purpose. To ascertain the direction, the velvet should be held down, when the light falling upon it will show the difference—the material will have a dark or a light shade over its surface; the former aspect is the right way of the material. The pile of velvet should be brushed in the right direction, and always with a velvet brush, *i.e.*, a piece of wood covered with velvet; this takes off the dust without disturbing the evenness of the pile.

Pilentum.—A triumphal or state carriage used by ladies of distinction in ancient Rome, which was provided with a canopy supported by pillars.

Piles.—These are small swellings or tumours, situated around the margin of the anus, which occur sometimes singly, and at other times are formed of three or four or more in a bunch. When within the anus they are called internal piles; when without, external piles. They are also technically called hæmorrhoids, from their well-known tendency to bleed profusely under certain circumstances. Piles are really varicose veins enclosed by thickened mucous membrane, or hypertrophied skin, and are due, anatomically, to obstruction to the return of the blood to the liver from the plexus of veins situated around the anus. They may arise from disorder of the liver, from indigestion, intestinal accumulation, &c., especially in persons of sedentary habits, or who live freely; they may be the result of prolonged straining in a state of constipation, or of excessive horse exercise, or of the abuse of diuretic purgatives, especially aloes; but whatever be their cause, they are at times exceedingly painful, and frequently excite distress and alarm, not only on account of the intense pain, but also on account of the very profuse discharge of blood which may occur during an acute attack. It may be as well to observe here that, as a rule, the bleeding is salutary if it is not excessive, and does not recur at too short intervals. The symptoms of piles are too well known to require much description. When small, external, and uninflamed, they give rise to little inconvenience beyond some itching and discomfort after stools; but when inflamed and of large size, the throbbing and aching, not only of the tumour itself, but of the neighbouring parts, are sometimes so intense as to make the slightest movement intolerable. Fortunately, as a rule, this condition does not last long, and the painful symptoms gradually subside. When the piles are internal there is usually a feeling after each stool as if the bowels had not been fully relieved and something still remained. This feeling soon becomes sickening and distressing, and incites to severe straining, which frequently results in bringing the piles down and out. This is followed usually by hæmorrhage, which will generally relieve the tension and pain, and allows the pile to slip back into the bowel. The treatment of piles must be both preventive and curative, and must depend in a great measure upon the cause from which they arise. As young persons of both sexes are very subject to them, they must, if they wish to prevent them either forming, or increasing if already formed, eat and drink moderately, take as much out-door exercise as possible, avoid sitting too long at one time, and keep the bowels from becoming in any way constipated by the occasional use of some saline aperient, as either the Hunyadi Janos or Friedrichshall waters. In an acute attack of piles, depending upon disordered liver, a little grey powder (one or two grains at bedtime), followed in the morning by one of the waters just mentioned, or by an electuary of senna or sulphur, and continued for a week, will prove beneficial. If the pain is intense, a full dose of castor oil (from a table-spoonful to a table-spoonful and a half), with twenty drops of laudanum or the sedative solution of opium added, will often afford the greatest relief; and if this has been preceded by two or three grains of calomel, taken three or four hours previously, so much the better. The local treatment consists, above all things, in keeping the parts clean; frequent bathing (and always after stool) with cold water is essential; the latter may also be injected by a syringe if the piles are internal. When the acute symptoms have subsided, tincture of iron, in the proportion of from half an ounce to an ounce, or even more, in a pint of water, will be found a very serviceable application. It should be applied with a brush, after cleansing with cold water, and should be allowed a few minutes to dry, as it will otherwise stain the linen. The compound gall ointment, which contains opium, is a favourite remedy with some people, and a suppository of the latter only will doubtless sometimes give relief. Rest

is in many cases absolutely necessary; and very often, when other means fail to relieve pain, warm poppy fomentations and poultices prove effective; leeches also, not upon but around the tumour, are sometimes very useful. When all the above remedies fail, and the tumour becomes inconveniently large and distressing, or when the system has been exhausted by excessive and continued bleeding, then it is necessary to remove it by a surgical operation, which is either one of excision by sharp-edged scissors, or of strangulation by ligature, or destruction by some powerful caustic, as nitric acid.

Pilgarlic. — Johnson writes this "pilled garlic," and applies it to a sneaking or hen-hearted fellow. It properly means one who has lost his hair, but is commonly used to denote a poor wretch in colloquial style. The word is also spelt "pill-garlic."

Pillion. — A low saddle-pad or cushion, intended to be placed behind a person on horse-back, on which a woman may ride with her arms round the person in front of her. It was formerly in common use.

Pillow-cases. — These should invariably be made of linen, for this material, whether coarse or fine, unbleached or bleached, is much preferable to calico of any description, for the reason that linens are smoother and not so soon soiled as calicoes. The cases should be a trifle larger than the pillows for which they are made. When pillows are thrust into cases a little narrower or shorter, they are hard for the head, and their appearance disfigures the bed. The material should be doubled, so that one seam only is required, and that should run up the side of the pillow. A medium hem is turned down round the aperture, and in this three button-holes should be made on one side, and three linen buttons sewed on the corresponding side: this mode of fastening has a tidier appearance than strings of tape.

Pillow Fustian.—The commonest of the many kinds of fustian bears this name. It is of simple manufacture, and is made chiefly in Lancashire. Its texture is very stout, and the cord is narrow.

Pillow Lace (known also as bone, bobbin, and cushion lace).—This hand-made lace has received all these names from the fact of its being worked on a pillow or cushion with the aid of bobbins and bones.

Pillows. — The prices of these depend mainly on the quality of the feathers which they contain. Those called poultry feathers are the cheapest, those of the grey goose rank next, and those of the white goose are the most expensive. The English geese are considered superior to the foreign geese. Feathers are sold by the pound, so that quantity as well as quality alters the price. Down pillows are much softer than those filled with feathers; their prices average the same, according to whether of grey or white down. The cases for all pillows should be of good linen ticking, and after long use these should either be renewed or encased in cotton covers, to prevent the escape of feathers or down through the perforated ticking.

Pills.—These are little round masses varying in weight, but as a rule not exceeding five grains each, which contain one, two, or more medicinal ingredients. When once the difficulty (which of course is a purely imaginary one) of swallowing a pill is got over, this mode of administering medicine is found to be both useful and convenient; and when, as is now customary, the pill is enamelled or silvered, it deprives the taking of medicine of most of its unpleasantness. Moreover, there are many medicines which could scarcely be given with advantage in any other form. Pills are too numerous and varied to be described in detail here. Many of those most important and best known will be found referred to under their respective headings.

Pimento, or Jamaica Pepper.—The fruit of a tree of the genus *Eugenia*, of the natural order of the *Myrtaceæ*, has an aromatic flavour, and is greatly valued as a spice. As the plant grows spontaneously in Jamaica, it is supposed to be sown by birds; and in South America it grows in great abundance. Pimento, or Jamaica pepper, is synonymous with all-spice, so called because it combines the flavour of cinnamon, nutmeg, and cloves, while it is less expensive than Oriental spices. The essential oil or essence is of a deep reddish-brown colour, and is very pungent; a few drops are sufficient to flavour mulled wine or gravy. The best pimento is grown in Jamaica; a larger but inferior description comes from Tobago. The tree which produces this fruit or berry is tall and handsome, and reaches a height of twenty feet.

Pimples.—These are small rounded elevations of the skin, which are more or less inflamed, and are frequently crowned by a mattery head, which is the point of suppuration. The term pimple is popularly applied to a well-known form of acne (*which see*); it is also used to describe the first stage of the eruption of small-pox. (*See* SMALL-POX.)

Pin. (*See* PINS.)

Pin-money.—When pins were first introduced into use they were very expensive, and only attainable by the rich. So precious were they considered to be, that the maker was allowed to sell them for two days only in the year. Owing to these circumstances, the custom arose for husbands to give their wives money for the purchase of pins, and hence the term was applied—a term which is still used when speaking of the money allowed by a husband for his wife's private expenditure.

Pinafores. — As pinafores are put on children for the avowed purpose of protecting frocks, it is desirable that they should entirely cover the under-garments. The simplest form, and one which was invariably worn formerly, is that of a straight piece of material, which is drawn up round the neck and waist, and tied at the back. Other and more becoming styles have been introduced which are shaped somewhat to the figure, are put on over the head,

and fastened on the shoulder. Brown holland is the most serviceable material for pinafores; this, trimmed with white or coloured (red and black wash the best) braids, always looks well. For garden wear the blue and white striped shirting is a strong and useful material. Dress pinafores for little girls are made of sprigged or spotted muslin, trimmed with muslin, embroidery, and ribbon. Diaper was formerly much employed for pinafores, but the use of it appears to have declined; for babies' pinafores it is preferable, because it is softer than holland. In the manufacturing districts, men and boys wear blue and white check pinafores when working in the mills, to keep the fluff of the wool and cotton off their clothes.



PINCERS.

Pincers.—Iron instruments used for drawing nails, bending wire, or holding securely small articles used or manufactured by the workman. They are used in art as the emblems of St. Lucy, St. Apollonia, and St. Agatha.

Pinchbeck.—Another name for Dutch gold. (*See* GOLD, DUTCH.)

Pincushions. — Bags, round, square, oblong, or star-shaped, according to fancy, are made of some soft but strong material, and are filled with bran or wool. For toilet cushions these are then encased in a bright-coloured silk, merino, or cambric, and over this is put a cover of sprigged or spotted muslin; the edges of the cushion are adorned with frills of muslin or lace, or with quilled ribbon. Muslin is much preferable for an outer cover to either lace or crochet work, because the pins become hidden amongst the threads of the two latter fabrics. Some people have velvet cushions, embroidered with silk or beads, on the toilet-table; but white looks the more suitable for that place. A pretty device is that of a round cushion, with a round hole in the middle for the reception of a small flower-vase or ring-stand. Box pincushions are very useful. A cigar-box is taken and covered with coloured cambric, the top of the lid being previously padded; muslin, lace, and ribbon soon convert the common box into an elegant cushion. Mattress pincushions are useful for work-boxes. Two square pieces of silk, united together round their edges with narrow ribbon, are filled with shreds of wool, and then stitched through at regular intervals with strong silk.

Pine.—Pine-wood includes all the varieties of the order *Coniferæ*, such as fir, white and yellow deal, larch, &c. The various species of pine supply the principal part of the timber employed for building purposes, on account both of the abundance of the supply and the valuable properties of the wood in respect of size, straightness, facility for working, durability, and strength. The durability of pine varies in proportion to the quantity of resin and turpentine contained in the wood. Large supplies of pine-wood are imported from Russia, Norway, and other northerly mountainous districts.

Pine-apples may be regarded as the finest of dessert fruits. The plant upon which they grow (*Ananassa sativa*) is a native of South America, whence it has been introduced into different tropical and subtropical countries, and has been naturalised in many parts of Asia and Africa. It was first cultivated in hothouses in England and Holland at the end of the seventeenth century, and it is very generally cultivated now in the gardens of the wealthy. The size, delicacy, and excellence of



PINE-APPLE.

the fruit depend very much upon the amount of care bestowed upon its cultivation. When it receives intelligent attention it is one of the most richly-flavoured of fruits, and possesses a fragrant odour; without this it is fibrous and coarse in texture, with little sweetness or flavour. Cheap pines are imported from the West Indies; but these, being grown chiefly without cultivation, are much inferior to the pines grown in English hothouses. The fruit is eaten in the fresh state, and though delicious is not very easy of digestion. Jam is made of it with sugar, and it is employed in various ways by the confectioner. It is also used to flavour rum. In tropical climates it is said to be valuable in renal diseases. The price is exceedingly variable, owing to the uncertainty of the supply.

Pinery.—Until late years it was customary to grow the pine-apple plant in pots, which were plunged in fresh tanners' bark, and then to move them from one hothouse to another as they advanced in growth. When this method of cultivation was adopted, three years' culture of the plant was requisite before fruit could be obtained from it. Now the plants are grown in beds, and excellent fruit is sometimes obtained in fifteen months. Hothouses specially appropriated to the cultivation of pine-apples are named pineries. In these, although care must be taken to keep the atmosphere constantly moist, ventilation should be freely allowed.

Pink.—This pretty little garden flower is very like the carnation in appearance, but there is colour at the base of the petals and one-third the distance along them, forming a sort of star. The pink is called by botanists the *Dianthus caryophyllus*, and belongs to the *Caryophyllaceæ*. It grows all over Europe, and in our own country is often found wild on old walls or ruins. The pink is propagated in the same way as the carnation; the beds require shelter in winter, plenty of good manure and frequent stirring in spring-time. The flowers cease to bloom in August, when they may be taken up and planted in borders to flourish again in the following year.

Pink (Colour and Dye).—This colour varies so much, and is produced under so many different names, that it seems impossible to describe it. In dress we may divide it into blue pinks and yellow—the former the colour known as "rose des Alpes," and the latter what is called "sand of the desert." Dutch pink is a rich transparent yellow lake, used for foliage tints, mixed with indigo and sepia, with burnt sienna introduced. These three colours will produce almost any variety of sunny foliage. With lamp-black it gives good olive greens. The discovery of the aniline dyes has opened a new field of pink colours, and the most beautiful are now produced in that way. The colouring matters employed are the same as red, kermes, archil, madder, Brazil wood, &c. Pink-saucers were formerly sold for giving a pink colour to stockings, and were prepared from safflower and French chalk, precipitated with citric or tartaric acid.

Pinking.—Pinking is a method of ornamentation adopted by ladies for their dresses, &c., which consists in stamping or cutting a series of pointed, curved, or semi-circular shapes at the edges of the materials. A similar way of ornamentation is used for the leather which is fastened to book-shelves. It is a common practice to send such materials to undertakers, who will usually pink any material at a trifling charge.

Pinking Iron.—An iron with a shaped edge, used for stamping out curved or semi-circular shapes by a series of holes at regular distances apart.

Pinner.—The more modern names of this article are pincloth and pinafore. It means an apron with a bib *pinned* in front of the dress. Pinner also means, in some counties, the lappet of a head-dress which flies loose. As applied to a pinafore, it is now only used by the vulgar.

Pins.—These useful articles are of French invention, and appeared in England in the seventeenth century, at which time they were considered very valuable; previous to that period use had been made of bone, wood, and ivory, in the shape of small skewers. Pins are made of brass wire, which passes through a dozen operations before it is converted into a pin proper. The chief manufacture of *dress-pins* is at Gloucester. These are of various qualities; but cheap pins are not economical, for as they easily bend and their points break off or are blunt, many are thrown aside in the search of one that is fit for its duty. *Safety-pins* are those which have an extra wire from the head to the point, in which the latter is placed so that it cannot do any harm. For children's use they are particularly adapted—indeed, no other kind ought to be put in their garments; and they are also useful in other ways, for they are not liable to fall out. *Scarf-pins* are worn more as an ornament; they have a long gold pin, with an ornamental head of gold, silver, ivory, jet, or precious stones set in gold. *Knitting-pins* are of wood, bone, or ivory, with a button at one end: this is the distinguishing mark from knitting-needles, which are of steel, and have no button. *Tatting-pins* are strong pins attached to a chain, which is fastened to a ring; the latter is placed on the finger, and thus the pin is always ready to help in the work when required.

Pint.—A measure of capacity, containing the eighth part of a gallon. (*See* WEIGHTS AND MEASURES.)

Pipe (Measure).—A wine measure, usually containing 126 wine gallons, or about 105 imperial gallons. (*See* GALLON.) The pipe, however, varies greatly according to the kind of wine it contains, and even in pipes of the same kind of wine there is often a difference of some gallons. The following are some of the more usual measurements:—

	Wine Gals.	Imp. Gals.
Pipe of port ...	= 138	= 115
Pipe or butt of sherry ...	= 130	= 108
Pipe or butt of Lisbon and Bucellas ...	= 140	= 117
Pipe of Madeira	= 110	= 92
„ Marsala	= 111	= 93

Two pipes, or 210 imperial gallons, make 1 tun. (*See also* WEIGHTS AND MEASURES.)

Pipe-clay.—A species of white clay, soft, and easily soluble in water. It is employed in the manufacture of tobacco-pipes (*which see*), and various kinds of earthenware. It is also used by soldiers for cleaning their gloves, belts, &c. The word "pipe-clay" has also a metaphorical signification, and is used to denote antiquated or fossilised military dogmas of no real worth. The expression is synonymous with the term used in Government offices, *i.e.*, *red-tape*. A mixture of pipe-clay and soap has been long employed on the Continent as an economical substance for washing purposes, saving, by its mechanical action, some portion of the soap otherwise required.

Pipes (Gas, Water, &c.).—Pipes for the conveyance of gas, water, &c., are made of a large variety of materials—wrought and cast iron, stone, wood, lead, india-rubber, glass, earthenware, copper, &c. The larger pipes are generally known as *main pipes*, the smaller as *service pipes*.

Pipes, Tobacco.—These are made from clay, white and coloured earths, porcelain, ivory, and various other materials. The more common kind are made from the clay which bears the name of pipe-clay, most of which

comes from Dorsetshire, and after being purified and softened is used by the pipe-maker, who kneads it roughly into the required shapes, partially dries it, and then bores the holes through the stems with a kind of long iron needle or wire, previously oiled, afterwards bending the bulbs into their position, and finishing by a process of moulding. When removed from the moulds and dried, they are polished with an instrument made of some hard smooth wood or bone. They are then baked in a kiln, the heat of which is gradually increased. Meerschaum pipes are made of a silicated magnesian mineral which comes from Greece, Turkey, and a few other countries.

Piping.—This answers two purposes—to strengthen the edge, and to give neatness to it. Pieces of material are cut cross-way; a soft cotton cord made for the purpose is laid on the material, which is then turned down, and the worker runs it together close to the cord. When piping is sewed on it is held somewhat tight, and the stitches are put close to the cord; it is placed on the right side, and then turned down, so that the cording is at the edge. The rules which have to be observed are that the stripes for the piping are cut exactly on the cross, that they are joined on the cross, and that the cord is taken straight along when inserted.

Pipkin.—A small earthen vessel, glazed on the inside, used for boiling.

Pippins.—Pippins are the kernels or seeds of fruits. The name of pippin is also given to several kinds of apples, such as the golden pippin, the lemon pippin, the Kentish pippin, &c. (*See* NORMANDY PIPPINS.)

Pique.—A French material, as its name denotes. It is made of two cotton threads, one of which is thicker than the other: these are woven and united at certain points, which there make an extra thickness. The pattern usually formed is lozenge-shaped. Pique is used in France chiefly for waistcoats; in England, for dresses also, more especially those for children, are made of this fabric, for which it is very suitable, owing to its strength and durability.

Piquet, or Picquet.—A game at cards played by two persons, very popular on the Continent. A pack of thirty-two cards is used, the twos, threes, fours, fives, and sixes of each suit being omitted; the remaining cards have the same relative value as at whist. It is quite impossible to give even a short *résumé* of the very complicated method of play and scoring in this game; for these a handbook to card games or to piquet must be consulted.

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Pirouette.—This was originally the name bestowed by the French on the little toy which we call a teetotum. By analogy it has passed to a particular movement made by the ballet-dancer which resembles the actions of the teetotum. An entire turn is made of the whole body, the dancer resting on the point of one foot, which acts as a pivot. This rapid turn is made without moving from one spot. When two or three turns are made, they are severally called double and triple pirouettes.

Pistachio.—Pistachio-nuts are the fruit of a kind of turpentine-tree called by botanists *Pistacia vera*, belonging to the natural family *Anacardiaceæ*. This grows to a height of some fifteen or twenty feet, has small flowers, which are succeeded by drupes about the size of an olive, containing an almond-like seed. The tree came originally from Asia, but has now been naturalised, and grows plentifully in the southern parts of Europe; and the nuts are favourites either for dessert or for use in confectionery.

Piston.—The piston of a steam-engine is that part which is put into motion by steam force, and which, through the medium of the rod attached to it—the piston-rod—sets the entire machinery in action. It is a very important section of the machine, and depends for its efficiency upon the extreme accuracy of its construction. If the sides of the piston and the cylinder it moves in do not fit with perfection, there is a waste of steam power and an increased cost for fuel, and the cylinder becomes unequally worn and gets out of order.

Pit-coal.—The different sorts of coal are distinguished from each other by prefixes, as *char*-coal, *sea*-coal, *pit*-coal. In England, however, mineral or pit-coal is so very much more important than the other varieties, that the general word coal (*which see*) has come to signify it alone.

Pitch.—A thick black substance, obtained by boiling down tar in an open pot, or in a still, until all the volatile matter is driven off. Pitch is largely used in ship-building as a preservative of the timber. Bitumen (*which see*) is also often popularly known as pitch.

Pitch, Burgundy. (*See* BURGUNDY PITCH.)

Pitch-stains, To Remove.—Pitch-stains may be removed from the flesh by the aid of a little grease. To remove them from other surfaces, first remove the pitch by scraping, and then apply a little tallow (cold), pressing it well down upon the place, and allowing it to remain on for twelve hours. It may then (if of woollen or other textile material) be washed in strong warm soap-suds, and the grease removed with a little turpentine or spirits of wine or ether.

Pitchers. — Formerly the word pitcher appears to have signified a jug or jar with ears. According to its present signification it is an earthen vessel with a spout for pouring out liquors.

Pix. (*See* Pyx.)

Plague.—This is a malignant fever, somewhat resembling typhus, but of a more virulent character, which is endemic in Egypt and certain parts of Eastern Europe, and which has on several occasions been epidemic in this country. The last visitation of this most formidable disease occurred in 1665, the year before the great fire, when over 7,000 persons died from it in one week in London—a very large number, when it is remembered how small the population of the city was at that period. Plague is no doubt due to a specific poison, the exact nature of which is not known, but which readily becomes, under the influence of filth, damp, and overcrowding, highly dangerous to human life when once it has been received into the body. That it is subsequently propagated by contagion, all experience has proved, as on every occasion in which the disease has appeared in this and other countries where it is not endemic, its origin could be clearly traced; and, moreover, there are well-authenticated instances in which small communities, as nunneries, have isolated themselves when the plague has been all around them, and have escaped it completely. Of course the isolation must have been complete in every way. The duration of the fever is from a few hours to one month, and the fact of having survived one attack does not necessarily exempt from having another. The treatment of plague consists in supporting the strength from the outset with every form of nourishment, including a very liberal allowance of brandy and wine. With regard to medicines, &c., we have no experience in this country to speak with any certainty as to their efficacy; but it is probable that, as this disease and typhus are so very much alike, the remedies recommended for the latter, and which will be found described under the heading of Brain Fever, would be the most useful that could be employed.

Plaice.—This fish is called by naturalists the *Pleuronectes platessa*, and belongs to the *Pleuronectidæ*, or flounder family, well known from their flattened shape, their non-symmetrical heads, with the eyes, often of unequal size, both at the same side. The body of the plaice is smooth, and the scales small; the upper side is of a rich brown colour studded with orange-red spots, and the under side pure white. Plaice are common all around our coasts, preferring muddy or sandy shores; they are unprovided with a swimming-bladder, and usually lie pretty close to the bottom, where they feed on small fish or crustacea. In the months of February and March they spawn, and are considered best in season about June. They are generally taken on lines or in the trawl-nets.

Plaid.—A long broad woollen scarf, with fringe at each end, worn in the following manner:—It is passed across the chest to the back, an end is brought over each shoulder, and finally both ends are passed under the fold across the chest. These plaids are of different patterns and colours, each particular combination being adopted by Highland clans, and bearing their names.

Plaids (Pattern).—This style of pattern is used extensively by the Scotch, both in shawls and dress materials. It is usually introduced into woollen and silken fabrics only. The variegations of plaids consist of straight lines, more or less broad, crossing one another at regular intervals, but with differences of space intervening. This is effected by the following plan:—The warper inserts the desired stripes of colours in the warp, and the weaver completes the plaid by a further introduction of coloured threads in the weft. These are kept on separate shuttles, and thrown in at certain times as required. Thus lines of colour are made in both directions, woven in the material and not printed on its surface. Plaid patterns are not generally economical for dresses, because the pattern of the plaid should always be complete, and to accomplish this in the seams of a dress necessitates a great deal of waste of material. On the other hand, as plaids look better without any trimming, that expense is saved. For children's dresses, plaids usually look well, especially when the fabric is a poplin. Plaids are not becoming to women who are stout or short in stature. The plaid patterns bear the names of Highland clans, such as the Rob Roy, the Macduff, the Stuart plaids. These vary in the number of colours introduced, as well as in the actual patterns.

Plaint.—The statement in writing of a ground of action. It is the first process in the County Courts and other courts, and is in the nature of an original writ, because therein is briefly set forth the plaintiff's cause of action, and the judge is bound of common right to administer justice therein without a special mandate from the Crown.

Plaintiff.—He who commences an action against another, who is called the defendant. (*See preceding paragraph.*)

Plaisters. (*See* Plasters.)

Plait.—This is one of the methods for arranging frills and borders of muslin and lace. Some persons prefer the flat effect which is thus produced to those of crimping and gauffering. Plaits are especially fitted for broad frills. Plaits are made with the first finger and thumb; they should be firmly pressed down by the fingers and then by a warm iron; all should lie in one direction, all be of one uniform size, and have equal space between. In bygone days, when elaborate shirt-fronts were worn, much plaiting was done by the ladies of that time. Broad plaits are made in dresses by reversing the order of two plaits; and double plaits are formed by making a large one underneath a small one. The plaiting of net and such-like thin materials is difficult to manage satisfactorily. It is essential that the piece of net, whether single or double, should be cut straight.

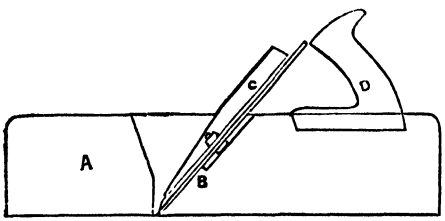
Plaited Lace.—This can be made with twine, and is then known as Macramé lace

(*which see*). It can also be made of folded strips of tissue-paper, after the Japanese method of fabricating lace of this character. A description of the method is given under the heading of ANGLO-JAPANESE WORK. All plaited lace is strong, and particularly suited for furniture decorations.

Plaiting Machine.—These make small folds and press them flat with great rapidity. Net and tulle, for frills and flounces, are thus made at a comparatively small cost; for no hands, however nimble, can plait, thin materials especially, so quickly as the machine. This possesses another advantage—it does its work with perfect regularity; each plait is an exact counterpart of the others.

Planchette.—A piece of flat metal, or coin, or the small board or copper plate used in practical geometry.

Plane.—An instrument used in carpentry and joinery to smoothen the surfaces of boards. The illustration, which represents a common



JACK-PLANE.

or jack plane, will show the method of working. A is the body of the plane, with a flat bottom or *sole*, which is moved over the surface to be levelled by the handle (D). The line B shows the *bed* of the plane, on which the cutting iron rests, and is generally inclined at an angle of 45°. The iron usually consists of two parts, the lower one being provided with a cutting edge, and the upper one being only intended to throw off the shavings. The upper iron, or *break*, is adjusted by means of a screw, and should be set with its edge about one-twentieth of an inch from the edge of the cutting iron. The double iron is kept in its place by a wedge (C). The length of the jack-plane is usually from fourteen to sixteen inches. The smoothing-plane is much smaller—about seven or eight inches in length. The trying-plane is the longest, about twenty inches, and on account of its greater length is more accurate in its operations.

Plane (Wood).—The timber of the plane-tree (*Platanus Orientalis*). It is a brownish, fine-grained wood, capable of a high polish, and much esteemed for cabinet-making. The wood of the North American plane or cotton-tree (*Platanus occidentalis*) is not so valuable, as it is very liable to decay.

Plantain.—The plantain is a kind of banana growing in the tropical regions of every quarter of the globe. It is the fruit of the *Musa sapientum*, an endogenous tree belonging to the natural order *Musaceæ*. There are somewhere about one hundred different kinds cultivated as food for men. They are sometimes cooked and sometimes eaten raw, some of them when ripe having a most delicious flavour. They grow in huge bunches, weighing occasionally over fifty pounds, each plantain being about the length and almost the shape of a sausage. The tree itself is used in the tropics for a variety of purposes: its young green shoots are eaten as vegetables; its tall broad leaves are woven into fences to encircle the compounds, and also form thatch for the cottages; fibres are obtained from it, which are woven into threads; and an intoxicating liquor is also made from fermented juice of the fruit.

Plants.—From January until April garden flowers are few. The rosemary, the snowdrop, candytuft, the scented coltsfoot, and the winter aconite are the earliest of the winter blossoms. Following these come the crocus, the red and white mezereon, the pontie daphne, primroses, the *Gladiolus Watsonius*, the Japan quince, and the bulbocodium. Succeeding these we get the flowers of the genus *Coronilla*, the daffodil, the anemones, the star of Bethlehem, the dog's-tooth violet, wallflowers, tulips, the crown imperial or Persian lily, the periwinkle, violets, pansy, and the iris. Then come the glorious blossoming of the fruit-trees, with the hyacinth, the saxifrages, of which London pride is best known, one or two species of arum, one or two of spiræa, the meadow-sweet, the bladder-nut, several varieties of auricula, the Greek valerian, Venus's looking-glass, and marigolds of the more hardy description. In May and the summer months the varieties of flowers become so numerous that space will not permit us to enumerate them. It is, however, hardly necessary to do so, as they are well known. May and June are the "bedding-out" months, in which the half-hardy plants—some of which are above-mentioned—are put into the garden flower-beds after the winter's sheltering. The requirements of flowers differ with their characters (*see* GARDENS, FLOWER; MANURING PLANTS; POTTING PLANTS), so that it is not easy to condense into little space directions for their varying management. *Liquid manure* is best applied after rain. In watering plants about the roots, do so plentifully, and also wash the leaves, &c., with clean water, applied through the rose of the watering-pot. *Shrubs* and *small trees*, which exist in great variety, should be chosen with due reference to the soil and locality. For town gardens, privet, aucuba, holly, ivy, rhododendron, berberis, the cratægus, &c., are recommended. Some plants require artificial heat to bring them forward, and can only be reared with care and constant attention; others make but little demand upon our time—facts which should be borne in mind by every possessor of a small garden, depending upon its owner's spare time and strength for cultivation. Some are produced from *cuttings* or *suckers*, some by *budding;* some require a dry, some a moist, some a particularly rich soil; some peat, some a sandy soil; some sunlight, some shade, and some will grow in almost any soil and in almost any circumstances. All these circumstances must be duly considered by the domestic florist if he would have his garden

repay him generously for his outlay in money and time. If you transplant a growing plant, be careful to disturb the root as little as possible. In *sowing seeds*, the finer the earth the better, and let it be previously raked; sow, too, in dry weather, making drills or basin-like hollows for the reception of the seed, and let the earth be pressed down upon them firmly. Sow with due regard to the times at which they will come up and die off, so as to secure a succession of plants. Seed that is good, placed in warm water, will sink; whereas that which, after the lapse of a few hours, is found swimming on the surface may be rejected. The time which seed occupies in coming up varies; that of the rose, for example, will lie in the ground two years before it germinates, while cress comes up in two or three days. Moisture is essential to the germination of seed. The smaller the seed, the nearer should it be to the surface. All plants may be raised from seeds, although many are not so raised. For *cuttings*, *see* the article under that heading. *Pipings* are the smaller and more delicate cuttings; pinks scarlet lychnis, double-rockets, wallflowers, sweet-williams, rose-campions, and Indian pinks are best propagated by piping. *Slips* are young shoots pulled off close to the stem. Many perennial plants are propagated by dividing the roots, and all that have more than one stem may be so treated. This is done after the plant has ceased flowering for the season. The roots of anemones should not be pulled apart, but cut with a sharp knife. For *grafting*, *see* the article under that heading. *Priming* should be done in the spring. *Weeds* and *grass* should be dug up and thrown away, not dug into the earth; when burned they form an excellent manure. A good garden soil should contain about forty parts clay to forty-five of sand, ten of carbonate of lime, and thirty-one parts mould in the hundred. A soil all mould would be too rich, and hence it requires the presence of sand, lime, and mineral substances to render it light and pervious to water.

Plants, To Dry and Preserve.—Sweet herbs may be gathered in bunches when they are of full growth, and in dry weather before they are in blossom, placed loosely on dishes, and put into a cool oven. When they are crisply dry they may either be pressed into cakes, the leaves removed, and broken up, or reduced to a powder, and bottled for use in the kitchen. The *Hortus siccus* (or dry-garden) specimens should be collected in dry weather, carefully spread out on a piece of pasteboard covered with dry blotting-paper three or four sheets thick, and placed in a press such as we have described under the heading of FERNS, TO MOUNT, in which they should remain, either in sunshine or near a fire for some days, the blotting-paper being changed from time to time, and the pressure gradually increased. Some plants are preserved in boxes of sand, in order to preserve their colour, after being pressed for a few hours. The plants are enclosed in blotting-paper, and laid, with an inch of the sand above and beneath them, one over the other, and placed near a fire for two or three days. Plants may also be dried by putting them between several sheets of blotting-paper and ironing them with a smooth flat iron made hot.

Plasma. (*See* CHALCEDONY.)

Plaster, Builder's.—Plastering is applied either to a brick wall, to interior partitions, or to ceilings. In the case of a brick wall, the first thing done is making a surface to which the plaster will adhere, which is done with fluid stucco applied with a brush of coarse bristles; and when it is dry, after dusting and wetting it, the plaster suitable for it is applied. In plastering upon a *quarter* partition, or to form a ceiling, we proceed differently. The quarter partition is a partition constructed with slight upright pieces of wood, put between puncheons and posts at distances apart, never more than fourteen inches. For the ceiling we have to put, in the place of such things, the joists. In both cases the required surface is at first got with laths nailed one beside the other, upon which is laid a preliminary coating of what is called "coarse stuff"—a mortar composed of lime and sand, mixed with refuse hair to give it consistency. This is applied with a trowel, so made as to force the material between the laths, where it swells while setting, and so hardens behind and in front as to become securely fixed, or *keyed*, to the laths. Nothing short of undue violence can afterwards break it away from the laths, and it can only be removed in bits of a small size. (*See also* MORTAR.)

Plaster Casts, To Bronze, &c.—The figures should be sized over until the water-colour will stand upon the surface, and not sink immediately in. Size made from isinglass is generally recommended for this purpose, but good clear common glue, which is much cheaper, is equally efficacious. After the cast has been properly sized, apply the colour: this is prepared by grinding Prussian blue, yellow ochre, and lamp-black in some weak size. The colours ought to be ground separately, and afterwards mixed together, as the Prussian blue requires more grinding than either of the others, and because they may afterwards be so mixed as to produce any tint required. The colour must be spread evenly over the figure, and allowed to dry. When dry, dip a brush into some thin oil-gold size; scrape the brush, so that but little of the size may remain in it, and pass it over the cast, so as just to moisten every part; it should then be put by until the finger will adhere to but not be moistened by the size. It is then ready to receive the bronze powder. Sometimes the bronze powder is applied without the intervention of any adhesive matter, excepting the size contained in the water-colour. In that case the powder must always be applied before the colour is perfectly dry.

Plaster, Court. (*See* PLASTERS.)

Plaster of Paris. (*See* PARIS, PLASTER OF.)

Plastering Wine is the process by which wine that has turned sour is restored, so that it can be mixed with other wine, chalk being the principal ingredient used in the operation. As

the wine thus restored does not regain its original flavour, it is a practice rarely resorted to, except by wine-growers.

Plasters, or Plaisters, are made from various medicinal agents worked into a mass with some adhesive material, as resin, and spread upon silk, calico, moleskin, or leather. Those most in use are:—*Diachylon plaster.* This is, properly speaking, the litharge plaster (*Emplastrum plumbi*) of the Pharmacopœia; but the term is now popularly applied to adhesive or sticking plaster of all kinds. The use of diachylon is too well known to require description here; but, if desired, it will be found under the headings of some of the injuries requiring to be treated by it. (*See* BLEEDING, To STOP; CUTS, TREATMENT OF.) It may not be out of place to mention that, when it is necessary to apply adhesive plaster to wounds of the head, or other places where there is hair, it should, after being cut in the usual way, be dipped in scalding water for a moment, as it will thus adhere much better than if warmed in the usual way. *Court plaster.* This is made by repeatedly brushing over stretched sarcenet a solution of isinglass and water mixed with proof spirit; it is finished off with a coat of balsam of Peru or of tincture of benzoin. The proportions are—one part isinglass, eight parts water, and eight parts proof spirit. Another kind is made with india-rubber dissolved in naphtha laid upon silk, to the opposite side of which is applied a mixture of fine glue and isinglass. This form is one which would not succeed well in private hands. There are sundry other ways of preparing this useful appliance, but the first given above will answer all ordinary claims. The fine silk or sarcenet may, of course, be of any colour; and some prefer to use flesh-colour, as less conspicuous than black. *Adhesive plaster.* This is made from resin, litharge plaster, and hard soap. It is more adhesive than diachylon, but probably a more irritating application. *Soap plaster.* This consists of hard soap, litharge plaster, and resin. All these plasters are more serviceable mechanically than medicinally. There are, however, other plasters which, in addition to the mechanical support they afford, may do some good by either allowing a certain amount of their composition to be absorbed, or by exciting a beneficial irritation of the part. Of these may be mentioned:—*Ammoniacum plaster.* This is made from lead plaster, white soap, and sal ammoniac. It is considered beneficial in certain pulmonary affections. *Belladonna plaster* is composed of soap plaster and extract of belladonna, and is a most useful application in lumbago, palpitation, and excessive secretion of milk. *Burgundy* or *pitch plaster* is made from Burgundy pitch, frankincense, yellow resin, beeswax, olive oil, oil of nutmeg, and water. Spread upon leather, this plaster is a popular remedy in certain affections of the chest, acting as a rubefacient and counter-irritant. *Mustard leaves.* These, probably, are a mixture of mustard and cayenne pepper, and are a most useful and convenient counter-irritant. *Mustard plasters.* These should be made with lukewarm water only, spread upon a folded handkerchief or soft napkin, and covered with a thin layer of muslin on the side next to the skin. They should not be kept on too long. *Warm plaster.* This consists of plaster of cantharides and Burgundy pitch. If kept on too long it will blister; both this and the Burgundy or pitch plaster should therefore be frequently removed.

Plastron (from the French word *plastron*, a breast-plate). — A variously-shaped ornament for the front of a dress, always of a different material from the dress itself. It commences usually half-way down the seam of the shoulder, narrowing on both sides to the waist. According as fashion dictates, it ends either at the belt, or, when a belt is not worn, is carried down to the hem of the dress, widening as it descends.

Plat, Straw. (*See* STRAW PLAT.)

Plate is the general name given to domestic utensils wrought in gold and silver. Gold plate is subject to a duty of 15s. per ounce, and silver plate to a duty of 1s. 6d. per ounce. Articles of plate are not allowed to be sold until they have passed the Assay Office, and been marked in order to indicate their true value. (*See* HALL-MARKS ON PLATE, &c.)

Plate Basket and Chest.—A plate-basket is made of wicker-work lined with baize. It is divided into compartments, so that the different articles can be kept separately, and is intended for the silver in daily use. The plate-chest is intended for the family store of silver. It is a strong box, made of either oak or mahogany, and filled with trays constructed so that the silver will fit into it, with a small compartment for each article. Plate-chests are sold with the plate, and may be fitted to any size. It is a good plan to keep in the plate-chest all the silver that is not required for daily use. If one or two articles are needed on an emergency, they could be given out on the occasion, and should be returned to their places as soon as they are done with and cleaned. By this means they will retain their bright new appearance much longer than they otherwise would do, for when a larger quantity of silver than is absolutely needed is allowed to lie about there is a danger that it will be carelessly used and spoilt. At the same time the silver should be worn equally; that is, a portion should be used for a certain time—say a month—and then put away, when others can be given out in its place. Unless this is done, part of the silver will be worn and old while the rest is bright and new. A list of the articles belonging to the chest should be pasted inside the lid for reference.

Plate-brushes. — Long, narrow, soft brushes, used for cleaning the embossed and ornamental parts of plate. (*See* ELECTRO-PLATE, CLEANING OF.)

Plate-glass. (*See* GLASS.)

Plate-powders. (*See* ELECTRO-PLATE, CLEANING OF.)

Plate, To Clean. (*See* ELECTRO-PLATE, CLEANING OF.)

Plate-warmers are stands constructed to facilitate the heating of plates and dishes that are to be sent to table. They are made in various shapes, and are placed in such a position that they will catch the heat of the fire. Modern ranges are usually provided with a shelf upon which plates can be put, and thus the necessity of a separate plate-warmer is dispensed with.

Plated Goods. (*See* ELECTRO-PLATE.)

Plates.—The plates required for use at table vary in size and shape to suit the purposes to which they are appropriated. To every dinner-service a certain number of plates are allotted, the quantity depending upon whether the dinner-service is a single or a double one. The design and colour of the plates always corresponds with the rest of the ware. Soup-plates, meat, pudding, and cheese plates, are of course included in the number. Dessert-plates are made in every variety of quality and design, some dessert-plates being elegant specimens of artistic taste and beauty. For kitchen use and cooking purposes plates are made, both plain and coloured, of common strong earthenware that will stand, without breaking, the heat of the oven, and also the rough usage to which they are necessarily exposed.

Plates, Door. (*See* DOOR-PLATES.)

Platinum is a valuable metal, always found in the metallic state, as no one of the acids is capable of dissolving it. It generally occurs in auriferous gravels in small grains, but sometimes in nuggets, the largest known nugget being 18 lbs. in weight. Since platinum is one of the most malleable and ductile of the metals, being surpassed in the former quality only by gold, silver, and copper, and in the latter by gold and silver, it is easily rolled into sheets or drawn into wire. The principal uses of platinum depend upon its resistance to the action of heat, of oxygen, and of acids. The largest quantity is consumed in making the stills required in concentrating sulphuric acid. It is also much employed for evaporating basins and crucibles for chemical purposes; and thin foil and wire of this metal are indispensable in blowpipe operations. Metals must never be melted in crucibles of platinum, as most of them are capable of forming alloys with it. Though none of the most powerful acids, if employed separately, have any action upon it, a mixture of nitric and hydrochloric acids will dissolve it slowly.

Plays.—Dramatic compositions of almost every description are included under this general denomination. (*See* DRAMA.) For plays for home acting, *see* ACTING CHARADES; ACTING PROVERBS.

Playthings. (*See* TOYS.)

Pleading, Pleas.—Pleadings or pleas in general signify the allegations of parties to suits when they are put into a proper and legal form, and are distinguished in respect to the parties who plead them. The science of pleading was probably derived from Normandy. It was cultivated as a science in the reign of Edward I. The object of pleading is to bring to an issue the subject for decision, and it was until late years of a highly artificial and technical nature; but a revolution took place by the rules promulgated under the authority of the Judicature Act, 1875, which substitute a plain statement of claim and defence for the former elaborate machinery, and effect many salutary changes. (See Order 19 of the Rules of the Judicature Act.)

Pledge, Pawnbroker's.—An article deposited as security for money lent. An unredeemed pledge is one which has not been reclaimed within the time allotted by the law. (*See* PAWN, PAWNBROKERS.)

Pleonast.—A name often applied to Ceylonite (*which see.*)

Plethora.—This is the term used by medical men to describe a full habit of body. The condition is characterised by an excess either in the quantity of the blood or of its solid constituents. Plethoric people have usually a very red and sometimes bloated face, a full-bounding pulse, and injected eyes. If this state of plethora is not soon relieved, then more serious symptoms are apt to make their appearance, as, for example, irregularity and feebleness of the pulse, shortness of breath, general weakness, giddiness, noise in the ears, &c., all these indicating more or less oppression of the heart and engorgement of the lungs. The treatment of plethora consists in the adoption of a spare but wholesome diet, in abstinence from beer or spirits, and in regular habits. The bowels must be kept very freely relieved by an occasional compound colocynth or rhubarb pill (from five to ten grains) at bedtime, and the following draught every morning for a week—viz., carbonate of magnesia ten grains, sulphate of magnesia from one to two teaspoonfuls, and cinnamon or peppermint water one ounce. The skin must also be encouraged to act freely by exercise in the open air, and in suitable cases by the use of the Turkish bath.

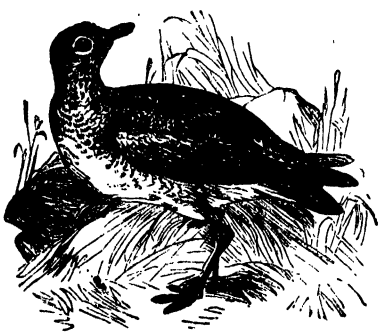
Pleurisy.—This is inflammation of the membrane which lines the cavity of the chest, and covers the heart and lungs. It may arise from exposure to cold, or from a wound; but is much more frequently the result of some morbid condition of the blood, or of tubercular or other disease of the lungs. The symptoms of an attack of acute pleurisy are a sensation of chilliness, amounting in some cases to a rigor or shiver; acute stabbing pain in some part of the chest, most commonly just below the nipple; hurried and spasmodic breathing; worrying cough, with slight expectoration; rapid pulse, hot skin, and white tongue. These constitute what may be called the first stage of the disease, which in some instances, under very early and vigorous treatment, may be cut short at this point. More usually, however, it passes into the second stage, or stage of effusion, when a quantity of fluid, varying considerably in different cases, is poured out from the inflamed membrane, frequently causing the chest to bulge on the affected side. When effusion has taken place, the pain generally disappears; but if the former is excessive, the breathing

becomes very much embarrassed, owing to the fluid pressing the lung against the posterior wall of the chest, and thus preventing its expansion. After a time, which varies according to the state of the patient and the amount of fluid, absorption of the latter takes place, and in favourable cases recovery is rapid. It sometimes happens, however, that either fresh effusions take place, or that they degenerate into pus, constituting the condition known as empyema (*which see*), when serious, and even fatal, consequences may be looked for. The treatment of pleurisy in the acute stage consists in the abstraction of blood, either from the arm or by leeches applied to the seat of pain. This must be followed by repeated poultices or hot fomentations, and if effusion has taken place, by blisters. A pill, containing, for an adult, half a grain of opium, one grain of calomel, and one-sixth of a grain of tartar emetic, should also be taken two or three times a day for two or three days; and when the disease has passed into the chronic state, tonics, as iron and quinine, with diuretics, will be necessary. If the fluid endangers life by not being absorbed, or by becoming purulent, it must be removed by the operation known as paracentesis, thoracis, or tapping of the chest. It may be stated here that pleurisy, with effusion of a very considerable quantity of fluid, may occur without the knowledge of the person affected, there being no pain or other symptom, except some, and that not very marked, difficulty of breathing. This form of the disease has received the name of latent pleurisy, from the gradual and stealthy way in which it attacks. Percussion and the stethoscope will at once discover this condition if it exists.

Pliers. (*See* NIPPERS.)

Plinth.—In Grecian architecture the plinth, or square base on which the Ionic and Corinthian columns rest, is not seen, the columns having for their base the upper step. The term is usually employed to indicate a lower projecting base, whether that of a temple, wall, or pedestal—being derived from *plinthus*, a tile—or any other rectangular parallelopiped.

Plover.—This is a name given to several species of birds belonging to the natural family



GOLDEN PLOVER.

Charadriadæ, of which our British great plover is a good example. The feathers on the upper parts are of a reddish ashy-brown colour, with a longitudinal dash on the centre of each; the throat, the thighs, and belly are white, as well as the space between the eye and the bill; the breast is speckled with brown, and there is a band of white on each wing. The length of the bird from bill to feet is about sixteen inches. Plovers commence to breed in April, laying two eggs on the bare ground. They mostly feed by twilight; they eat worms, slugs, insects, and probably frogs and the smaller reptiles. The golden plover, considered by many to be the true plover, is more common in the north of England and in the Highlands of Scotland; it lays four eggs of a stone colour, spotted and speckled with black, and very large for the size of the bird. This bird is about eleven inches, and different in appearance from the great plover, the latter having long slender legs, the former legs of moderate length.

Pluck, Animals'.—The heart, liver, and lungs of an ox, sheep, pig, or other animal, are usually spoken of collectively as the "pluck." Those of the lamb and of the pig are also denominated the "fry;" and this is highly esteemed by some, and when delicately cooked forms an inexpensive and agreeable dish. The liver of the ox and sheep is not much eaten in England; that of the calf, lamb, and pig is largely used as food. The lungs, or lights, as they are vulgarly called, of the pig and of the lamb are eaten as a part of the fry.

"Pluck, To."—College and university examiners are said to "pluck" students when they refuse to pass them, as not coming up to the necessary standard of proficiency. A student who is "plucked" is one who has failed to obtain the certificate or degree for which he has undergone examination.

Plum-tree.—The plum-tree (*Prunus domestica*) is a native of Asia and many parts of Europe. It was introduced into England in the fifteenth century, and now flourishes in every part of the country. Its timber has great strength, and is close in texture. The bark is used as a dye-stuff, giving a useful yellow.

Plumbago. (*See* BLACK-LEAD.)

Plumes.—Feathers; often spoken of ostrich and other ornamental feathers worn in a headdress, and also of the feathers employed in decorating hearses and horses at funerals.

Plummet, or Plumb-line.—An instrument used to determine the vertical direction of any body, and consisting of a leaden weight attached to a thin cord, and suspended by it from a wooden frame. When a plumb-line is left free, the force of gravity acting on the weight causes the line to take up a position perpendicular to the general direction of the earth's surface. Plumb-lines are largely used in building, carpentry, &c. For the plummet used in angling, *see* FISHING.

Plums.—In our country no fruit is more useful or more generally used than the plum. It has been in cultivation from ancient times, and the first fine varieties were probably introduced into Europe from the East. Plums grow

in abundance in England, and are reared without much difficulty. They are grown as standard, espalier, or wall trees, the standard varieties very often growing to a great height. In some parts of England wild plums are to be seen growing on the hedges and in the woods, though these are not equal in quality to those produced by cultivation. Cultivated plums vary very much in the size, form, colour, and flavour of the fruit. The *greengage*, or *Reine Claude* of the French, is generally considered the choicest kind of plum; it is unsurpassed in sweetness and richness of flavour. The *magnum bonum plum* is, as the name implies, very large; while *damsons* or *damascenes*, which take their name from Damascus, are only about half the size. *Orleans plums* are among the inferior kinds, and are largely used in cookery. The *cherry plum* is a round red fruit, and is a native of North America, and does not often attain perfection in England. *Dried plums* are much used for dessert, and are sometimes known as French plums and prunes.

Plush.—A material which bears a resemblance to velvet, the difference being that in plush the pile or nap is softer and longer, presenting a fur-like appearance; this is produced by the employment of camel's or goat's hair for the upper surface. The material is fabricated by means of a single weft and double warp; one of the latter supplies the loose nap. Black silk plush, of which the best is made at Lyons, is used for hats, and has quite superseded beaver skins for that purpose, to imitate which it was introduced. Plush made of cotton and silk is made at Amiens and Lille; it is used for trimmings, more especially for the hoods and cloaks of infants, the peculiar softness of its appearance making it particularly adapted for children's dress. Woollen plush is made at Banbury; and it is used for the covering of chairs, couches, ottomans, and the cushions of railway carriages. It is a very serviceable material, but owing to its great warmth, close contact with it in summer is not agreeable.

Pneumatics.—Pneumatics is that branch of science which treats of the mechanical properties of elastic fluids. The term is usually extended to the study of the mechanical properties of all elastic or sensibly compressed fluids; that is, of fluids whose elasticity and compressibility become an interesting object of our attention. We may mention that there is no precise limit to the different classes of natural bodies with respect to their mechanical properties. There is no such thing as a body perfectly hard, perfectly soft, perfectly elastic, or perfectly incompressible. All bodies have some degree of elasticity intermixed with some degree of ductility. Pneumatics is principally applied in connection with atmospheric air. That air is an elastic fluid, and capable of compression and expansion, may be proved by the simple process of squeezing in the hand a blown bladder, when we find an obvious resistance from the included air, and upon taking off the pressure the compressed parts immediately restore themselves to their former round figure. The best known applications of pneumatics to practical purposes are:—The *pneumatic trough*, a pneumato-chemical contrivance for collecting gases over water, &c.; the *pneumatic telegraph*, by which signals are conveyed to considerable distances by the impulse given to a column of water at one end of the apparatus; the *pneumatic filterer*, an invention which operates by the pressure of the atmosphere on the surface of the liquid required to be filtered, a vacuum at the same time existing beneath the vessel, the bottom of which is pierced with sieve-like apertures.

Pneumonia.—This is inflammation of the substance or tissue of the lung, and must be distinguished from bronchitis, which affects the air-passages only. Pneumonia is, however, frequently accompanied by more or less bronchitis, and *vice versâ*; it is by no means uncommon for bronchitis to develop into pneumonia. There are two distinct theories as to the origin of this disease: one is that it begins as inflammation in the lung from exposure to cold or some other cause; the other is that the lung affection is a secondary condition only, and results from some specific poison which has been received into the blood, and not being got rid of, has been excited into activity by some error of diet, &c., or by its interference with the circulatory function. Pneumonia is a very common disease, and appears at times to assume an epidemic form. It is calculated that about 8 per cent. of all the deaths on the Continent arise from this cause; in this country the proportion is not so great. The symptoms of pneumonia are as follows:—After a period, sometimes of several days, at other times of a few hours only, during which the patient feels out of sorts, and has aching pains in the limbs and chest, he is suddenly seized with a well-marked rigor or shivering fit, the breathing becomes difficult and hurried, the cough is frequent and troublesome, and is accompanied by a scanty expectoration, which soon becomes rust-coloured from mixture with blood. This rusty appearance is characteristic of pneumonia, and the disease may be recognised from this symptom alone. The fever now increases in intensity, the temperature in the armpit registering frequently 103° or 104°, or more; the pulse is rapid, the tongue becomes brown and dry, and there is much thirst. In fatal cases the breathing becomes more laboured, the pulse more rapid, the tongue more brown, and covered with sordes; the body is bathed in perspiration; and delirium, followed by stupor, ends the scene. In favourable cases the symptoms remit suddenly between the fifth and the tenth day, recovery is generally rapid, and with ordinary care in uncomplicated cases no relapse need be feared. It may be here mentioned that there are three stages known to medical men as occurring during an attack of pneumonia: (1) the stage of simple engorgment; (2) the stage of red hepatisation (consolidation from blood); and (3) the stage of grey hepatisation (consolidation from matter). The disease may stop short at the first or second of these stages, or may go on to the third. The treatment must vary according to circumstances. In a large proportion of cases it consists in the abstraction of blood, either from

the arm or by leeches when the system will bear it, by the application of large linseed poultices frequently renewed, by keeping the bowels well relieved with saline aperients, by maintaining an equal temperature of from 60° to 65° in the sick-room, by administering small quantities of ipecacuanha wine, and when advisable, which is not always the case, combining with it minute doses of some preparation of opium. Brandy will be necessary in most cases, and must be given without stint if there are signs of exhaustion. The diet must consist chiefly of strong beef tea, milk, eggs, &c., taken at short intervals.

Poaching.—By the 25 & 26 Vict. c. 114, intituled "An Act for the prevention of Poaching," power is given to any constable or police officer in any highway, street, or public place, to search any person whom he may have good cause to suspect of coming from any land where he shall have been unlawfully in search or pursuit of game, or aiding and abetting, and having in his possession any game unlawfully obtained, or any gun, part of gun, or net, or engines used for the killing or taking of game; and also to stop and search any cart, &c., in which such constable, &c., shall have good cause to suspect that any such game, &c., is being carried by any such person. Should there be found any game, &c., upon such person, cart, &c., such game, &c., may be seized; and such constable, &c., shall in such case apply to some justice for a summons, citing such person to appear before two justices in England and Ireland, and before a sheriff or two justices in Scotland; and if such person shall have obtained such game by unlawfully going on any land in search or pursuit of game, or shall have used any such article or thing as aforesaid for unlawfully killing or taking game, or shall have been accessory thereto, such person shall, on being convicted thereof, forfeit any sum not exceeding £5, and shall forfeit such game, guns, parts of guns, &c. An appeal against a summary conviction is given to the quarter sessions. The word "game" includes hares, pheasants, partridges, eggs of pheasants and partridges, woodcocks, snipes, rabbits, grouse, black or moor game, and eggs of grouse, black or moor game. (*See* GAME LAWS.)

Poaching Eggs.—When poaching eggs, a few drops of vinegar should be thrown into the shallow saucepan which contains the salted water in which the eggs are to be cooked. The vinegar improves the colour of the white portion of the egg, and imparts to it that pure opaque appearance which is so inviting. Besides using vinegar it is necessary, in order to poach eggs successfully, that they should be broken with great care, and that not too many eggs should be boiled together. A safe way of doing them is to break each egg into a tea-cup, and turn this quickly over into the saucepan of boiling water, so that it may stand bottom upwards in the water, with the egg inside it. In a few seconds, when the egg is set, the cup can be removed. It is customary in France, Mexico, and the East, when poaching eggs, to use a pottery dish instead of the iron one employed for the purpose in this country. This dish is very thick, and is well warmed through before it is used, after which butter and pepper and salt are placed in it, and the egg when broken and dropped in is at once lubricated, and a savoury mixture is prepared to receive it. A charcoal fire is used, so that a moderate heat is secured, and when the egg has browned slightly upon one side it is turned over to the other. It is served as hot as possible upon the dish on which it was poached, and its flavour is most excellent and delicate.

Pock-marks.—These are the marks or depressions produced on the skin by the pustules of small-pox. They are technically called pitting. (*See* SMALL-POX.)

Pocket Books.—Books in which bills, cheques, notes, &c., may be carried with safety, and which are provided with pages for memoranda, &c., and with pockets for stamps and papers. Pocket books should be bound with some strong material, such as leather, and should be of a convenient size, not too large to admit of their ready introduction into the pocket of the owner.

Pocket of Hops.—A bag of hops, averaging in weight from one and a half to two hundredweights.

Pockets.—The fashion and form of these vary with those of the style of dress worn. When the skirts of these are scanty in width, the pocket must be made flat, and tied on separately underneath the dress, like those used by our grandmothers; or else the pocket must be of the same material as the dress, and be placed on the outside of it in some fanciful form. When the skirts are full in width, the pocket is let into one of the side seams; it should be of strong but soft lining, and round the aperture there should be a piece of the dress material, in order that the pocket may not be perceived. Besides being sewed to the seams of the skirt, pockets should have a tape suspender fastened to the band of the skirt: this prevents the dress from being torn when the pocket is heavy. Under-pockets should be made of fine jean or satteen; all pockets should be closely stitched, for keys, pencil-cases, and other valuables make their way through if the stitches are far apart.

Podophyllin.—A drug frequently administered by medical advisers in combination with other ingredients. It operates as a purgative, and is said to act particularly on the liver. It is a vegetable resin extracted from the dried underground stems of the *Podophyllum peltatum*, or American May-apple. As a remedy it is not to be taken habitually, nor except in minute quantities.

Poems.—Metrical compositions, generally divided into three classes—epic, lyric, and dramatic. (*See* DRAMA; EPIC.) According to Lord Jeffrey, the name poetry is "applicable to every metrical composition from which we derive pleasure without any laborious exercise of the understanding. This pleasure," he goes on to say, "may, in general, be analysed into three parts: that which we receive from the excitement of passion or emotion; that which is derived from the play of imagination or the

easy exercise of reason; and that which depends on the character and qualities of the diction." This last source of pleasure to be found in poems is discussed under the headings of METRE; RHYME; RHYTHM. It is, of course, altogether beyond the scope of the present work to give even a slight *résumé* of the great poems of this and other lands; for such information recourse must be had to any of the many published histories of English and foreign literature.

Point de Dieppe. (*See* LACE.)

Point d'Espagne. (*See* LACE.)

Point Lace.—All lace which is made stitch by stitch entirely by the needle is distinguished by this designation. Brussels point, Honiton point, Alençon point, Venetian point—all these are different kinds of lace, but in each one a needle and thread form the means employed for fabrication.

Pointer.—This dog is one of the sportsman's chief companions, the only rival to him being the setter. The great characteristic of the animal is his pointing at the sight or scent of game, standing in a very beautiful attitude, as motionless as a statue. The following are considered his correct points:—Head something of the style of a foxhound, but finer; the nose broad and square in front; the lips well developed, but only flewed at the corners of the mouth; forehead nicely rounded, not much raised, and depressed in the centre, giving the "stop" between the eyes; eyes full, animated, and lively; ears thin, silky in texture, moderately long and low set, and not showing too much of the inside; nose black in the liver and white, and lemon in the lemon and white; nasal bones slightly depressed in the centre; head and muzzle longish; skin very soft and flexible; neck long and clean, and elegantly set on the shoulders; shoulders deep, sloping, and muscular; chest deep and not very wide; well-sprung ribs; thighs muscular and well-developed; stifles well bent; foot cat-like; fore-legs straight as darts; and tail broad at base, and tapering to a point like a sting. The favourite colour in the present day is lemon and white. Like a great many of our good dogs, pointers were probably imported originally from Spain.

Poisons and Poisoning.—Poisons are certain agents which, when introduced into the stomach, inhaled by the lungs, or absorbed by the skin, are capable of destroying life. Some poisons kill suddenly and violently; some more slowly, but with equal fatality; whilst others by slow degrees produce secondary and remote results, which are prone to terminate in death. It would be no easy matter to give any hints likely to be of service in discovering whether poison has been taken or not, and these would be especially out of place if the attempt were suicidal or of murderous intent, when every precaution against ordinary suspicion would doubtless be taken; but still, it may be laid down as a general rule that if a person is seized with violent pain, sickness, convulsions, delirium, or drowsiness after food or drink, there are reasonable grounds to suspect poison, and if death should ensue this presumption will of course be strengthened. In such circumstances it is always advisable to put carefully aside, or, better still, to lock up, all medicine, food, or drink of which any portion has been, or could have been, taken by the dead person, as well as all vomited and fæcal matters which may have passed from the body, as these will greatly aid any subsequent investigation which may be necessary. Poisons are usually arranged according to their mode of action into the following classes:—(1) Irritants, (2) narcotics, (3) narcotico-irritants. 1. *Irritant poisons.* These include (1) the mineral acids, as the sulphuric, nitric, and hydrochloric acids, as well as phosphorus and iodine; (2) the salts of ammonia, potash, soda, lime, and baryta; (3) the metallic compounds of arsenic, mercury, lead, copper, antimony, &c.; (4) vegetable and animal irritants; (5) irritant gases. Irritant poisons, when taken into the stomach, usually excite great pain, sickness, and purging, with straining, the stools being often tinged with blood; and if the dose has been sufficiently large there is general collapse, indicated by a feeble fluctuating pulse and cold skin. Many of them act locally, corroding the parts with which they come in contact, and exciting inflammation and sloughing if the person lives long enough. 2. *Narcotic poisons.* These act upon the brain and spinal cord, and produce drowsiness, stupor, and insensibility, with a tendency to convulsions and paralysis. The most important of this class are opium, hydrocyanic (prussic) acid, belladonna, chloroform, chloral-hydrate, alcohol, and certain gases. 3. *Narcotico-irritant poisons.* These include strychnine, aconite, digitalis, hellebore, hemlock, *Cocculus Indicus*, and poisonous fungi (mushrooms). They produce pain in the throat and stomach, thirst, vomiting, and delirium, with spectral illusions, and frequently tetanus. In addition to the three classes of poisons thus briefly described, there are certain matters popularly spoken of as poisons to which special names have been given—as, for example, drain poison, blood poison, &c. Although the former of these—viz., drain poison—may originate *per se* in the decomposition of animal and vegetable matter, as in a drain giving forth poisonous gases, it more frequently happens that the drain is simply the medium which receives some specific poison, as that of cholera, typhus, or typhoid, from the excreta of persons suffering from one or other of these diseases. With regard to blood poison, the term is variously applied to a great number of widely-differing conditions in which the blood is injuriously affected; as, for example, when the constituents of the urine get into the blood, and cause the disease known as uræmia. Again, when a wound is exposed to some atmospheric impurity, the blood may become poisoned, and the condition known as pyæmia, or septicæmia, is set up, with a tendency to clots and sometimes fatal obstructions. It is the latter state (pyæmia) which most frequently receives the name of blood poison. Lastly, scurvy and other kindred affections may fairly be called blood poisons. *Treatment of poisons generally.* This must have three objects in view: (1) To

obviate the tendency to death by promoting the discharge of the poison; (2) to administer an antidote, if there be one; and (3) to counteract the subsequent injurious effects. The first of these will in most cases be best accomplished by an emetic or the use of the stomach-pump. The attainment of the last two will, of course, depend upon the nature of the poison taken; and we shall therefore give a few hints as to the special treatment of the various poisons mentioned under the three classes at the early part of this article, and shall take them in the order in which they appear. 1. *Mineral acids.* These are best treated by at once administering chalk, whiting, or magnesia, mixed with water or some bland fluid, as linseed tea or barley-water. Should chalk or magnesia not be procurable, even the plaster of the room or ceiling may be similarly advantageously substituted. Emollient drinks must be given plentifully at the same time. 2. *Phosphorus and iodine.* In poisoning by either of these, an emetic should be given immediately, and should be followed by full doses of magnesia. White of egg in some bland drink should also be taken freely, but oil should not be given, as it is a solvent of phosphorus. 3. *Salts of ammonia, soda, potash, &c.* These are best treated by vinegar and water, followed by acidulated demulcent drinks. In the case of poisoning by the salts of baryta, the sulphate of soda or magnesia should be given. 4. *Arsenic, mercury, lead, copper, antimony, &c.* These will be found described under the headings of ANTIMONY, POISONING BY; ARSENICAL POISONING; COPPER, POISONING BY; CORROSIVES; LEAD-POISONING. 5. *Vegetable and animal irritants.* These must be treated with emetics, purgatives, and bland drinks. 6. *Irritant gases.* Persons suffering from the effects of these must be at once removed into a pure air, and inhalations of steam may be administered with advantage. 7. *Opium, hydrocyanic (prussic) acid, belladonna, &c.* The treatment of poisoning by these will be found described under their respective headings. In the treatment of persons poisoned by chloroform or ether, artificial respiration or galvanism, or both, are generally resorted to. When alcohol has been taken in poisonous doses, emetics, cold affusions, and a weak solution of the acetate of ammonia are recommended. In poisoning by mushrooms, emetics, purgatives, &c., and subsequent regulations of the diet, are the best treatment. For poisonous bites from insects, reptiles, &c., *see* BITES.

Poke.—1. A pocket or small bag. This old Anglo-Saxon word, though obsolete in the general language, is constantly heard in a proverb—*i.e.*, "to buy a pig in a poke." In Gloucestershire and its neighbouring counties, the term "poke" for a bag is still in use amongst the country people. 2. A long wide sleeve, generally worn about seventy years ago. 3. Poke-bonnet, an American term for a long projecting bonnet such as is worn by the Shakers in that country; a bonnet made of the same shape, but in straw, is much used there as a garden hat.

Poker.—A round game at cards, chiefly played in America, but sometimes in England. A pack of fifty-two cards is used, and not more than six persons should play the game. The rules are too complicated to be given in this work, and the game is better adapted for professional card-players than for parlour recreation.

Poker Drawings. (*See* PYROGRAPHY.)

Pole-screen.—A small screen made to slide upward or downward on a pole, ascending from a stand of a more or less ornamental description. It is used chiefly to shield the eyes from the heat or light.

Pole-star.—A star in the constellation Ursa Minor bears the name of Polaris, or the pole-star, because it is almost exactly in a line with the earth's axis, and therefore indicates the true north as closely as the slight secular variation in the earth's axis will allow. Canopus acts the part of the pole-star in the southern hemisphere.

Polecat Fur. (*See* FITCHET, OR FITCH.)

Poledavy.—The name of an old-fashioned fabric, which is commonly described simply as a coarse kind of cloth, but which Bailey, who calls it poledavies, says was a sort of coarse canvas.

Polenta.—In Italy an important article of food amongst all classes is that known as polenta, which consists of a preparation of Indian corn, or maize meal. In making it, it is usual to boil the meal with either milk or water until quite thick, when it becomes as firm as jelly. Cheese and other ingredients are added as flavourers. Among the poorer classes polenta is of great value. In taste it much resembles macaroni, for which it is frequently used as a substitute. Polenta is also the name applied to the ordinary maize meal which is sold in shops.

Police.—Under the word police is signified generally the regulation of a city or county, so far as regards its inhabitants. The Statutes 10 Geo. IV. c. 44, 2 & 3 Vict. c. 47, and 3 & 4 Vict. c. 84, regulate the police in and near the metropolis; and by the Statute 19 & 20 Vict. c. 2, one commissioner of police for the metropolis is to be henceforth appointed, but the Queen may appoint two assistant commissioners. Under the Statute 24 & 25 Vict. c. 51, s. 3, a penalty not exceeding £5 may be imposed upon any person who assaults a constable of the metropolitan police force in the execution of his duty. (*See* CONSTABLE.)

Policy of Insurance. (*See* INSURANCES.)

Polish, French. (*See* FRENCH POLISH, TO APPLY; FRENCH POLISH, TO MAKE.)

Polishing.—To *polish ivory*, prepared chalk should be applied moist and with a rapid motion upon a piece of chamois leather. To *polish pearl*, a paste, made of finely-powdered rotten-stone and olive oil made thin with oil of vitriol, is applied upon velvet covering a cork. Directly the polish is obtained, the surface must be well washed. *Shells* are *polished* by first removing the rough outer surface, and then treating with nitric acid until the inner enamel of the shell

is reached, which may be polished with a piece of leather. The polish of shells may be restored by the aid of milk and a nail-brush, finishing with the leather. For *polishing steel*, jeweller's rouge, which may be obtained at the chemist's, is the material most commonly used, with the aid of a rapidly-revolving wheel covered with leather. A piece of buff leather and crocus-powder may also be used. In the trade, what is called the emery-buff wheel is used for polishing cutlery and steel goods. It revolves at the speed of about one thousand to fifteen hundred revolutions per minute. To *polish brass*, use tripoli and sweet oil as a paste, with dry tripoli and wash-leather for the finishing. For *polishing jewellery*, a little spirits of wine, used with a soft brush and a little powdered French chalk, will be found efficient. For *polishing pebbles*, a little tripoli powder and water may be used. To *polish marble*, clean with sand, beginning with coarse and finishing with fine. Emery-powder is next used in three gradations of fineness, finishing with putty-powder, using as much pressure as possible. The tool used is an iron or stone one, covered with a piece of old bagging or felt. To *polish horn*, scrape and rub down with emery-powder and water, using tripoli or rouge for finishing. To *polish glass*, a solution of rouge and water, forming a paste, is used with a stone slab covered with felt, worked by machinery. For information as to *polishing furniture*, *see* FRENCH POLISH, TO APPLY; FRENCH POLISH, TO MAKE; POLISHING PASTES.

Polishing Cloths are chemically-prepared substitutes for wash-leather and plate powders or paste. They are principally used for keeping bright the steel of grates and fenders, brass stair-rods, door-plates, brass rods, shop fronts, harness mounts, bits, stirrups, &c., which is effected by once or twice doubling the cloth and briskly rubbing the article desired to be polished. If the brass be slightly tarnished, damp the corner of the cloth, rub a little soap on it, and remove the tarnish, and then finish with the dry part of the cloth. They are not intended to remove rust from iron and steel, or an old long-standing tarnish on brass, tin, &c., the material used for this purpose containing too much "cut" in it to leave a high polish, but the highest burnish may be subsequently produced by the use of these cloths. They are available for the polishing of all metals, except gold and silver, separate cloths, called *plate cloths* and *jewel cloths*, being made for those metals. The introduction of these articles is a great boon to housekeepers, as they save much manual labour, are inexpensive, economise time, and being free from the disagreeables of the old-fashioned system of polishing with whiting, &c., a lady can now herself perform the important duty of cleaning her own plate.

Polishing Pastes.—A good paste for polishing furniture is made by adding to a pint of linseed oil two ounces of yellow resin, with eighteen ounces of beeswax, and two ounces of alkanet root. These are melted together, strained while hot, and then formed into cakes or balls ready for use. For polishing brass, a paste may be used, composed of starch one part, rotten-stone in powder twelve parts, sweet oil two parts, and of oxalic acid the same, mixed with cold water. For cleaning plate, a very good paste may be made by rubbing to a fine powder one pound of prepared chalk, which is to be sifted for the removal of coarse particles, and adding gradually, while stirring, a mixture composed of four ounces of spirits of turpentine, two ounces of spirits of wine, one ounce of spirits of camphor, and half an ounce of spirits of hartshorn. When this is of the consistence of a thin paste, it may be kept in a bottle securely corked, or a jar covered down to exclude air. In using this, pour out a little at a time, and with a soft sponge coat the silver with it. When the paste has dried into a powder, brush it off, and polish in the usual way with a leather, using for finishing a piece of some old silk handkerchief. For cleaning plated ware, a paste may be made with sweet oil and finely-powdered chalk, cleaned off with a little spirits of wine or whisky, and rubbed dry with flannel.

Polishing Powders. — The different kinds of powders used for polishing various surfaces are enumerated in the article on POLISHING. There are several recipes for making plate powders:—1. Quicksilver with chalk one ounce, prepared chalk seven ounces. 2. Half a pound each of polishers' putty and burnt hartshorn, with one pound of prepared chalk. 3. Mix together equal parts of cream of tartar, common salt, and alum. Then put a small quantity of the powder into water and boil plated goods in it; by this means they are very much brightened and improved. In using plate powders, the most essential thing is to see that the articles to be cleaned are quite free from grease.

Politeness. — A sort of unconscious etiquette, in which graceful and courteous behaviour is especially prominent. Politeness should be cultivated at home as well as abroad, and in dealing with persons of all classes, whether strangers or acquaintances. At home, politeness does not receive little attentions without thanks, does not ask favours except in courteous terms, does not answer questions abruptly and peevishly, and is always genial, gentle, and refined. This is applicable as much to servants as to others. In the treatment of friends, abundant opportunity is afforded for showing politeness, and not least where ceremony and form are not required; while civility, courtesy, kindness, and consideration have ample scope, and even forbearance may sometimes be necessary. The same rule applies to intercourse with strangers, tradesmen, and all others with whom we may be brought into contact. True politeness throws a charm about those who show it; it adds dignity, grace, and influence to them; and is one of those social virtues which afford happiness to others as well as to the possessors.

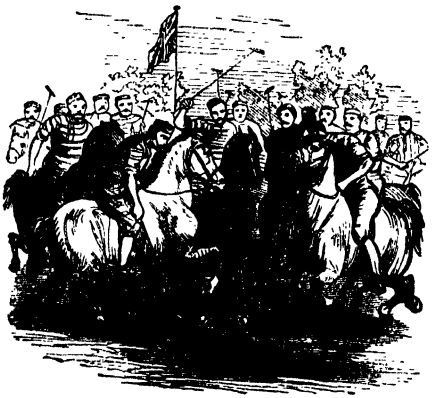
Political Economy. — This is usually defined as the science of the laws which govern the production, distribution, and consumption of *wealth*; and, according to Mill, it includes, "directly or remotely, the operation of all the

causes by which the condition of mankind or of any society of human beings, in respect to this universal object of human desire, is made prosperous or the reverse." That political economy is in reality a science, and worthy of much study, is comparatively a modern idea; but it cannot be doubted that the more general dissemination of the truths of this science may wonderfully increase the peace, happiness, and prosperity of the world at large.

Polka.—A dance *à quatre temps*, performed by separate couples, which was introduced into England about forty years ago. It became a great favourite, and was danced by all classes. It is now occasionally included in ball programmes, but generally in the form of the polka-mazurka, which is danced in a slower and more stately fashion than the polka. The name is an abbreviation of *polacca*, a Hungarian dance.

Polka-jacket.—A kind of knitted jacket, worn by ladies some years ago as an under or house jacket. It was tight-fitting, with the corners cut round in front, and extended to the hips. This style of jacket is usually worn by the Polish women, and it made its appearance in England soon after the polka dance, from which it was named.

Polo.—This game, which is also known as "hockey on horseback," seems to have originated in the East, it having been played for many centuries in India, Persia, and Tartary;



POLO.

it is, however, only of comparatively recent introduction to this country. Polo resembles hockey (*which see*) very closely, the chief point of difference being that the players are all on horseback instead of on foot. A suitable ground, well turfed, is the first requisite; it should be from 200 to 400 yards in length, and from 50 to 150 yards in width. At either end goal-posts are fixed, and the ground should be marked off with flags as for football or hockey. The players should all be mounted on ponies, which are more nimble in their movements than horses, and also, from their lesser height, more adapted to a game in which the rider has to reach down and strike a ball on the ground. The ball used should be about twice the size of an ordinary cricket-ball, and made of light wood or leather; it should be painted white, that it may be readily seen by the players. It should not be so hard as a cricket-ball, as in such case there is much danger of injury to the ponies' legs. The stick somewhat resembles an ordinary hockey-stick, and consists of a long handle with a transverse headpiece. The handle should be of cane, and should be about four feet in length; the crosspiece should be of willow or some other tough wood. There is no limit to the number of players who may engage in the game, but as a general rule it will be found better to limit them to six on each side, as more players are apt to impede one another and render the game a little dangerous. The whole object of polo is, of course, as at hockey, to drive the ball from the centre of the ground through one or other of the goals; and that side wins the game which, at the end of play, has the more often driven the ball through its opponents' goal-posts.

Polonaise.—An over-dress of Polish origin, first adopted in England about the year 1770, when it was made open from the waist and looped in festoons behind. The fashion was revived about the years 1873-4, and continued to be one of the favourite styles. It consists of a bodice or skirt cut in one, generally tight-fitting at the waist. It is draped at the back and ornamented with bows, and generally has pockets at the sides. Its length in the skirt depends on the fashion of the day.

Polonaise (Dance).—The national dance of Poland, performed by separate couples. It is of a slow and stately character. The music which gives the feature to the dance is *à trois temps*, and is noticeable for its peculiarity of syncopation and the fall of the final cadence.

Polyanthus.—This is a variety of the oxlip primrose, and has long been a great favourite in gardens. It is easily cultivated, and may be



POLYANTHUS.

propagated by slips or by simple division of the roots. If, however, new varieties are desired, the seed ought to be saved, and kept dry with a portion of the stems until sown.

Polyglot.—A term which is applied to persons who are conversant with, and also to

books which are written in, several languages. The signification is derived from the Greek words *polys*, numerous, and *glotti*, languages. At various times Bibles have been published which contain the Holy Scriptures in different languages, and such are termed Polyglot Bibles. In one which appeared in the sixteenth century the contents are in the Hebrew, Chaldean, Greek, and Latin languages. Another Bible of this class was published in Paris in the seventeenth century, which, besides the four languages just mentioned, has in addition those of the Syriac, Arabic, and Samaritan.

Pomades. (*See* HAIR-OILS AND POMADES.)

Pomander. — Under this name, ladies formerly carried about a box of perfume or a perfumed ball, which was suspended from the girdle. It was sometimes regarded as a preservative from infection, and as possessing medical properties.

Pomatum. (*See* HAIR-OILS AND POMADES.)

Pomegranate, called by botanists *Punica granatum*, and belonging to the natural order *Myrtaceæ*, is a fruit that has been celebrated in history even from Bible times. It has also long been known to the Arabs and Persians, and is found growing wild in the regions from the Caucasus to the Himalayas. It also comes to perfection in Northern Africa, in Syria, and in the north of India. It is a beautiful tree, with dark green shining leaves and bright crimson flowers; it has large reddish or brownish-red fruit, the pulp of which is both juicy and nicely flavoured. The bark of the root of the *Punica granatum* is used in our day either as decoction or extract for the expulsion of tapeworm, and is said by some to be exceedingly useful and certain in its action. It ought, however, to be prescribed only by a medical man.

Pomeranian Dog.—This is a very great favourite as a pet, and the following are the points, given by one of the best authorities of the day:—The skull ought to be broad and somewhat flat; the jaw is broad, and the muzzle peaked, or pointed like that of the fox; the eyes should be large, but not goggle, beautifully black, and well set in the head; the ears should be small and set erect, pointed or lupine in shape, and in the white Pomeranian there should be no tinge of yellow on the ears; the eyes are sometimes, but only too rarely, placed obliquely; the nose should be jet-black; the neck must not be too long, and the whole body when you feel it should be shapely and well knit together; the tail is very bushy, and curled right over the hip; the coat is very long, very white, perfectly straight, and free from any woolliness of texture—*hair*, not *fur*. There should be a nice deep frill in front, and the hind-legs, like the collie's, ought to be to a certain extent free from feather behind. Pomeranians are merry, sprightly little fellows, and can be taught many pretty tricks. They are often snappish to strangers, and have been said to be very uncertain in temper; but this accusation has never been proved against them. There are Pomeranians other than white; the pure black has been rather noted of late years. The dog was no doubt originally imported from China or Japan, the Chinese edible dog being much the same shape, though larger.

Pommade, Toulouse.—A patented preparation of wax and vegetable substances, made at Toulouse, and designed for securing men's toupets to the head. The pommade is of a pinkish colour, smells of wax, and resembles in form a small round stick of brimstone about three inches long. When required for use, the end is dipped in warm water, and a small melted piece about the size of a pea is placed in the centre of the bald place, upon which the toupet is laid, and pressed gently till it adheres. This pommade is superior to any kind of gum for this purpose, as it does not irritate or tear the skin when necessary to detach the hair. Ladies now make use of it to fix their false hair.

Pony.—A small horse. There are many kinds of ponies, and they are found in several countries. Those which are best known among us are named from the places they come from, as Welsh, Shetland, Galloway, Dartmoor, Exmoor, and New Forest. They are not much used in agriculture, but being generally active and hardy, are valued in hilly districts and for the saddle.

Poodle.—This dog was originally a native of France, but is now naturalised in this country. There are large poodles and small; but the usual colour of the dog is white, although if black or blue, and good in points, it is considered more valuable. The white poodle has a moderately high round skull, the nose is black, the eye like that of the King Charles' spaniel—a weeping eye. The muzzle is covered with short and woolly curls. An onyx eye is a great point of beauty. The dog is rather weak in muscle, and the feet small, delicate, and round. The tail is carried horizontally. The whole body, the tail, and legs ought to be covered with a dense growth of woolly curls—the longer the better. The poodle is probably the most tricky dog we possess. His powers in this respect are indeed quite remarkable. As a retriever, he can hardly be beaten, and may easily be taught not only to bring the game, but to put it in the bag.

Pool.—This game, which is a modification of billiards (*which see*), is played on an ordinary billiard-table that is provided with the usual implements. There may be two or more players, each of whom is provided with a differently coloured ball. Each player in turn aims at the preceding player's ball, and tries to drive it into a pocket (the winning hazard of billiards). Every time a ball is thus pocketed the owner of the ball loses a "life," or chance, to the player who pocketed it; should the player miss the ball he aims at, or run into a pocket off it, he loses a "life" to the owner of the ball played at. Each player has three lives, and when these have been lost by every player but one, the game is won by that player who still retains a life or lives. If two players are left in with an equal number of lives, they may either divide the pool or play the game out. It should be remarked that when a player pockets a ball he is allowed another turn, and then plays on the ball nearest him. There are

several modifications of the game of pool, into all or any of which it is impossible to enter in such a work as the present. For an account of them, and for the full rules of the game, a handbook must be consulted.

Poor John.—A name sometimes given to the hake (*which see*).

Poor Laws.—The poor of England, till the reign of Henry VIII., subsisted entirely upon private benevolence and the charity of well-disposed Christians. By 43 Eliz. c. 2 (the oldest Poor Law Act), overseers are appointed in every parish. The churchwardens of every parish are to be overseers of the poor; and besides these there are appointed as overseers in each parish two, three, or four, but not more, of the inhabitants, such last-mentioned overseers to be substantial householders, and to be nominated yearly on the 25th of March, or within fourteen days thereafter, by two justices dwelling near the parish (54 Geo. III. c. 91). Their duty, according to this Statute, was (1) to provide work for all who had no means of maintaining themselves and used no trade; and (2) to raise sums for the relief of the lame, impotent, old, blind, and other poor not able to work. For these purposes they had power to levy rates upon the inhabitants of the parish. Abuses arose out of this Act, the principal one being the extension of out-door relief to able-bodied paupers; and the whole system of Poor Law administration was remodelled by the Statute 4 & 5 Wm. IV. c. 76 (the Poor Law Amendment Act), and has since been further improved. Under the last-mentioned Statute, which continued in force until 1847, the administration of relief to the poor throughout England and Wales was placed under the control of three Commissioners, styled "the Poor Law Commissioners for England and Wales;" but under the Statute 10 & 11 Vict. c. 109, a new Board of Commissioners, styled "Commissioners for administering the Laws for the Relief of the Poor in England," was appointed in their place, and was invested with all the powers and duties of the former Commissioners. The style was afterwards altered, by the 12 & 13 Vict. c. 103, to that of the "Poor Law Board," and the Board under that name was perpetuated by the Statute 30 & 31 Vict. c. 106. But now, by an Act passed in 1871 (*see* Local Government), the Poor Law Board has been superseded by the Local Government Board, which consists of a president, appointed by her Majesty, and of the following *ex officio* members—the Lord President of her Majesty's Most Honourable Privy Council, all her Majesty's principal Secretaries of State for the time being, the Lord Privy Seal, and the Chancellor of the Exchequer. The duty of making and levying the poor rate or parochial fund, out of which the relief is afforded, still belongs, as previously to the late changes in the law, to the churchwardens and overseers, and the concurrence of the inhabitants is not necessary. But for the better execution of these duties, the later Acts relating to the amendment of the Poor Law authorise the appointment of collectors and assistant overseers. The rate is raised prospectively for a given portion of the year, and upon a scale adapted to the probable exigencies of the parish; and the Act of Elizabeth directs that it shall be raised by taxation of every inhabitant—parson, vicar, and other, and of every occupier of lands, houses, tithes impropriate, propriation of tithes, coal-mines, or saleable underwoods in the parish. Now, by the Ratin, Act, 1874, the liability of rates is extended to (1) land used for a plantation or wood, or for the growth of saleable underwood, and not subject to any right of common; (2) rights of fowling, shooting, taking or killing game or rabbits, and fishing, when severed from the occupation of the land; and (3) mines of every kind, not mentioned in the Act of Elizabeth. As an occupier, a man is rateable for all lands which he occupies in the parish, whether he is resident or not; but the tenant, and not the landlord, is considered as the occupier within this Statute. As an inhabitant, a man was formerly liable to be rated according to his apparent ability, that is, according to the value of his local and visible property within the parish, and of which he made profit—*i.e.*, his stock in trade; but by 3 & 4 Vict. c. 89, 19 & 20 Vict. c. 42, and 22 & 23 Vict. c. 44, the liability to taxation as regards his stock in trade was suspended until October, 1862, and thence to the end of the next session. These Acts were not renewed in 1863. By 43 Eliz. c. 2, s. 1, no rate can be deemed valid unless it is allowed by two justices; and by 17 Geo. II. c. 3, public notice thereof is to be given at the parish church on the Sunday next after the same has been allowed. The allowance by the justices is a mere matter of form; but after allowance and publication, any person aggrieved by the rate, and having reasonable objection thereto as irregular or unequal, may appeal against it to the next practicable quarter sessions of the county, riding, or division, or in some cases to the corporation or franchise in which the parish is situate. As to the recovery of poor rates, see 25 & 26 Vict. c. 82. By 27 & 28 Vict. c. 116, provision is made for giving shelter to the casual poor (wanderers, &c.) each night. (*See* Parish Settlement.)

Poor Rates. (*See preceding paragraph.*)

Pope Joan.—A card game, played with a complete pack of cards by any number of persons. Before commencing, each player pays a certain number of counters, varying in number at the option of the players, into a pool, which consists of a board divided into five compartments, marked respectively Pope Joan, Matrimony, Intrigue, Ace, and Game, in either or any of which the counters may be placed. The dealer deposits double the number of counters paid by the other players. The cards are then, with the exception of the eight of diamonds, dealt round to the players, and a spare hand is left in the centre of the table, for the purpose of making stops in the playing, which is by sequences. The last card is turned up for trumps, and play commences. The person who is first out takes all the counters in the Game pool; the player of ace of trumps the Ace pool; the nine of diamonds is Pope Joan, and the player of it takes that pool, and has in

addition the privilege of playing it in lieu of any other card, to prevent a stop. The king and queen of trumps, and the queen and knave of trumps, are Matrimony and Intrigue respectively; and the players of either of these take the pools standing to their credit. If king and queen are in separate hands, but are both played, the holders divide Matrimony pool between them; similarly if queen and knave are in separate hands, and are both played, the holders divide Intrigue between them. Game pool must of necessity be taken; but should any of the other pools be unclaimed, they remain for the next game. When Game pool is taken by one of the players, all the rest pay into the pool a counter for each card they hold. Succeeding dealers, after the first game, pay half the number of counters paid by the first, or the number originally paid by the ordinary players. The game is sometimes varied in minor points from the preceding description, which, however, gives the most usual method of play.

Poplar Wood. — Of the poplar-tree (*Populus*) there are about fifteen varieties. Those of chief value for timber are the white poplar and the Lombardy poplar. Its wood is soft and far from being durable, but it does not shrink or warp under the influence of moisture, is very light, and is therefore used for butchers' trays, &c. This tree is largely cultivated by the Dutch. The timber of the Lombardy poplar is inferior to that of most other kinds; but its lightness and cheapness have secured a large demand for it from the makers of packing-cases, as, though soft, it is sufficiently tough to bear a certain degree of strain.

Poplins are thick and serviceable materials made of silk and worsted and of silk and wool, and having a fine cord on the surface. These goods are manufactured in Norwich and Ireland. Those from the former place are usually plain; Irish poplins, which rank the highest, are frequently brocaded and watered. Tabinet, an expensive fabric used for covering furniture, is a kind of poplin. The one disadvantage of poplins for dress purposes is their heaviness. This material was originally made at Avignon, and there known as *popeline*, from being made in Papal territory; thus the word has been gradually corrupted into its present shortened form.

Poppies, Preparations of. (*See* Opium.)

Porcelain is the name by which we recognise a superior kind of glazed earthenware. It is sometimes called china. All the different kinds of porcelain or china—whether known as cream ware, drab ware, drab body, brown body, Egyptian black, blue body, jasper body, turquoise body, dipped ware, or any other of the trade names by which it is recognised—are formed of flint and clay in varying proportions, with the addition of suitable colouring materials, such as the oxides of iron, a precipitate of gold by tin and other oxides vitrified to fix and polish. Gilding is also largely employed for the decoration of porcelain by the aid of oil gold and quicksilver. If the gold is not properly fixed in the furnace it will scale off; if too fiercely burned it will not receive a good polish. Kaolin is the finest Chinese clay, formed by a process of washing from the decomposed felspar of certain kinds of granite. It is of an earthy texture, and contains about 10 per cent. of free silica. Its preparation for the potteries consists in subjecting the decomposed rock to washings or streams of water, the quartz, mica, and other particles falling by their weight, or being removed by the velocity of the stream, while the finer particles settle in the tanks. When coloured with metallic matter, porcelain receives the name of stone-ware—jasper and drab ware are of this description. When uncoloured and translucent it is called china, hard or soft, according to the nature of its materials, the hard having the larger proportion of kaolin. Porcelain is sometimes decorated with paintings executed by hand in enamel colours, and these paintings are often of such excellence as to make the porcelain thus adorned very costly. Porcelain is also applied to the production of statuettes and other ornaments, as well as to the manufacture of buttons, door handles and plates, and in many other ways to the purposes of domestic decoration. A kind of transparent pictures, called lithophanous, are made with the most transparent kind of porcelain. These are largely used for lamp-shades, window decoration, &c., being visible only by the light they transmit. Porcelain plaques have been largely introduced for the decoration of furniture. Porcelain is said to have been first introduced into Europe in the year 1518.

Porcelain Cement, and Mending. —A cement suitable for joining glass, porcelain, and metallic surfaces may be manufactured as follows:—Dissolve one ounce of mastic in highly-rectified spirits of wine; soak one ounce of isinglass in water until it becomes soft, and then dissolve it in pure rum, gin, or brandy, to form a glue, with which rub and mix thoroughly an ounce of gum-ammoniac. The two mixtures are then put together in an earthen vessel over a gentle fire until they combine, when they may be poured into a well-stoppered phial and put aside for use. Before using the cement, the bottle is placed in warm water. The edges to be joined should also be previously warmed, and kept in close contact, after the application of the cement, for at least twelve hours.

Porcelain, Dresden. — The porcelain known as Dresden was never manufactured at Dresden, but comes from Meissen, on the Elbe, twelve miles or more from that city, where Augustus the Strong, in 1710, established a famous porcelain factory, from which proceeded innumerable vases, figures, and groups of animals more or less humorously treated, which now fetch extremely high prices. Genuine Dresden ware is known by a variety of trade-marks, but they are all in blue and under the glaze. One of these marks—the cross-sword—used to be imitated by some of the more eminent French porcelain manufacturers, such as Locré de la Courtille, Jacob Petit, and

M. Closs, of Paris. Modern Dresden china bearing the old marks is of comparatively little value.

Porcelain, French.—Soft porcelain (*see* PORCELAIN) was manufactured in France as early as 1695, at St. Cloud, where Louis XIV. took great interest in it. From here the secrets of the establishment spread to Chantilly, where it was manufactured in 1735, and afterwards to Vincennes, and thence to Sèvres, where Louis XV. and his mistress, Madame de Pompadour, took it under royal protection. To this period the ware famous as *Bleu de Roi* belongs. Madame Dubarry also greatly encouraged the manufacture, and a colour still celebrated was then introduced, named after her "Rose Dubarry." The Sèvres porcelain frequently commands very high prices.

Porcelain, Italian.—The Italian majolica ware has long been famous amongst collectors of rare porcelain wares. Luca della Robbia, who from a sculptor became a potter, in consequence, it is supposed, of seeing some specimens of Moorish porcelain, may almost be regarded as the founder of the fame enjoyed by the Italian pottery manufactures. His bas-reliefs, statues, and other works are in great request.

Porcelain, Old English.—High prices are commanded at sales for specimens of the old English porcelain wares, such as were made at Bristol, Derby, Plymouth, Bow, Chelsea, Worcester, and elsewhere. The Bow porcelain has a glaze thinner and less soft than the Chelsea, which also surpasses the Bristol ware. The Bow works were established in 1730, but the productions attracted but little notice before 1774. They consisted of statuettes and groups, vases, animals of all kinds, candlesticks, salt-cellars, plates, dishes, knife-handles, &c. &c., and the marks distinguishing them are the bow, the arrow, the anchor, and the dagger. Plymouth porcelain dates from early in the eighteenth century; the Bristol ware from 1743, the earliest specimens being in imitation of the Dresden ware. The Derby manufactory was established in 1781, and the Worcester works in 1751. For Chelsea ware, *see* CHELSEA CHINA.

Porcelain, Oriental.—We learn from Pliny, the ancient naturalist, that "Murrine vases were first brought to Rome by Pompey in his great triumph over Asia and Pontus. Unwrought specimens of murra, and cups made of it, were dedicated to sacred uses in the temple of Jupiter Capitolinus. This substance soon became the most fashionable and precious of all things at Rome. A cup capable of holding three sextarii (4½ pints) was sold for seventy talents—a talent then represented the value of £180 English. Petronius before dying destroyed a dish which had cost 300 talents, lest it should fall into the hands of the Emperor Nero. Murra comes from the East; it is found in Parthia, and chiefly in Carmania. Its lustre is without brilliancy; but it is chiefly valuable for the variety of its colour, its changeful spots of purple and white, and a colour composed of both these, with a fiery tint in addition, certain spots reflecting variable light, like the hues of the rainbow. Any translucent or pale parts detract from its value." The term porcelain was applied at a later date in Italy—*porcellana* being in the language of that country the name of a shell remarkable for the smoothness, whiteness, and polish of portions of its surface. China has played the leading part in porcelain manufacturing. There the materials were selected with singular care, combined and ground with unerring skill and knowledge, designed with the most delicate perception, and coloured with an exquisitely perfect feeling for harmony. The porcelain manufacture was flourishing in a state of high perfection, about the year 1000, in the city of King-te-Chin, in the province of Kiansi, where the trade employed a million of work-people. The factories were under the imperial patronage, and some of the wares were reserved exclusively for the emperor. Amongst these was the imperial yellow, a delicate and beautiful lemon colour, which was never seen in other countries. The methods of colouring were two, one under and one over the glaze, into which the colouring matter was fused by heat. What is known amongst collectors as "crackle" was a peculiarity of this porcelain at a very early period. The veins of the crackle were in the clay, not in the glaze. The art passed from the Chinese to the Japanese; and as during the Tai-ping rebellion King-te-chin was destroyed, and its population driven out and dispersed, the famous industry it sheltered suffered a blow from which it never recovered, and the Japanese soon excelled their masters, their work being superior in form, design, and technical excellences.

Porcelain Painting.—Porcelain is painted with mineral or vitrifiable colours, which usually consist of the pigment in combination with vitreous matter, the former being metal or oxide of metal, and the latter a "flux," to fix the colouring matter, which is usually sand (silica) and lead, in the form of red-lead, litharge, &c., sometimes with the addition of borax or boracic acid. The flux not only renders the colours permanent, but gives a brilliant surface, having the appearance and durability of crystal. The ornamental or pictorial work executed in these colours is allowed to dry slowly in a place free from dust, and is then subjected to the action of heat in the process technically known as firing—a process requiring considerable experience, knowledge, and judgment. Before painting, the design is transferred to the porcelain surface, after the latter has been first carefully washed with warm water containing a little soda, and afterwards with a little spirits of turpentine. The beginner can obtain tiles or other articles ready for painting at any of the potteries, and afterwards have them fired. The first essays should be made in few colours.

Porch.—The roofed shelter above a door is architecturally known as the porch. It is usually supported on pillars, but any small portico which is not much higher than the doors of the building to which it is attached bears this name. Porches belong to the Norman and Early English structures, and we commonly find them before the entrance-doors of churches,

where they are usually ornamented with carvings, &c., and provided with seats to accommodate the worshippers who arrive too early. The porch sometimes assumes the form of a small chapel, called the Galilee, provided with one upper room fitted up for the preservation of the muniments of the church.

Porcupine Quills. (*See* QUILLS, PORCUPINE.)

Pork.—Although pork was forbidden to the Jews, and though it was not eaten by many African and Asiatic nations, yet its value as an article of diet is well known. In certain parts of the country, such as Hertfordshire, Cambridgeshire, and Bedfordshire, it is preferred by a large proportion of the inhabitants to all other meats. This preference is owing partly to the habit which prevails among the peasantry of keeping and rearing pigs, and partly to the convenience which belongs to the use of pork, seeing that it can be so easily salted and preserved until wanted. It is, however, of all meats the most difficult to digest. It is rich and trying to the stomach, on account of the large proportion of fat which it contains. This is due both to the nature of the animal, and to the way in which it is fed and treated. It stores up in its body three times more of its food than the ox, and so it can be more cheaply and quickly grown and fattened, while at the same time on account of this it cannot be regarded as equal to beef and mutton in nourishing the system. When only occasionally employed it constitutes an agreeable change of diet, and is highly wholesome. Its frequent use is said to favour obesity and to cause skin disorders. Pork is best about Christmas. It is good during the winter months, but in hot weather it is greasy and unwholesome. It should be chosen with the greatest care, for it is particularly liable to disease; and if it is killed and its flesh eaten in an unhealthy condition, those who partake of it will find in all probability that they will suffer in consequence of their indulgence. A porker or pig that is to be cut up for fresh pork should not be more than eight or nine months old, and it is most important that it should have been fed properly and kept clean. Dairy-fed pork is generally understood to be the best, and miller's pork may as a rule be depended upon; and when it is possible, pork should certainly be obtained directly from the place where the animal was reared. This meat will not keep unless it is salted, and therefore it should not be hung more than a day or two before it is dressed; if cooked quite fresh, however, it will be hard. The flesh should be firm, solid, finely grained, of a pinkish-white colour, and cool to the touch. If it feel clammy, the pork is bad; if kernels are to be seen in the fat, the pig was diseased when it was killed. The skin also should be thin and smooth; if it is thick, the pig is old. The heart, head, kidneys, and liver of the animal must be cooked as soon as possible. It is very usual to cover the leg and sometimes also the hand of the animal with salt for a few days before dressing them, and when this is done they are boiled. In order to render pork fit for the table, it should be thoroughly well done. Under-dressed pork is most indigestible.

Porphyry.—A term applied to both metamorphic and igneous rocks, of which the chief constituent or base is a compact felspar, and through which grains of crystalline felspar are disseminated. In some cases hornblende or quartzose are associated with the felspar in the base. The colour varies considerably, one valuable kind being of a dark red, with the disseminated crystals of a lighter shade of the same colour. The antique porphyry of Greece (a hornblendic porphyry) is of a dark green, with largish crystals of lighter shades; it takes a fine polish. Porphyry is very heavy, and will bear without crushing a far greater weight than any other building stone. It is used for columns and other ornamental work, on account of its fine variegated surface, and also for mosaic work.

Porpoise.—The porpoise, or *Phocæna communis* of naturalists, belongs to the order *Cetacea*—mammals which live in sea or fresh water, and are in shape so like to fishes that by the ignorant they are always classed as such. They are the commonest of all the *Cetacea* about our coasts, and very large shoals of them may often be met around the shores of Ireland and Western Scotland, not only at sea, but in the lochs and bays, and even in the large streams. In fine weather they seem to enjoy their aquatic existence to the very fullest extent, rolling, tumbling, and leaping on the top of the water, and even giving vent to a kind of piping



PORPOISE.

noise. They feed on fish of various kinds: they fear no danger, and will hardly get out of the way of a boat, and often do great damage to the nets of the fishermen. The oil obtained from these animals is of great purity, and the skin is used to make boots, to cover carriages, &c. The flesh used to be considered a great delicacy by the ancients, and even to this day it finds its way to the tables of some foreigners, especially the Portuguese. The length of the fish is from five to eight or even nine feet, and the flesh is very dark in colour.

Porridge.—The Scotch oatmeal porridge is a very important article of food, and is considered pleasant, wholesome, and exceedingly nourishing. Like all other cooked dishes, the quality of porridge greatly depends on its proper management. Whey is sometimes used instead of water in its preparation, and this

gives a pleasant flavour to porridge. Milk porridge is another variety of this form of food, made by substituting milk for water. Onion porridge is a hot cooked preparation made of onions, and is an old-fashioned remedy for a cold. Peas porridge is made by boiling peas, onions, herbs, potatoes, and bread together for some hours, thus converting the ingredients into a cheap, substantial, and wholesome kind of food. Two hundred years ago plum porridge was a well-known favourite dish, though now it is almost obsolete, plum pudding having taken its place. It was made by boiling, in the water in which meal had been boiled, dried fruits, such as raisins, currants, and prunes, also bread and spices. Sugar was added, and claret or other wine.

Porrigo.—A name by which ringworm (*which see*) is sometimes known.

Porringer.—A small vessel made of metal, intended to hold porridge or other food for children. Owing to its being made of metal, it is often employed in the nursery to warm food for the children's use.

Port Wines.—Though port wine is still held in great estimation, it is not used so extensively as it was some years ago. During the middle of the last century it was very highly esteemed in Britain, but since then it has been superseded to a certain extent by claret. Among all wines, port stands pre-eminent as a full, rich, strength-giving stimulant. In cases of feebleness it is of great service, and it is frequently prescribed to convalescents. Its astringency makes it peculiarly adapted for administration in cases of diarrhœa. Port does not, however, agree with all constitutions; it is too heavy, and should be shunned by gouty, dyspeptic, or bilious subjects. Its colour should be full and rich, but these qualities are lost when the wine is allowed to remain too long in cask. When kept long in wood, port loses both its colour and rich flavour, though some persons prefer the aromatic light taste acquired in the wood to the full fruity taste. It is necessary, however, that port should be bottled long enough to enable it to throw out a crust before it is used; and within moderation, the longer it has been in bottle, the more it is improved in fulness and delicacy of flavour. A variety of this wine, known by the name of white port, was formerly in great request, and was sold for a high price. The best vineyards for port wine are on the Upper and Lower Douro, in the neighbourhood of Lisbon, and their products are shipped from Oporto. Port, Lisbon, Bucellas, and Calcavella are the principal wines of Portugal.

Portable Soups are made of the juices of various kinds of meat, boiled down to the consistency of a thick syrup, and preserved for use. They are exceedingly convenient both for domestic use and for transport, and, prepared on a large scale, they now usually form part of every ship's stores. They are used for making extempore soups and gravies, and, under the name of "glaze," to finish sauces and beautify meats. Portable soup should be kept in a dry place, and will remain good for a long time. When made in small quantities, and intended for home consumption, it is best to be poured into small jelly-pots, about an inch and a half deep, or upon flat dishes, to lie about a quarter of an inch deep, and when cold it can be divided into pieces and put into a warm room for about a fortnight, until thoroughly dry and hard. In this form it will keep for years. If the surface becomes mouldy, it may be wiped with a damp cloth, for the mouldy taste will not penetrate the mass. When wanted, it needs only to be dissolved and seasoned, and it is ready for use. Veal, on account of its gelatinous qualities, is largely used in making portable soups; but the economical housekeeper will not need always to purchase fresh meat for making it. The trimmings and parings of meat, game, and poultry, with the liquor in which meat has been boiled, will answer excellently for the purpose.

Porte-crayon.—A tube of metal split at each end, made for the purpose of holding crayons or chalk pencils when in use, for these, being soft and easily broken, require to be in a case when handled. A sliding ring holds the crayon in place.

Porte-monnaie.—A flat purse such as those in common use which bear a resemblance to a pocket-book. Formerly long purses made of silk and held together by rings were used in this country, until about twenty years ago, when a different style was introduced from France, where such a kind of purse was known as a *porte-monnaie*.

Porter.—The beverage known by this name, and which is the common drink of the inhabitants of many of our large towns, was first introduced to notice by a brewer of the name of Harwood, more than a hundred years ago. Before this, liquors were sold under the name of "half-and-half," or "three threads," made by mixing together two or three different qualities of ale. This custom naturally involved a good deal of inconvenience, which was removed by the introduction of porter. The beverage owes its peculiar name to its general consumption among porters and labourers. The difference between ale and porter is not very great, the point of distinction being that porter is artificially coloured by the use of roasted malt, which also imparts to it a bitter flavour. For its real strength it is dependent on pale malt. It is more easy of digestion than ale of a corresponding quality; but owing to the fact that it is a heavier and more solid drink than ale, it is not equally adapted to all constitutions.

Porter, Hall. (*See* HALL-PORTER.)

Porters.—These are of two distinct classes:—1. A door-keeper, or one who has charge of a gate. In this sense the word comes from the Latin *porta*, a door or gate. 2. A carrier, or one who undertakes to bear burdens. In this sense it is derived from the Latin *portare*, to bear or carry. Ticket-porters are men who are authorised to carry parcels, &c., and wear a badge or ticket to indicate the class they belong to. Railway-porters are men employed about railway-stations for the removal of passengers' luggage, and for many other menial services.

Portfolio.—This case, from the French word *porte-feuille*, resembles the stiff covers of a large book. It is used for the purpose of keeping together collections of unframed pictures or loose papers, for in a receptacle of this description such things are not liable to be creased or injured in any way.

Portico.—Architects use this word to indicate a covered passage supported on pillars, which is usually vaulted, and may be either an independent edifice or attached to another building. Porticoes were anciently regarded as covered walks, sheltering those who used them from the sun's heat or stormy weather; and in Rome they were often used by vendors who exposed for sale the rarer kind of merchandise. One of the most famous of ancient porticoes was that which Augustus erected in honour of Octavia, which formed a parallelogram, having a double row of white marble Corinthian columns, 270 in number. It was richly adorned with paintings and statuary, and within it had two temples, with a library for students.

Portland Cement is, perhaps, the best known and most extensively used of all cements, and is made from clay found in the valley of the Medway, which is mixed with chalk found in the neighbourhood, and then submitted to a process of burning. Its consistence (it is mixed with water) should be that of a tolerably thick paste, and the surfaces to which it is applied ought to be well damped, the cement being kept slightly moist till it solidifies. It is called Portland cement from its similarity, when dry, to Portland stone.

Portland Stone.—This is a fine compact oolite, or species of limestone, which derives its name from the place in which it is quarried. It has advantages as a building material, but is not very durable.

Portmanteau.—A leathern bag or trunk, constructed so as to contain within a small compass the necessary wearing apparel and other requisites for a journey. As this is an article which, if properly taken care of, will last a lifetime, the most economical course is to purchase a good one, notwithstanding its seeming expensiveness.

Portraits.—Likenesses of men or of animals, whether drawn, painted, engraved, sculptured, or otherwise executed. A portrait may include only the head, or the whole of the person represented, and it may be on any scale, from a miniature upwards.

Portuguese Lace. (*See* LACE.)

Portuguese Wines. — The principal wines of Portugal are port (*which see*), Lisbon, Bucellas, and Calcavella.

Possession, in law, is in its primary sense that condition or power by virtue of which any one has such a control over corporeal property that he can deal with it as he pleases, and exclude other persons from meddling with it. This condition or power is detention, and it lies at the root of all legal definitions of the word possession. It is not a legal state or condition, but it may be the source of rights, and it then becomes possession in a legal sense. But even in this sense it is not to be confounded with property, for a man may have the legal possession of a thing without being the proprietor or owner of it, and a man may be the proprietor or owner without having the legal possession. Ownership is the legal capacity to operate on a thing according to a man's pleasure, and to exclude everybody else from doing so. Possession, in the case of detention, is the actual exercise of such a power as the owner has a right to exercise.

Possets. — These are drinks made with vinegar and water. Possets are generally administered medicinally, and are regarded as beneficial in cases of colds and coughs. They are made by curdling milk with wine, beer, or some acidulous liquor, and are taken hot.

Post-boy.—Besides meaning the same as postillion (*which see*), this word was applied to the carriers of letters, who conveyed them in bags upon the horses which they rode.

Post-chaise.—Previous to the revolution effected by railroads, the post-chaise was a great institution. It is stated that the first ever built had two wheels only, and was open in front. Subsequently they were built on the principle of a travelling chariot, as close carriages upon four wheels, but with no seat in front. They were usually drawn by a pair of horses running abreast, the driver seating himself on one of the horses. The post-chaise was kept for hire at hotels and posting-houses, and being at once very strong and moderately light, was a very convenient and useful vehicle.

Post-date, To.—To date a letter or document of any description later than the day on which it was written. Cheques and bills are often post-dated, when it is desired that a certain period shall elapse between the time when they are drawn and the date of payment.

Post-horses. — Horses which were kept for the purpose of letting out to those who travelled by post, whether in post-chaises or otherwise. A considerable duty was levied upon the use of them, and those who let them were regularly licensed.

Post-mortem.—This is the term used to signify the appearance presented by a body after death, or to the scientific examination of it which it may be necessary to make. It is derived from two Latin words, which mean "after death." *Post-mortem* examinations are made by direction of the coroner in most cases of sudden death. They are also made as frequently as possible in hospitals attached to medical schools, both for the instruction of students and for the advancement of medical science. It must be manifest that in this way only can obscure cases of disease have any light thrown upon them.

Post Office.—An office for the receipt and despatch of letters and small parcels by post. The first Postmaster-General had not merely the conveyance of letters under his

control, but the "horsing" of all through posts and persons riding post. This was determined by an Act passed in 1656, and subsequently re-enacted under Charles II. The carrying of letters as a monopoly was established in 1637; a penny post for London and suburbs originated in 1685; a general post-office was instituted in the reign of Queen Anne; the metropolitan penny post was made a twopenny post in 1801; and the present penny postage system came into operation in 1840. The General Post Office in London was transferred from Lombard Street to St. Martin's-le-Grand in 1818.

Post Office Orders. (*See* MONEY ORDERS.)

Post Office Savings Banks.—These are constituted under the Post Office Savings Bank Act of 1861, for "affording additional facilities for depositing small savings at interest, with the security of the Government for due repayment thereof." Post Office Savings Banks are established at all Money Order Offices in the United Kingdom, and are open for the receipt and payment of money daily. Deposits of not less than 1s. may be made at any of these offices, but no person may deposit more than £30 in one year ending 31st December, nor may he make any further deposit when the total amount standing to his credit has reached £150 exclusive of interest. Each depositor is provided with a deposit-book, in which every deposit must be entered, and attested by the signature of the receiver, and the stamp of the office. In addition to the receipts thus given, the depositor receives for each deposit a separate acknowledgment by post from the Savings Bank Department in London. This should reach the depositor within four clear days in England, or six days in Scotland or Ireland. Interest at the rate of 2½ per cent. per annum, or 6d in the pound, is allowed on all deposits of £1 and upwards to £200, but nothing is paid on a fractional part of £1. When the sum due to a depositor amounts to £200, interest ceases to be allowed. The depositor is entitled to withdraw the whole or any part of the sums due to him, on making a demand on a prescribed form at any of the offices. (*See also* SAVINGS BANKS.)

Post-town.—A town in which there is a post-office for the transaction of the ordinary local business of the postal department. To such a town a district is assigned, and letters collected from such district or received for it are despatched to their proper destinations. At present a post-town has money order, savings bank, and other offices associated with the letter department.

Postage-stamps, Collecting, &c.—The collection of the postage-stamps of all countries forms not only a pleasant amusement, but also has in it the elements of instruction in geography, chronology, history, and ethnology. It has therefore many recommendations. The collector will find it advisable to buy a stamp album, with special pages allotted to each country, and with a printed heading for each, giving some account of the country, its population, rulers, &c. Provided with this he will probably have little difficulty in procuring from his friends a sufficient supply of stamps, in the sorting and arrangement of which he must of necessity acquire much useful information.

Postage-stamps, Imaginary Value of Used.—For a number of years it has been popularly believed that the collectors of a million used penny postage-stamps could obtain money or other valuable considerations in return. Many persons have accomplished the task, and curious stories of their success have been promulgated, but long-continued and patient investigation has failed to authenticate a single case. Sometimes it was admission of a candidate into some undiscoverable orphan asylum; sometimes it was exportation to China, or to Japan; but whatever it was, the evidence invariably broke down. In these circumstances, a note on the subject may be useful in preventing a profitless expenditure of valuable time. If the stamps were of the value asserted, the secrecy overhanging their destination would be removed, and the bitter disappointment which many have experienced would not be repeated.

Posthumous. — A child born after its father's death is called posthumous; works published after their author's decease are also called posthumous; and the same term is applied to the character or reputation borne by one who is no longer living. Sometimes bequests made by will to benevolent objects are described as posthumous charity.

Postillion.—A servant whose duty it was, when a family travelled post, to ride one of the horses drawing the chariot. The office is now nearly obsolete. At inns and hotels where horses and post-chaises were let on hire, men called postillions or post-boys were employed to accompany the horses and vehicles; they rode the horses out and home, and wore a sort of livery, the most conspicuous part of which was a short jacket cut off at the waist, and of some bright-coloured cloth.

Posting.—Travelling by means of horses, or horses and vehicles hired at posting-houses licensed for such purposes. A man is still said "to post it" if he travels by a conveyance specially hired for his journey.

Postscript.—A paragraph added at the end of a letter after the signature of the writer (Latin, *postscriptum*, written after).

Posy (contracted from the word poesy).—A rhyme, maxim, or motto inscribed upon a finger-ring. Inscriptions of this character were once very common, and rings bearing them were often given on betrothal or marriage. Among the more common of posies were—"We join our love in God above;" "I have obtained whom God ordained;" "Joined in one by God alone."

Pot-au-feu is the standard dish of all classes in France. It is both economical and wholesome, and is suited either to a large or a small family. In France a glazed earthenware pipkin is used in preparing it; the advantage of this is that earthenware is a bad conductor

of heat—it heats slowly and it loses heat slowly. Pot-au-feu can, however, be made just as successfully in a metal stock-pot as in an earthenware one, and with closed ranges especially there is no difficulty in preparing it, for the heat can easily be regulated by moving the vessel from one part of the stove to another. The French pot-au-feu is almost always made of beef, and the broth, or *bouillon*, as it is called, is used as soup, and the meat, or *bouilli*, is eaten with the vegetables. A difference of opinion exists as to the quantity of water which ought to be used in preparing. Some authorities declare that there should be equal quantities of solid and liquid—that is, a pound of meat to a pint of water; and others recommend that four pints of water should be put to a pound of beef. According to the ordinary practice in French kitchens, the water should be double the meat—a quart to a pound; but if the bouillon is wanted very light, additional water may be put in; if strong, the amount can be lessened.

Pot-herbs.—Pot-herbs is the general name given to herbs used for flavouring soups and seasoned dishes. The principal of these are parsley, purslane, tarragon, fennel, borage, dill, chervil, horse-radish, Indian cress, and marigold. A few pot-herbs are also chosen from wild plants, but these are not very commonly used. One of them, called sauce alone, or jack-by-the-hedge, has a taste of garlic; and another, called wild rocket, which may be used as a pot-herb or as a salad, is something like mustard.

Pot-metal.—This term is applied to an alloy of lead and copper.

Pot-pourri.—This term signifies a mixture of sweet-scented materials, such as rose-leaves, lavender-flowers and stalks, violets, jessamine-flowers, cloves, woodruff-leaves, orris-root, pimento, musk, sandal-wood raspings, and numerous roots and gums. These are mixed together either dry or fresh with salt. The ingredients are usually placed in a vase with a perforated lid, by which means the perfume is diffused around. It is in this sense that the word is usually employed. In cookery, pot-pourri is the name of a dish composed of different sorts of viands, in this respect corresponding to the hotch-potch of Scotland, and the *olla podrida* of Spain. In music, it is a number of favourite pieces, strung together without any particular arrangement, thus forming a sort of medley.

Potage. (*See* POTTAGE.)

Potash, or Potass, is a compound of potassium with oxygen, and therefore an oxide; but the substance known as caustic potash is the hydrate. This, when dissolved in water, furnishes potash lye, which decomposes fats and oils, converting them into soluble soaps. Ordinary soft soaps are made with potash, but it is too deliquescent to be used with advantage in a moist climate like this for making toilet soaps. Caustic potash is a valuable agent in the chemical laboratory, on account of the readiness with which it absorbs acid gases. It is used in medicine. (*See* CAUSTICS.) The potash of commerce is the carbonate. Potash is found in all fertile soils, and is needed by plants in the formation of their tissues; hence woody fibre, wherever sufficiently abundant and cheap, is a most convenient source from which to derive the salt. (*See* CARBONATES.)

Potassium.—A metal which has such an affinity for oxygen that it can only be preserved in its metallic state by being immersed in some liquid, such as naphtha, that contains no oxygen. It is lighter than water, so that if a small piece is thrown into water it will swim upon the surface; but it will decompose the liquid, taking up the oxygen and liberating the hydrogen, which latter will take fire in consequence of the heat produced. This experiment is a very pretty one, but only small quantities of the metal should be used, or the action will become too violent to be safe. Potassium enters into a great many useful combinations; these will be found described under the headings of BICARBONATES; CYANIDES; POTASH; SALTPETRE.

Potato-flour.—The flour or starch obtained from potatoes is an important article of manufacture, both in this country and on the Continent. It is chiefly employed in manufactories for textile fabrics, and is sometimes known under the name of farina, a term which is also applied to the glutinous parts of wheat and other seeds. In countries where difficulty is found in keeping potatoes through the winter, the starch is made in large quantities, in order that the crops may be used quickly, after which it is converted into sugar. By this means waste is prevented that would otherwise be inevitable, and in addition to this an excellent manure is supplied from the refuse of the starch manufactories.

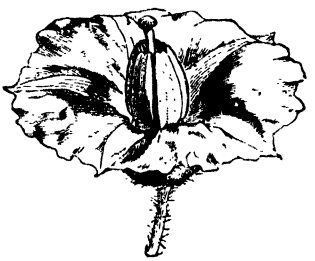
Potato-gum.—A soluble substance resembling gum is made from potato-starch, and it is obtained either by the action of acid, or by means of heat. Excellent substitutes for superior gums are supplied by potato wheat, sago, and other flours, and are largely employed in dressing calicoes, and in gumming paper, such as postage and receipt stamps. For some purposes the gum substitutes are superior to the real gums, as they are easily dissolved, and can be spread more equally over a smooth surface.

Potato-starch. (*See* STARCH.)

Potato-sugar.—Sugar may be obtained in a greater or less degree from nearly all edible plants, and though it is to be found more especially in sugar-canes and such fruits as are cultivated with a view to its production, there are numerous other sources from which it may be derived; among these the potato is one. The characteristic feature of the potato is that it contains a large per-centage of starch, from which sugar is extracted. All sugar made from starch is easily obtained by the action of a dilute acid on a hot solution of starch, and is identical with the sugar occurring in the urine in diabetes.

Potatoes.—The potato (*Solanum tuberosum*) is one of the most important vegetables grown in temperate climates. It is eaten daily by nearly every family in England, and was at one time almost the sole support of the Irish. The credit for its introduction into our country

is usually given to Sir Walter Raleigh, who imported it from America, although it had been previously brought to England by Sir Francis Drake, in the year 1585, without attracting much notice. Not until 1684 was it planted in the open fields; indeed, for a long time so little value was attributed to it, that in the "Complete Gardener," published in 1719, no mention is made of it. In course of time it was used as food for cattle; then the poor discovered its value; and in this way its use gradually spread amongst all classes, both rich and poor, until now its position as food is next



POTATO BLOSSOM.

in value to the cereals. As an article of food, the potato is wholesome and agreeable, and the palate does not easily become fatigued with it. It contains, however, a large per-centage of starch, and only a small amount of nitrogenous matter, consequently it should not be taken alone. Accompanied as it usually is by meat, which is rich in nitrogenous matter, it supplies a useful alimentary substance. In a floury, mealy state, the potato is easily digested, but when close and waxy it is injurious. Young new potatoes are more indigestible than old ones. The potato is valuable for its anti-scorbutic qualities, and on this account is much used on board ship. It also possesses slightly laxative qualities.

Potichomaine.—A process by means of which glass vessels are coated inside with pictures in such a way as to make them look as if they were painted. The art is probably a development from the homely and old-fashioned amusement of sticking little pictures on the insides of glass vessels, and filling them with common salt. These, when closely sealed, ornamented many a country cottage in bygone days. For potichomaine, wide-mouthed vessels are most convenient to operate upon. The other requisites are—sheets of small coloured prints, liquid gum, sundry small brushes, colours for grounds, varnish, gold powder, and some add essence of lavender. The pictures are carefully cut out and their arrangement decided upon, after which they are to be coated with gum on the coloured side, and carefully attached in proper order to the inside of the glass vessel. When quite dry the pictures are varnished, but not the glass, on which a ground colour is laid by pouring it in and turning the vessel round until the whole of the inside is covered. Pour out the superfluous colour, and when the ground is dry it is finished with a coat of varnish.

Pots.—In a domestic sense the word pots is generally understood to include all such earthenware as is indispensable for cooking purposes and for kitchen use. Bowls, jugs, plates, mugs, and other articles with which kitchens are usually supplied, come under the denomination of pots. These utensils are made of strong earthenware, and some are glazed both inside and out. No pots employed in cookery should be glazed inside, as the glazing is composed partly of lead, which would be injurious if it were to enter into the nature of the food.

Pottage, or Potage.—The name of pottage is given to a species of food made of boiled meat, to which vegetables are usually added. In France, Germany, as well as in England and other countries, the dish is known, though it is not always made alike, each country having its own particular recipe for it.

Potted Provisions.—The practice of preserving animal substances in pots is well known, as a means of rendering the food fit either for immediate use or for keeping. After the ingredients have been finely minced, pounded, and freed from all bone and skin, they are pressed tightly into pots, covered with melted butter, and kept in a cool situation. The potted meats in tins that are now extensively used are, after being placed in the tins, fastened securely, so as to render them air-tight, and by thus being made impervious to the air, they may be kept for a long time. When once the tin has been opened, however, it is necessary that the meat should be used at once. Provisions preserved in this way are generally used as relishes, or as convenient substitutes for warm meat.

Potters' Clay.—A soft compact clay which is principally used in the manufacture of coarse kinds of earthenware. It is frequently known by the name of plastic clay.

Pottery.—The ingredients which enter into the composition of every kind of pottery are the primitive earths, clay and flint, or, in other words, alumina and silica. Clay forms with water a plastic paste, having great tenacity, which hardens under the influence of heat, and is, when dry, susceptible of a certain degree of polish. The clay selected for pottery is infusible in the heat of a porcelain furnace, where some kinds, in consequence of the presence of oxide of iron, assume a red colour, and others become white, the temperature to which it is exposed hardening it by increasing its density and diminishing its volume by vaporisation. The silica, or pure flint, which abounds in most parts of the world, is usually of a grey colour, the darkest being the best; that which has brown or yellow spots being unsuitable for pottery, in consequence of the ferruginous particles causing blemishes in the ware. The clay in favour with the Staffordshire potters is obtained largely from Devonshire and Dorsetshire. It is of two kinds—brown and blue, the former burning white, but having a defect technically called *crazing* (a species of cracking, which occurs in glazing it). The blue clay is regarded with favour, as it not only burns to a pure white

and is of a very solid texture, but has the power of combining with a greater quantity of the silicious earth or flint. A black clay, of a coaly or bituminous description, is also used, and burns to a good white. China clay—which is identical with the kaolin of the Chinese potteries—is found largely in Cornwall, where it is reduced to a fine smooth powder of extreme whiteness, and is used to enter into combination in forming the better kind of earthenware. (*See* PORCELAIN.) It consists of alumina and silica in combination. The quality of the water used for mixing the clay is a matter for the potter's serious consideration, and the mixing of this with the clay is conducted by machinery, and called *blunging*. The flint is prepared by burning in a kiln, and plunging them when red hot into cold water, to facilitate the subsequent operations of breaking and grinding. The mixture of the clay and flint, when separated from their impurities, produces a smooth uniform mass, the affinity which alumina has for silica being in all circumstances powerful enough to ensure their complete assimilation. Thus mixed, and while fluid, the clay and flint bear the name of *slip*, which is duly passed to the kiln, from which it is removed in the condition which fits it, after beating with mallets and otherwise treated, to ensure its more complete incorporation for moulding and turning. When formed into the various articles—teacups, basins, jugs, plates, dishes, and so on—they are next subjected to the *firing*, or baking in clay cases, called *saggars*, and then are ready to receive their final finishing in the way of decoration, &c.

Potting Plants.—We may here append a few hints in addition to those already given under the headings of GARDENS, FLOWER, and PLANTS. Geraniums should be placed in pots sufficiently large to allow for the expansion of their roots. These are usually too small, and the flowers consequently do not attain their perfection of beauty and size. Geranium cuttings, which strike readily during the summer, should be potted early, in order that they may acquire strength to endure the trials of winter. The pots containing them should not be placed in pans or saucers. That sweet annual, mignonette, should have but one plant in each pot, and if housed before frost may be preserved all the year round. The musk plant grows in pots, and is recommended for its beauty and fragrance. It will thrive in the absence of much light, is propagated by dividing its roots, or by cuttings, which will strike readily if taken off about three inches below a joint and placed under a glass, which must be gradually removed. The early and sweet-smelling wallflower will flourish in pots. Auriculas, as decorative plants for in-door adornment, are very handsome and attractive. There are varieties of the croton which, when not too large, are very suitable for pots, and serve admirably for adorning the table. A good loam—not tenacious—with a little sand, is best adapted for the croton. The stove dracænas are easily cultivated, and are amongst the most enduring of the ornamental window-plants. *Lapageria alba* and *rosea* are showy pot-plants. Loam, peat, and sand form the best compost for them, and their roots should be well supplied with water. Pinching the shoots as they grow in summer greatly encourages flowering. The variegated New Zealand flax is an excellent plant for in-door decoration; it should be potted in good loam. Pompon chrysanthemums are fitted for winter decoration, and should be potted with rich light soil. For potting the Chinese primrose, use rich fibrous earth with sand. A rich loam will best suit the polyanthus, for which liquid manure should be used. The fresh, pleasant-looking myrtle will thrive in a sandy loam, mixed with heath and a little silver-sand. For heaths the pot should be rather small, and the soil composed of heathy earth, mixed with leaf-mould and silver-sand. It should be thoroughly drained and kept free from wet. Loam and heath soil will best suit the sweet-smelling daphne. Hyacinths, tulips, jonquils, narcissus, snowdrops, and crocuses may all be potted in soil enriched with leaf-mould and well-rotted manure. The lily of the valley should have a light sandy soil, and a saucer always about half filled with water. The fuchsia needs plenty of water and pure air. There are numerous other plants suitable for potting, of which a good seedsman's catalogue will supply a list and descriptions.

Pottle.—A measure of capacity, equivalent to 4 pints, or half a gallon. (*See* WEIGHTS AND MEASURES.)

Pouch.—A small pocket or bag. A tobacco pouch is a familiar example, and this may be made of skin, india-rubber, or other materials, with such modifications of form and ornament as ingenuity may suggest. The pouch used by anglers comprises a series of pockets, for containing hooks, flies, floats, lines, and such other articles as may be required.

Pouf.—This term is applied to the one or two large puffs into which the backs of skirts are sometimes gathered, by means of a sash or scarf. The style requires, of course, a special method of making, the back breadths being fulled-on to the side ones at the top, and the centre of the back gathered to the same length.

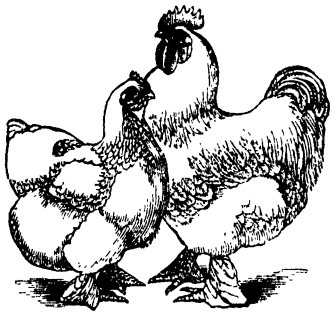
Poult.—This is a name sometimes applied to a young chicken, though the term is now almost obsolete.

Poult, or Pout. (*See* POUT.)

Poultices. (*See* CATAPLASM.)

Poultry.—A race of gallinaceous birds, which has long been domesticated by man. Originally derived, in the opinion of most naturalists, from the *Gallus Bankiva*, or Jungle Fowl of India, it has been developed by careful breeding into many varieties widely differing in form and qualities. Some of these have entirely lost even the strong natural instinct of incubation, and this fact makes it convenient to divide the varieties roughly into *sitting* and *non-sitting* varieties. Of the sitting varieties the instinct is most strongly developed in the Cochin China race, which is large, heavy, feathered on the leg, and furnished with abundance of soft and fluffy feathers. These fowls are bred white, black, buff, and partridge

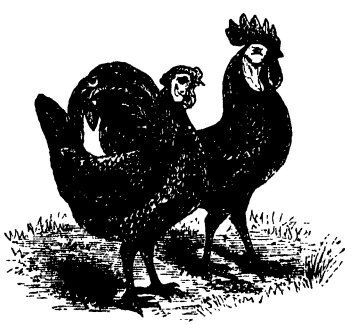
colour. The pullets lay well in winter, but the meat is rather coarse and the skin generally yellow. The Brahmas much resemble Cochins, but are harder in feather, stronger,



COCHINS.

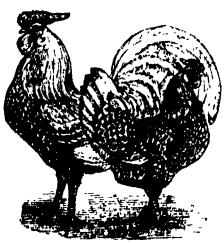
and the meat whiter and of better quality; the hens also do not usually sit so often. These fowls are bred Light (white, with dark necks and tails) and Dark, which are pencilled all over of a grey colour in the hens, and black-breasted in the cocks. The old English Dorking is a fine massive fowl, unrivalled in flesh and very quick to mature, but delicate and usually not a good layer; it is distinguished by a fifth or additional claw behind. The Game is a slender-looking, active fowl, but carries more meat than might be expected, and often proves a good layer; owing, however, to its pugnacity, it should only be kept where it can have a wide range. The Malay is a large, lanky, Indian fowl somewhat like the Game, but not a good layer, and being very spiteful cannot be called a useful breed. The Scotch Grey is an exceedingly useful fowl, of a speckled greyish-blue colour, much resembling the Dorking in shape, but without the fifth toe, hardy, and a very good layer. Barn-door or cross-bred fowls also must be classed amongst the sitters, and if fine, young, and well selected often make useful and profitable birds; they are of course of all types and colours.

Of the *non-sitting* breeds, one of the best and oldest is the Spanish fowl, which has a black



SPANISH.

body with white face and ears. Of late this fowl has been somewhat too highly bred for profit, and a less aristocratic relative called the Minorca, which resembles it in all but the white face, will be usually found a larger, hardier, and more useful bird; this variety is in fact often *called* Spanish by people not skilled in the distinctions of fanciers. Minorcas are also bred white, and there is a slate-coloured variety called Andalusian; but all have similar qualities, are evidently children of the same great Mediterranean race, and are all distinguished as layers of large white eggs. Another fowl of the same general type, but smaller and with yellow legs (the Spanish have bluish-black legs), has been introduced from America lately; it is bred in two colours, white and brown, and is even hardier than the Spanish. This variety is called the Leghorn, and it is probably the most prolific layer known, but the eggs are not so large as those of the older breed. The Polish breeds—which comprise black with white crests, gold spangled with black, and silver similarly spangled—are distinguished by their large feathered top-knots or crests; many of them have been so highly bred as to be delicate, but some specimens are capital layers, and such are particularly adapted for *close* confinement in a small but dry run. The French have also perfected several races of non-sitters. The Houdan is a crested fowl, with five claws and a very peculiar comb, and the colour a mixture of black and white splashes; it is hardy and a good layer, and the flesh good. The La Flèche more resembles the Spanish in character, being a very tall black fowl; it is delicate and a poor layer, but the flesh perhaps best of all known breeds. The Crêve Cœur is a large crested black fowl with a two-horned comb, resembling a black Polish with black crest much magnified, and with very short legs; it is rather delicate and not usually a good layer, but the flesh is excellent and the fowl quiet. Some other French breeds are probably crosses, as the colour varies. The Hamburghs are another non-sitting race,

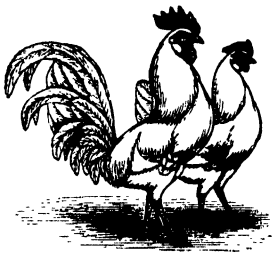


SILVER-SPANGLED HAMBURGHS.

long famed in Lancashire and Yorkshire for their laying properties, and hence called at one time "Dutch Every-day Layers." They all have rose-combs, and are distinguished by their rather small size, sprightly and active form and habits, and beautiful plumage. There are of this race black, distinguished among fowls of that colour by their wonderful green gloss; gold and silver spangled, which are marked with round spots on the gold or silver ground colour; and gold and silver pencilled, which are barred with black lines *across* the clear ground of the feather. The gold-spangled are generally delicate and bad layers; the others

are often wonderful layers, but only show their best qualities when allowed ample range over the fields. We need not here describe less marked varieties, of which there are several known to poultry-fanciers, but which are of no interest to the general reader.

Management has almost everything to do with profit from poultry, and must vary with circumstances, though a few cardinal rules must always be observed. As a general rule, farmers and country people do not feed their poultry enough, and people in towns too much. They should always be fed twice a day, morning and evening, with as much as they will eagerly run after if thrown in small quantities, but no more. The consequences of too little food to birds expected to produce matter so rich in nutriment as eggs, must be obvious; on the other hand, to give them as much as they will eat is not only wasteful, but in confinement will stop laying and cause ill-health. The second rule is, *never to keep old birds*, but to regularly kill and draft them off when two and and a half years old, replacing by young pullets. This is a rule few attend to; but as old hens lay few eggs, the need of it is apparent. Other points must depend on place and circumstance. Even on a farm the object may be eggs, or chickens. For eggs, one of the Spanish varieties will usually answer best; and regular feeding, selection of young birds, and careful collection of the eggs, will always yield a good result—the hen-wife of course seeing to it that as early as possible every spring she hatches enough chickens to supply the place of old hens drafted off. If chickens are the object, the great aim is to get them out early, in January and even December; such birds take much care, but if well reared and fatted will in February and March sometimes realise four guineas per dozen in London. Dorkings are usually preferred for this purpose, and the constitution of the breed may be much improved by one-fourth of Dark Brahma blood—that is, crossing half-bred Brahma Dorkings back again to the Dorking cock. Early sitters are obtained by the early-hatched pullets of the preceding year, and the chickens need very frequent feeding, dry shelter, and food at night after dark; but the profit when well managed is great. In more usual proceedings, the main thing is to keep the chickens clean, and to feed regularly at least four times a day with good meal made into a crumbly paste, and a little tail wheat at night. This is where farm poultry often fails, the chickens being slighted in this way, and often given only sopped bread and barley, which for them is almost worthless, though barley is good food for fowls. The manure should be carefully gathered every week and mixed with earth for use on the farm. Many people by good management make a good profit from a few fowls in the bottom of a town garden, besides the indescribable luxury of new-laid eggs and the occupation the fowls give them. For this object also some of the Spanish kinds will usually answer best, the Leghorn variety often doing exceedingly well. A wooden house, thoroughly wind and weather proof, say four feet square, and a covered run the same depth and the width of the garden, will keep half a dozen such fowls. A small ventilator should be put high up under the eaves, and the best plan is to have a broad



WHITE LEGHORNS.

shelf at the back, under which are the nests, made with a brick or two and some straw, and some inches over which is the perch; the droppings then fall on the shelf, which should be sanded daily, and are instantly removed. The outside run should have some inches deep of dry earth, raked over two or three times a week, and occasionally, as it gets foul, removed entirely, and replaced by fresh earth from the garden: this benefits both. The cock will rarely annoy the neighbours by crowing early if the house be made quite dark until the window is opened in the morning. The food should be, in the morning, soaked scraps and bits of bread, boiled potato peelings, &c., boiled and mixed with sharps or middlings, in the winter given warm and sprinkled with a very little pepper, but not in the summer; in the evening grain, such as wheat, barley, buckwheat, or dari. When thus confined, however, special care must be taken to give a good supply of green food, such as lettuce or grass, and clean water. A few chickens can be reared by borrowing or buying a broody hen.

When chickens are desired, the hen should be set on the ground, on some soft crushed straw, in a rather damp place if possible. In very dry warm weather, in fact, the nest should be pretty freely sprinkled with warm water when the hen is off, or few chickens will hatch; but this should not be done when it is cold. It is best to shut the hen on the nest, and take her off carefully at a stated hour every morning, when it can be seen she goes on again in good time. She ought not to be absent more than half an hour in warm weather, or twenty minutes in cold, and rarely will if regularly attended to, and then given ample food and water, and a dust-bath to rid herself of vermin; but instances are known of hens being absent for hours, and yet hatching well. The chicks break the shells on the twenty-first day, and nothing should be done to or given them for twenty hours at least, simply removing the shells. They need no food till that time has elapsed, when they will be dry and strong, and can be cooped out with the hen, for which a sheltered box coop with a barred front is much better than the common wicker coop. Their food should consist of oatmeal and bread-crumbs at first, mixed into a crumbly paste, with water or milk, and grits for the last feed;

and they ought to be fed every two hours, but this gradually diminishes till they come down to four times a day, while the bread is gradually left off, and the grits replaced by wheat, buckwheat, or dari; barley chickens will only eat when nearly starved. This frequent feeding, but taking care never to leave food behind, is the secret of rearing fine fowls. Breeding poultry for exhibition is now extensively carried on, and may be made profitable; but it requires still greater care and much special knowledge, which we cannot attempt to communicate here. Prize specimens of poultry have been known to sell for as much as £100, and £20 is by no means an uncommon price for a pretty perfect bird. Further information on this branch of poultry-keeping, as well as on the subject generally, can be found in special treatises devoted to the subject. (See "The Illustrated Book of Poultry," and "The Practical Poultry Keeper," by Mr. Lewis Wright.)

Poultry as Food.—As a rule, the flesh of poultry is regarded as light food, and more fitted for invalids than for strong men, or it is taken as an addition to other food rather than as a substitute for it. Although it is less stimulating than ordinary meat, poultry is by no means entirely devoid of nourishment; its unsuitability as food for constant use is to be attributed more to the absence of flavour rather than to any real deficiency of nutriment, and it might with advantage be much more generally used than it is. White-fleshed birds, such as the fowl, turkey, and others, are tenderer, more delicately flavoured, and more digestible than ducks and geese, and are therefore more suitable as diet for invalids. Although there is a general similarity of character by which the flesh of poultry may be readily distinguished, there are, at the same time, many apparent differences, attributable to the breed, food, and nature of the bird. The flesh also varies in different parts of the same animal, that on the wings and breast being whiter, drier, and of a more delicate taste than that on the legs. (*See also* CHICKENS.)

Pounce.—This is the gum of the common juniper, which is made into a fine powder, and when in this state is called pounce. Before the invention of blotting-paper it was scattered over writing to dry the ink; it is used in the preparation of varnish by painters, and it is also used by those who prepare materials for embroidery when a traced outline is required. In lieu of pounce, two substitutes can be used by the embroideress. When the pattern is to be traced on a black or dark-coloured ground, finely-pulverised pipe-clay answers the purpose; when the ground is white or light-coloured it is necessary to mix a little charcoal with the pipe-clay. The former alone is apt to begrime the work; it is therefore advisable to use the latter as well in combination.

Pounce-box.—A perforated box from which pounce powder is dredged over the surface. In the case of marking patterns a stump is found more effectual: this can be made of a piece of flannel twisted tightly, and having stout thread wound firmly round it. One end is cut off close and even, and this forms the stump; this vehicle should be often rubbed in the pounce in order that it may convey an ample quantity when it is rubbed over the pricked lines of the pattern.

Pouncet-box.—This was a small box like a snuff-box, but used as a scent-box, and with a perforated inner lid, after the manner of a vinaigrette. Shakespeare's description of the mode of using it is well known:—

> "——'Twixt his finger and his thumb he held
> A pouncet-box, which ever and anon
> He gave his nose," &c.

Pouncing Patterns.—Take thin paper, and trace on it the design from the original; when done, place it on a double piece of flannel. Take a No. 6 needle, and put a knot of sealing-wax on its head in order that it may be held the more conveniently; prick the lines regularly, making about two dozen holes to the inch (the flannel being underneath will make these holes more distinct): hold the needle upright while doing this work. When the design consists of geometrical figures which can be doubled in half or folded in quarters, it is well to follow this course, and to prick through the two or four sheets, for the representation will be more correct. When the pattern is pricked out, lay it on and fit it to the material, place weights on the corners to keep it in position, then rub the pounce over the lines two or three times, so that no hole may escape attention. If the pattern is not perfectly represented when the paper is taken away, the pounce must be shaken off, the paper replaced, and the process repeated.

Pound.—A standard weight (abbreviated lb.), consisting of 12 ounces troy or apothecaries' weight, and 16 ounces avoirdupois. A pound troy is equivalent to 5,760 grains, and a pound avoirdupois to 7,000 grains. (*See* APOTHECARIES' WEIGHT; AVOIRDUPOIS; TROY.)

Pound Cake is, strictly speaking, plum cake made with one pound each of all the ingredients except the spices. Slight variations are, however, permitted; wine or brandy is occasionally introduced, but the cake is sufficiently rich without it. Pound cake will keep a long time; but it is too rich to be particularly wholesome.

Poupée.—A doll. The word puppet has a similar meaning in the appellation puppet-show. Puppy is only the English form of the French term *poupée*, which not only means a doll, but a baby.

Poussin Lace. (*See* LACE.)

Pout, or Poult.—A name sometimes given to a fish of the cod kind. (*See also* POULT.)

Powder, Dover's.—This is the compound ipecacuanha powder of the Pharmacopœia; it is composed of ipecacuanha, sulphate of potash, and powdered opium. Ten grains of the powder contain one grain of opium; in this dose it is a most efficient remedy in divers complaints, as cold, bronchitis, diarrhœa, dysentery, &c. In small doses of from half a grain to a grain, Dover's powder, combined with rhubarb or grey powder, may be given with great benefit in

various ailments of childhood, as teething, troublesome skin diseases, gastric derangement, &c.

Powder, Detonating or Fulminating. (*See* DETONATING COMPOUNDS.)

Powder, Gun. (*See* GUNPOWDER.)

Powder, Hair. (*See* HAIR-POWDER.)

Powdered Meats.—Among the methods which have been employed to preserve meat for a lengthened period is that of first drying the lean portion by a gentle heat, and then grinding it to powder. This powder is either mixed with flour and made into biscuits, or hot water is added to it and it is made into soup. Soup made thus is somewhat rough in flavour, and is by no means so good as when made from fresh meat; but although the aroma of the meat has escaped under the influence of heat, its nutritive qualities are retained, and it is both wholesome and digestible. When vegetable flavourings and condiments have been added to it, the soup may be used both by the sick and the healthy. Powdered meat is mostly used in the preparation of meat biscuits, for the use of soldiers or travellers.

Powders, Cooking.—For the sake of convenience, various culinary and flavouring ingredients are preserved in the form of powders. Amongst the best known are curry powders, mushroom powders, baking powders, &c. It is necessary that these preparations, if they are to be of service, should be recently prepared. Their goodness quickly evaporates, and as they suffer from exposure to air and light, they should be kept in a dark place in closely-corked glass bottles, or in tin canisters from which the air is carefully excluded.

Powders, Cosmetic.—These are also called skin powders and face powders, from the circumstance that they are used in the nursery and by some ladies. They are of very questionable utility as an addition to beauty, and when containing lead are injurious. When containing bismuth they, under certain circumstances, prove a disfigurement, by turning brown. The simplest is made either of starch powder alone, or with a slight addition of orris-root powder, or of French chalk—not French white. Some of the harmless cosmetic powders are scented, and some are coloured, while some, which are very injurious, contain arsenic. Coloured powders may be made of starch, with rouge; but as we do not recommend their use we give no recipe. As regards white powders, the best is made of twenty-eight parts of starch and one of orris-root; and this is perfectly safe even for infants.

Powders, Effervescing.—These preparations present in a convenient form the materials for the manufacture on the instant of the favourite effervescent drinks. They are made of bicarbonate of soda, acid, and flavouring ingredients reduced to powder. When they are to be used it is necessary only that a portion should be dissolved in a little cold water, effervescence at once ensues, and a pleasant refreshing beverage is produced, which must be partaken of immediately. These powders should be preserved in closely-stoppered and perfectly dry glass bottles. Damp is particularly injurious to them.

Powders, Ink. (*See* INK POWDERS.)

Powders, Medical.—This is a favourite mode of administering medicine to children. Powders are usually given in jam, or some other substance which disguises the unpleasant taste of the physic. When they are given to adults, and are of a bulky character, they are best taken in gruel. Powders are too numerous to be described in detail here. Many of the more important kinds will be found referred to under their respective headings.

Powders, Metallic.—*Gold powder* can be made by putting some gold leaf into an earthen mortar with a little honey or thick gum-water, and then grinding the mixture till the gold is reduced to extremely minute particles. When this is done, a little warm water will wash out the honey or gum, leaving the gold behind in a pulverulent state. *Silver powder* is composed of twenty grains of silver dust, thirty grains of alum, quarter of an ounce of cream of tartar, quarter of an ounce of common salt, powdered and mixed together. There are a good many kinds of *bronze powders*. A copper-coloured bronze may be obtained by dissolving copper in aquafortis until it is saturated, and then putting some small pieces of iron into the solution, when the copper will be precipitated in the metallic state. The fluid must then be poured off, and the powder carefully washed, dried, and levigated.

Powders, Plate. (*See* ELECTRO-PLATE, CLEANING OF.)

Powders, Polishing. (*See* POLISHING POWDERS.)

Powders, Vermin. (*See* INSECTICIDES.)

Power-looms are machines invented to supersede the old hand-loom, the greater part of plain and figured weaving being now performed by them. Weaving by this powerful machine consists of four operations: (1) to shed the warp by means of the heddle-leaves; (2) to throw the shuttle; (3) to drive home the weft; (4) to unwind the chain from the warp-beam, and to draw it progressively forwards, and wind the finished web upon the cloth-beam by mechanism attached to the frame. The art of weaving may be said to have been entirely revolutionised by the introduction of the power-loom, and it is to Englishmen that the credit for this immense change is due. In 1678, a M. de Gennes invented "a new engine to make linen cloth without the aid of an artificer," water power being the motive force; but he never succeeded in getting his invention adopted. More than a hundred years later, a Kentish clergyman, Dr. Cartwright, happening to be conversing on the merits of Arkwright's spinning machinery with a number of manufacturers whom he had met at Matlock, threw out the suggestion that machinery for weaving ought to be invented, if they were to keep pace with the spinning. This idea was scouted as

impracticable; but Dr. Cartwright was a man of indomitable perseverance, and although at that time he had never even seen a weaver at work, he set about the task of inventing the power-loom. He succeeded, and took out his patent in 1787, afterwards setting up a weaving factory at Doncaster. Dr. Cartwright's loom, however, was a very imperfect machine, and has subsequently been much improved by Radcliffe, Horrocks, Marsland, and others, especially of late years. It has been very truly said that the power-loom is the very antithesis of slowness, dulness, and mystery—it is all swiftness, activity, and life.

Power of Attorney, or Letter of Attorney, is an instrument giving to a second person the authority to do any lawful act in the stead of the maker. The donor of the power is called the principal, the donee is called the attorney. It is either general or special. The nature of the instrument is to give the attorney the full power and authority of the maker or donor to accomplish the act intended to be performed; sometimes it is revocable, sometimes irrevocable. If it be an authority coupled with an interest—*e.g.*, if the attorney is authorised to collect debts, and pay thereout a debt due to himself—it is irrevocable. But revocable letters of attorney may be dissolved, either by acts of the parties or operation of law. The authority must be strictly pursued, and if the attorney, or donee, does less than the power, it is void; if more, it is good as far as the power goes, and void as to the rest; but both these rules have many exceptions. In executing a deed pursuant to his power, the attorney ought to seal and deliver, in the case of a simple power, in the name of his principal—*e.g.*, "A. B. by his attorney C. D.," and in the case of a power forming part of a security in his own name. Therefore leases, submissions to an award, and such-like, should be in the principal's name.

Pozzolana.—A soft tufaceous rock, extensive beds of which are found in the neighbourhood of Rome and Naples. It is much used in the manufacture of hydraulic cement, its excellent quality having been known as far back as the time of the ancient Romans, who used it in nearly all their buildings.

Practice.—A rule in arithmetic, by means of which calculations, involving the multiplication of quantities in different denominations, are abridged. The method may best be explained by an easy example. Thus, supposing it to be desired to find the value of 35 tons @ £3 10s.; by a mental process the 35 tons are looked at first as value £1 each = £35. Then, multiplying by 3: £35 × 3 = £105, the value @ £3 per ton. Then by adding ½ of £35 = £17 10s., we arrive at the total value of 35 tons @ £3 10s.—viz., £122 10s. In practice these calculations would be set out as follows:—

	£35
	3
	105
10s. | ½ |	17 10s.
	£122 10s.

The same principle of proportionate parts holds good for more complicated problems in Practice.

Præmunire (from *præmoneo*, to forewarn, &c.).—An offence affecting the Sovereign and his government, though not subjecting the offender to capital punishment. When anyone is said to incur a præmunire, it signifies that he incurs the penalty of being out of the king's protection, and of having his property forfeited to the Crown. It is so called from the words of the writ preparatory to the prosecution thereof, viz., *præmunire facias*—i.e., cause A.B. to be forewarned that he appear, &c. This writ is itself frequently termed a præmunire. There was also a celebrated Statute of Præmunire (16 Rich. II. c. 5), which was passed to restrain the exorbitant power claimed and exercised by the Pope in England; whence the offence of præmunire was the particular designation of the offence of maintaining the papal power in England as an *imperium in imperio*. The Statute enacts that whoever procures, at Rome or elsewhere, any translations, processes, excommunications, bulls, instruments, or other things which touch the king, against him, his crown, and realm, and all persons aiding and assisting therein, shall be put out of the king's protection, their lands and goods forfeited to the king's use, and they shall be attached by their bodies to answer to the king and his council, or process of *præmunire facias* shall be made out against him, as in any other case of provisors.

Prawn.—This delicate shell-fish (*Palæmon serratus*) resembles the shrimp in appearance, although it is much larger, more delicate in flavour, and more highly esteemed. Prawns are remarkable for a formidable serrated prong which juts out between the eyes. There are many varieties of prawns; those which inhabit the seas of warm climates attain a large size, and some of them exhibit very fine colours. The common prawn is abundant on the British coasts, although not so much so as the shrimp. It is from three to four inches long. It is caught in traps and baited nets, and is generally taken in the vicinity of rocks at a little distance from the shore. It is boiled before being used, and is extensively used for garnishing.

Precedence.—The differences of rank which exist in society are numerous and not always well defined. To determine the position which belongs to all persons in the social scale, rules of precedence have been drawn up, and the results appear in elaborate tables, which show the rank of all classes of the community. The Sovereign and royal family head the list, and then follow the respective dignities, from the Archbishop of Canterbury to ordinary citizens and burgesses. In this country one table is devoted to men and another to women, corresponding with it for the most part. The wives of archbishops and bishops have no special place assigned to them. There are rules of precedence for India, Ireland, Canada, &c.; also for the clerical, legal, medical, naval, and military professions, for ambassadors, and

for foreigners in England. These rules are acted upon on important public and social occasions. Precedence is recognised in other cases, even in that of domestic servants, to whom, by common consent and practice, a certain order or rank is prescribed and granted.

Precious Stones. (*See* GEMS.)

Precious Stones, To Dye, &c.—Few minerals exist which cannot in some sense be dyed; and by the aid of modern chemistry nearly all the hard stones used by engravers have been artificially coloured. In one process the stone is steeped in oil, part of which it will absorb and retain; "it is then placed in a capsule, covered with sulphuric acid, and heated to boiling-point; this heat is maintained until the sulphuric acid is evolved, when the stone is withdrawn and washed, and is found to have become black." If the texture of the stone is not perfectly uniform, the blackness will vary in depth, and be all the prettier for the variations of tint. The art of dyeing precious stones was known in ancient times, but modern scientific experiments have carried it much further. Chalcedony is dyed blue to imitate turquoise; the onyx is operated on with various results, &c. By the simple and skilled application of heat alone, the colour of some stones is changed, and they are made to resemble others of greater intrinsic value.

Precipitates.—Any solid deposit separated from a liquid solution through chemical agency is a precipitate. In pharmacy, however, the term has a special application to certain mercurial preparations. *Red precipitate* is the common name for the red oxide of mercury, a powerful medicine, happily less used now than it was in former days. It is only applied externally, and acts as an escharotic. *White precipitate* is the ammonio-chloride of mercury, which is made by adding ammonia to a solution of corrosive sublimate. This preparation is only for external application in the form of an ointment, and is principally employed in treating cutaneous affections. It is a most virulent poison, and is therefore used also for killing vermin. The chloride of mercury, familiarly known as calomel (*which see*), used to be called the *mild precipitate* of mercury.

Preference Shares.—Shares issued by any joint-stock company bearing a fixed rate of interest, which interest is paid in *preference*, i.e., before any dividend upon the ordinary shares. Preference shares rank next to debentures (*which see*), so that even if the company be in a non-prosperous condition, the dividend on them will be paid, so long as the net profits are sufficient, even when the ordinary shareholders receive nothing on their investment.

Premises.—Matter previously stated or set forth. In a deed the premises comprise all that part which precedes the *habendum*—i.e., the date, the parties' names and descriptions, the recitals, the consideration and the receipt thereof, the grant, the description of the things granted, and the exceptions. So, in pleading, the word is used in its logical sense, as signifying foregoing statements or previously-mentioned facts. Thus, in a declaration in *indebitatus assumpsit*, the plaintiff, after alleging that the defendant was indebted to him in a given sum of money, proceeded to state that in consideration of the premises the defendant promised to pay the same. So again, in a declaration for the diversion of water from a watercourse, the plaintiff, after stating his right to the enjoyment of the water, and his previous use of the same, and setting forth the fact and the nature of the diversion, then proceeds to point out the injurious consequences which have flowed from the previously-stated facts, in the following manner:—"And the plaintiff, by reason of the premises, hath been deprived of the use, benefit, and advantage of the water of the said watercourse." The common application of the word "premises," as in the phrase "eligible premises," is an abuse of it, derived apparently from its frequent use in conveyances and leases of lands and houses.

Premium.—This term is derived from the Latin *præmium*, profit, and is used in several different senses. In its widest signification a premium is a reward or bounty offered in return for something, such as the loan of money or the obtainment of some position of profit. In a special sense a premium is an annual sum paid on a fire insurance or life assurance policy, or to underwriters on any policy of insurance. In finance, a premium is a sum paid for the ownership of any stocks or shares in excess of their nominal value.

Premunire. (*See* PRÆMUNIRE.)

Preparatory Schools. (*See* SCHOOLS.)

Pre-Raphaelitism.—This term is applied to a style of pictorial art which preceded Raphael, or Raffaelle, who was born in 1483. It forms part of what is generally styled mediævalism, and its great principle has been declared to consist in "going to nature—rejecting nothing, selecting nothing, and scorning nothing." A hostile critic declares it to be a "novel fashion of surveying mountains through inverted telescopes, and magnifying mice and little fishes." It carefully delineates the minutest features of the objects represented, and by this means, as well as by exact colouring, gives prominence to details, upon the colour, form, and grouping of which it necessarily extends its energies. There is no doubt much to be said in its favour on the score of effect, which is often striking and brilliant; and it has become very popular at the hands of some of our most able artists. But the objections to it are weighty, and its general adoption tends to diminish our appreciation of those grand masters of the Italian school who were poets as well as painters, and ideal as well as real.

Prerogative, Royal, means all those rights and privileges which by law the Sovereign has, as chief of the commonwealth, and as entrusted with the execution of the laws, according to Magna Charta. (*See* CHARTA, MAGNA.) We shall here briefly analyse those articles which are enumerated by Lord Chief Baron Comyns in his Digest as belonging to the royal prerogative, premising only that many things are laid down in our law-books

from ancient authorities which do not thoroughly accord with the spirit of our Constitution, as improved at the Revolution, and that everything which is contrary to that spirit may be well questioned to be law at the present day. 1. As to domestic concerns, the care of the marriages in the royal family belongs to the Sovereign. 2. As to foreign nations, he or she has the sovereignty of the seas surrounding England, and may make treaties and alliances, and send ambassadors, &c., to foreign States. He or she may, in virtue of the same right, grant reprisals by taking the goods of foreign subjects here or elsewhere, and is entitled to all prizes. The Sovereign may also grant letters of safe conduct to an enemy, and without these it is said a foreign prince, though in amity, cannot come here. 3. He or she has the sole authority to declare war or peace, to levy soldiers, and to impress seamen; also the sole command of the forces, militia as well as regulars. 4. In regard to times of peace, the Sovereign enacts laws with Parliament, but cannot by grant or charter alter the law. 5. As to religion, he or she is head of the Established Church, and has jurisdiction in all ecclesiastical causes and ecclesiastical laws. He or she may, with his or her commissioners, pass ecclesiastical censure, and shall have the ordering of all ecclesiastical appeals. 6. The Sovereign's prerogative as to temporal jurisdiction enables him or her to establish what courts he or she pleases for the administration of the common law; but he or she cannot erect any new court to administer any other law. He or she may grant franchises only, because all franchises and liberties are derived from the Sovereign. 7. As to nobility and honour, the Sovereign is the fountain of all dignity. He or she may also grant privileges, such as those of a forest chase, warren, park, fair, market, with tolls or casual profits, as wreck, waifs, strays, deodands, treasure-trove, royal fish, mines, derelict lands, most of which, together with certain privileges of trade, belong to the Sovereign. 8. As to offices, the Sovereign has the nomination of all public officers within the kingdom, but cannot create a new office with a fee, nor appoint an old office with a new fee, to burden the public, without Parliament. 9. As to matters of revenue, the Sovereign can alone coin money within his or her dominions. 10. As to casual profits, the Sovereign is entitled to all goods that have no owner, as wreck, flotsam and jetsam, waifs, strays, goods of felons, deodands, treasure-troves, escheats, and lands forfeited. He or she is entitled also to royal mines, and the fishery of every navigable river as high as the sea flows; but every one may fish in the sea of common right, although foreign nations cannot fish in the British seas without the Sovereign's licence. 11. All the lands in the kingdom are holden mediately or immediately of the Sovereign (*see* ALLODIAL), who has no superior, and this is the foundation of the law of forfeitures and escheats; but this, however in practice it may be harmless, is a principle rather derived from the divine right of kings than the spirit of the Revolution, which considers the Sovereign rather as deriving everything from the people, and holding the throne itself in trust. Whatever lands or tenements the Sovereign has belong to him or her in right of his or her crown, and are, says Lord Coke, called the sacred patrimony or demesnes of the Crown, and whether lands descend or are devised or given to him or her by Statute or otherwise, they go as parcel of the Crown. 12. The Sovereign by his or her prerogative may sue in what court he or she pleases, and shall not be prejudiced by any neglect to pursue his or her right, which is meant by the maxim, *nullum tempus occurrit regi*, or "no time runs against the king." By Statute 9 Geo. III. c. 16, the Sovereign's suit, however, except for liberties and franchises, is limited under certain conditions to sixty years for lands.

Prescription (from the Latin word *præscriptio*) signifies rules produced and authorised by long usage; custom continued till it has the force of law. Every species of prescription, by which property is acquired or lost, is founded on the presumption that he who has had a quiet and uninterrupted possession of anything for a long period of years is supposed to have a just right, without which he would not have been suffered to continue in the enjoyment of it. For a long possession may be considered as a better title than can commonly be produced, as it supposes an acquiescence in it by all other claimants; and that acquiescence also supposes some reason for which the claim was forborne. There are two kinds of prescription, viz.:—1. Negative, which relates to realty or corporeal hereditaments, whereby an uninterrupted possession for a given time gives the occupier a valid and unassailable title, by depriving all claimants of every stale right and deferred litigation, now mainly governed by 3 & 4 Wm. IV. c. 27. 2. Positive, which relates to incorporeal hereditaments, and originated at the common law from immemorial and long usage only. Positive prescription is subdivided into (1) that which has been exercised by a person and his ancestors, or by a body corporate and their predecessors, and is a personal right; (2) that which has been attached to the ownership of a certain estate, and is only exercisable by those possessed of the fee-simple of such estate, technically denominated a prescription in a *que* estate. Before the Act of 2 & 3 Wm. IV. c. 71, the possession required to constitute a prescription must have existed beyond the memory of man, or "time out of mind," as it is also termed—that is, before the reign of Richard I.; but now the period of possession necessary to constitute a title by prescription is in many cases considerably shortened by the above-named Act of Parliament.

Prescriptions, Medical.—These are the written directions of the medical attendant with regard to the medicines, &c., which he desires to be employed in the treatment of his patient. Prescriptions are generally unintelligible to the uninitiated, as the ingredients used have as a rule Latin names and terminations, and the quantities prescribed are represented by certain mysterious figures—numerals with dots. Thus one, two, four, or ten grains of any

substance are written as follows—gr. j., gr. ij., gr. iv., gr. x. If a fluid is ordered, then a drop or minim is substituted for the grain, and appears as ℿj., ℿij., ℿiv., ℿx. Again, if a scruple is prescribed, this is the figure, ℈j.; if two scruples, ℈ij.; if four scruples, ℈iv.; if ten, ℈x., and so on. If a drachm is ordered, it is written thus ʒj.; if two drachms, ʒij., just as above. If an ounce is prescribed, the figure appears as ℥j.; if two ounces, ℥ij., and so on. Lastly, a pint is represented by Oj.; a gallon by Cong. j., contractions of the Latin words for these measures. With regard to the directions as to how the medicine should be taken, it is now much more the custom than formerly to write these in plain English, there being thus less likelihood of any mistake occurring.

Presentations. (*See* INTRODUCTIONS.)

Presentations, Court. (*See* COURT PRESENTATIONS.)

Presentiments.—Forebodings or anticipations of something, usually calamitous, about to happen, are called presentiments. That such impressions are common, and are sometimes realised, is well known; but their importance is much diminished by the fact that they generally prove groundless. The remarkable coincidences which occasionally happen are remembered, while the cases in which nothing follows are forgotten. This seems to be the only reason why they are so seriously regarded. It is not always easy to account for them, or to explain them, but they are commonly due to some anxiety of mind respecting persons or events, rather than to any prophetic instinct or foresight. We fear that some untoward circumstance will happen, and if it comes to pass we call it a presentiment. There is, however, nothing in the constitution of the human mind which justifies the belief that any one, apart from a direct revelation, can know what a day may bring forth; we can therefore only regard belief in so-called presentiments as a superstition.

Presents.—The custom of giving presents on certain occasions is very wide-spread and popular, not to say useful. With us various events in domestic life, and several seasons of the year, are regarded as peculiarly adapted for giving presents; and there are many other circumstances which lead to the same mode of showing good-will or benevolence. It is not possible here to go into detail and to lay down rules for this form of kindness, but we may generally suggest that while the giving of presents is a graceful and kindly act, it requires a certain amount of discretion. Presents should be appropriate and useful as well as agreeable; we should not give to others what is a burden to ourselves and will prove a burden and an inconvenience to the receivers, or be at least useless to them. Bearing this principle in mind, persons will by a little ingenuity be able to do what is best for others, without imposing upon themselves an amount of expenditure and trouble which can ill be borne.

Preserving may be defined to be the art of preventing putrefaction or decomposition. The methods by which this is effected are very numerous, and vary according to the matter which has to be preserved. (*See following paragraphs.*)

Preserving Metals.—Polished iron-work may be preserved from rust by an inexpensive mixture, consisting of copal varnish well mixed with as much olive oil as will give it a degree of greasiness, adding thereto nearly as much spirit of turpentine as of varnish. The cast iron-work is best preserved by rubbing it with black-lead. But where rust has begun to make its appearance on grates or fire-irons, apply a mixture of tripoli with half its quantity of sulphur, mingled on a marble slab and laid on with a piece of soft leather; or emery and oil may be applied with equally good effect, but not laid on in the careless way so common with modern domestics, but with a piece of flannel, sponge, or linen, fully saturated with the mixture. This will not only clean, but polish, and thus render the use of whiting unnecessary. There are several ways of preserving steel goods from rust, the most simple being a thin covering of caoutchouc. This is an excellent preservative of iron and steel articles from the action of the air and moisture; its unalterability, consistence when heated, adhesion to iron and steel, and facility of removal, rendering it an admirable substance for the purpose. The caoutchouc should be melted in a close vessel to prevent its inflaming, and will require nearly the temperature of fusing lead, and must be stirred to prevent burning. Mix some oil with the caoutchouc, which renders it easily applicable, leaving the substance, when dry, as a firm varnish, impervious to moisture. This, when required, may easily be removed by a soft brush dipped in warm oil of turpentine. Another method consists of plunging the pieces to be preserved into a mixture of one part of concentrated solution of impure soda and three parts of water. A third plan of preserving steel goods, attributed to Mr. Pepys, is to merely wrap them in zinc foil. That gentleman found that a table-knife with a piece of zinc wrapped round it was preserved from rust, though soaked for a month in sea-water, while another knife not connected with zinc was very much corroded. This is available where the last recipe is not, particularly in the exportation of cutlery. Table-knives are best kept from rust by having the ferrules made of zinc, or, if not in use, by being wrapped in zinc foil or in a cloth with pieces of zinc. Knife-boxes, scissor-sheaths, sword-cases, &c., should always, if practicable, be made of zinc.

Preserving-pan.—This utensil is used for making jams, jellies, and marmalades. It is usually made of copper lined with tin, and it is most important that it should be examined frequently, so that if the tinned part wears away it may be renewed. Tin is dissolvable by acid, and as all fruit is more or less acid, the coating of a preserving-pan quickly becomes imperfect. These pans should be cleaned with scrupulous care, and if two or three lots of fruit are boiled in one day, the pan should be cleaned between the boilings, as otherwise the fruit will be in danger of burning.

Preserving Provisions.—Nearly all animal foods, as well as fruits and vegetables, are capable of preservation, and during late years many improved and efficient methods have been adopted for the purpose. The preservation of meat is accomplished by means of salting, drying, smoking, pressure, and other ways, many of which are highly successful. (*See* Australian Foods; Dried Fruits; Dried Meats, Fish, &c.; Dried Vegetables; Drying Herbs, &c.; Fruit, Preserved, &c.; Fruit, Storing; Meats, Preserved; Potted Provisions; Powdered Meats.)

Preserving Specimens.—Information respecting the course to be adopted for the preservation of natural history specimens will be found in the course of this work under the headings of Butterflies; Mosses; Plants; Sea-weed; Skins; Stuffing. Insects in general require no preparation, but when dead may be at once mounted by the insertion of a pin through them into the cork bottom of the case constructed for the purpose.

Press.—A wooden case in which clothes are so packed as to preserve their smoothness bears this name.

Press-bed.—A press-bed is one which folds up, when not in use, into a wooden case, which sometimes assumes the outside appearance of a portable cupboard or press, and sometimes that of a chest of drawers or some similar article of furniture.

Press, Copying. (*See* Copying Machine.)

Press, Embossing. (*See* Embossing Presses.)

Press, Errors of the, To Correct. (*See* Proofs, Correction of.)

Press-gang.—The name popularly given to a band of seamen who, under an inferior officer, were empowered to "press," or rather impress, men for the king's service on board ships of war. The presence of a press-gang was usually in close proximity to seaports, so that any likely man seized by them forcibly could be at once hurried on board a ship. This disreputable system lingered on in the later wars with Napoleon, and was a great hardship. Seamen and watermen were especially selected, but many times landsmen were seized. As might be expected, serious encounters often took place. Impressment, as it was called, was regulated by Acts of Parliament, and these, although in abeyance, have not, so far as we know, been repealed.

Presumption of Life or Death.—Where a person is once shown to have been living, the law will in general presume that he is still alive, unless after a lapse of time considerably exceeding the ordinary duration of human life; but if there be evidence of his continuous unexplained absence from home, and of the non-receipt of intelligence concerning him for a period of seven years, the presumption of life ceases. But although a person who has not been heard of for seven years is in such circumstances presumed to be dead, the law raises no presumption as to the time of his death; and therefore if any one has to establish the precise time during those seven years at which such person died, he must do so by evidence.

Price Current.—The commercial name of a list of the current prices realised by various commodities in the market. Such a list was formerly published in London once a week; and similar lists now appear not only in London, but elsewhere. For private use some great houses keep blank forms for the regular entry of the market prices.

Pricked Wine.—This term is applied to wine that has become tart or sour, owing either to some mistake in its manufacture, or to its being imperfectly bottled. Wine in this condition may be restored by the use of tartarised spirits of wine; each bottle will require an ounce of the spirit. After being well shaken, the wine must remain quiet for a few days, when it will be much improved. It is advisable, when any acidity is detected in wine, to add a little brandy or good old wine, which will prevent the tartness increasing. When wine is kept in casks it may be preserved from sourness by putting into it the powder of mussel and cockle shells. The powder must be tied up in a linen bag to prevent any deposit or muddiness making its appearance should the cask be shaken. Tartness is usually caused by want of body. Good wine, like strong beer, may be kept for years; but wine that has been stinted in the quantity of fruit and sugar will remain free from acidity for only a very short time.

Pricking for Sheriffs.—The ceremony of making returns to the Privy Council by the judges of assize of three persons for each county in England and Wales from whom to select the sheriff for the ensuing year. This ceremony takes place in the Court of Exchequer every 13th of November. Originally the sheriffs were chosen by the people in their folkmote, or County Court; but these popular elections growing tumultuous, and the Crown also seeking to augment its influence in Parliament, they were put an end to by the Statute 9 Edward II. The present custom dates from the reign of Henry VI. One of the three persons chosen is afterwards appointed sheriff, and this was done by marking each name so chosen with the prick of a pin, hence the term.

Prickwood. (*See* Spindle-tree.)

Primary or Primitive Colours.—The primary colours are blue, red, and yellow, so called because, although from them most or all other colours may be compounded, no other colours will supply their place. The colours formed by the mixture of two primary colours are called secondary; as, for instance, blue and yellow, or red and yellow, the one combination forming green, the other orange. The most brilliant contrasts of colour are formed by placing the unmixed primary colour beside the other primary colours in combination; thus blue looks brightest and most intense when placed beside orange (red and yellow), and red when placed beside green (blue and yellow).

Primary or Primitive Rocks.—The nomenclature in geological science has suffered

considerable change, and these terms bear somewhat different meanings in the writings of the chief authorities. The older writers generally classed all granites and syenites and other highly crystalline rocks as "primary," believing them to be the oldest in time. The metamorphic rocks which possessed an evident stratification were included by some geologists under the same denomination, while others have distinguished them as "transition." More recently the term primary, or primitive, has had a wider application, including the palæozoic as well as the azoic rocks—that is, those which contain remains of the oldest forms of life, as well as those which are destitute of any evidence of organic life. This latter classification is the more convenient, as many of the crystalline rocks are now known to be of more recent origin than some of the stratified beds, and therefore to call them primary simply on the ground of their internal structure was liable to produce misconception.

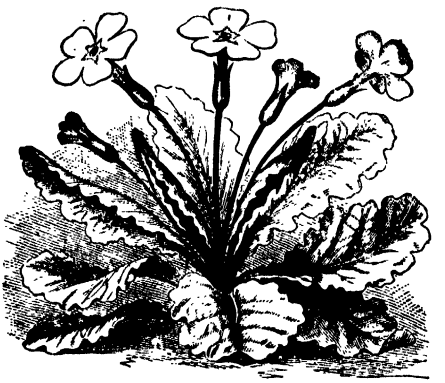
Primate.—The chief ecclesiastic; an archbishop. With us the Archbishop of Canterbury is styled "Primate of All England;" the Archbishop of York, "Primate of England."

Primer.—A first book for children in any subject (Latin, *primus*, first).

Priming.—Wood is prepared for painting, first by smoothing its surface and removing dirt or dust, then by "killing" the knots (applying wet lime to them, and afterwards a heated iron to melt out the resin or turpentine) by stopping holes or cracks with putty, and then by "priming" either with linseed oil and red-lead, or the latter mixed with size, the former for out-door, the latter for in-door work. For fresco the preparatory priming consists of a coat of freshly-laid plaster of lime and sand. For distemper painting the priming consists of whiting and melted size, used thin. To prepare paper for painting, *see* PRINTS, TO COLOUR. Metal is primed as wood is, after being rubbed in one direction only with coarse sand-paper.

Primogeniture. — Seniority; the first-born. The right of the eldest son to inherit his father's estate to the exclusion of the younger sons, or, as the canon of descent has it, "That where there are two or more males in equal degree, the eldest only shall inherit." The law of primogeniture became generally established in England in the time of Henry III., during whose reign also the lineal descent of the Crown to the infant issue of an elder brother in preference to a younger brother was established. Gavelkind (in which all the sons inherit equally) still, however, remains the common law of Kent. (*See* INHERITANCE.)

Primrose, "earliest daughter of the spring," is one of the commonest, most sweetly scented, and prettiest flowers that adorn our hedgerows. It is the *Primula vulgaris* of the botanist. In the wild state it is pale yellow, but cultivated kinds may be of various colours; the magenta, for instance, is very pretty. Primroses are easily cultivated, and suit rockeries very well. They are best propagated by division of the roots, which should be done as soon as they



PRIMROSE.

have ceased flowering. The best soil for them is a mixture of loam and peat.

Primrose, Evening. (*See* EVENING PRIMROSE.)

Prince and Princess.—In this country we practically limit the application of these words to members of the royal family; but in some Continental states there are many princes and princesses who are not related to royalty—at least not necessarily so. Even among ourselves cases are on record in which the style of prince is conceded to dukes, marquises, and earls; this, however, is only an occasional and not a regular title, and is one chiefly, if not exclusively, found in documents emanating from the Sovereign.



PRINCE OF WALES'S CORONET.

Prince's Metal. (*See* GOLD, DUTCH.)

Printing.—The art or practice of taking impressions from letters, characters, figures, engravings, &c., on paper or other material. The art of letter-press printing, *i.e.*, printing from movable types, is of comparatively modern origin in Europe, the first book having been printed little more than four centuries ago; but it is certain that a rude kind of printing was practised in the East at a very early period, the Assyrians using stamps to impress figures and characters on bricks and other substances. The Chinese, too, are said to have practised a somewhat similar style of printing fifty years before the Christian era, but very little improvement in the art has been made by them in succeeding centuries. Even now the majority of their books are printed from blocks, on which the letters forming a page are separately engraved. Among the Romans a rude kind of printing from stamps was also known, but printed books or papers were of course unheard of. The earliest books were written on rolls, and it was not till the Middle Ages

that bound books came into use. (*See* BOOKS.) The immediate precursors of letter-press printing were the *block* books—books printed from engraved blocks of wood, the art having been invented in Holland; such books must have resembled in a great measure those printed by the Chinese. Prints from engravings were perhaps known as early as the thirteenth century; but from about the year 1438 may be traced the great invention of printing from movable types, which, as has been truly remarked, has, by rendering books cheap and accessible to all, in a great measure revolutionised the world. Born at the beginning of the fifteenth century, there settled at Strasburg about 1424 one John Gutenberg, a native of Mentz, and to him is due the credit of the wonderful invention of letter-press printing. He seems to have commenced operations at Strasburg, but for pecuniary reasons he was obliged to return to his native place, where he entered into partnership with a wealthy goldsmith—one John Fust, or Faust. As the result of this partnership, there was printed on vellum, between 1450 and 1455, an edition of the Vulgate, now known as the Mentz or Mazarin Bible, so called because a copy of it was discovered in Cardinal Mazarin's house at Paris. The partnership between Gutenberg and Fust seems to have been dissolved soon after this, and the whole of the printing apparatus fell into the hands of Fust, who, according to D'Israeli, "printed off a considerable number of copies of the Bible, to imitate those which were commonly sold as MSS.," and sold them as such in Paris. This Bible was printed with large cut metal types; but in 1457 appeared the first book printed from cast types—an edition of the Psalter, the work of Fust and his son-in-law and partner, Peter Schœffer. In this work the secret of the new invention was disclosed. From this time the knowledge of the art spread rapidly over Europe; many of Fust and Schœffer's workmen were dispersed into various countries, carrying the art with them, and before 1500 A.D. printing-presses had been set up in no less than two hundred and twenty places. It is generally believed that printing was introduced into England by William Caxton in 1471. Since then the art has made rapid progress, and the cost of producing books has been reduced to an almost nominal figure. (*See also* ENGRAVING; LITHOGRAPHY.)

Prints. — These form one of the most useful materials for dresses. They are strong, durable, and serviceable in every respect; they can be washed repeatedly, and as a rule look equal to new after the process for a considerable period of time. Lilac and pink are the colours which stand the fastest; blue, if not of a very bright nature, and brown, if of a deep shade, will remain undimmed; green and mauve are very fleeting colours. The continuance of the colours depends greatly upon the laundress; if soda is put in the water, the colours will be spoilt. The calico of which prints are made is singed; thus all the nap and fluff are taken from the surface. It is then bleached, for the whiter the ground, the more brilliant the colours will be; afterwards it is made very smooth, and then it is ready to receive the colours and pattern. The designs are engraved on copper cylinders. Both designers and engravers receive high wages for the execution of this; and as constant variety of style and a multiplicity of patterns are required, the process of printing is very costly. The enormous demand in the home and foreign markets for English printed goods enables them to be sold at a very cheap rate. Besides cotton materials, flannels, cretonnes, felts, and thin cloths are printed. The first-mentioned are used for dressing-gowns, the second for furniture, the third for druggets, and the last-named for table-covers.

Prints (Engravings), To Colour.—Prints are prepared by sizing for colouring, and the colours used are the ordinary water-colours. A good size for prints which are to be coloured is made with four ounces of the best pale glue, mixed with the same quantity of white curd soap, dissolved with two ounces of powdered alum in three pints of hot water. (*See* PRINTS, TO VARNISH.)

Prints, To Mount.—Slightly damp the print at the back, and place it face downward on a flat clean surface. Brush paste lightly over the back, so that every part may be evenly covered. Let it remain a minute or two; then take it up by the top opposite corners, and place it on the mount, pressing it carefully down from top to bottom with a firm uniform pressure, so as to exclude air-bubbles or blisters; next place over it some clean paper and a flat board, on which place a weight or some heavy article. If the print is to be mounted on calico, a slight frame of wood will be required, on which the calico is strained, after the print has been damped and mounted upon it, in the way described for mounting maps. (*See* MAPS, TO MOUNT.)

Prints, To Transfer.—To transfer prints to wood for decoration, or to glass for magic-lantern slides, &c., the following means may be adopted:—If to wood, its surface must in the first place be rendered clean and smooth with pumice-stone and water. A thin coat of white hard-drying varnish is next applied to the wood. Before this is quite dry, the print, having been sponged over with clean water on the back and the surplus water removed by pressure between a sheet of paper, is placed carefully face downward on the varnished surface, to which it is pressed close with a damp cloth, avoiding bubbles. The print—which must be on unsized paper—is then put aside to become dry, after which the paper of the print is rubbed away with the finger, and the ink forming the print is left firmly attached to the varnish. A coat of varnish completes the process. Should bubbles interfere with the laying down, prick them with a pin to let the air which forms them escape, and then rub down with the finger. Put the print in hot water until it sinks, to remove the size if it is necessary. To transfer to glass, coat the surface when perfectly clean with Venice turpentine, and gently warm it to equalise the coat, and press it upon the print until it adheres; when

dry, remove the paper in the way above described, and render the transfer transparent by soaking it in oil of turpentine. When dry it will be ready for colouring.

Prints, To Varnish.—The best varnish for prints is a compound of benzol and almond oil. This gives no glaze, and is used by photographers for the preservation of photographs upon plain paper. Another varnish which has been strongly recommended consists of Canada balsam one ounce, and spirits of turpentine two ounces, well mixed. This is to be applied to sized paper only. If the print is unsized, a solution of isinglass in water should be applied before varnishing. Mastic varnish is also used after sizing. If the size soaks into the paper without leaving a slight glaze on the surface, it is too thin, and the process must be repeated.

Prism. — In geometry, this is a name applied to a solid figure of three or more sides, the dimensions of which must be the same throughout: hence an obelisk is not a prism, because it is smaller at one end than at the other. Not only must the dimensions of every part be equal, but the angles must form a straight line; and therefore a twisted figure with flat sides is not a prism. As the prism must have sides, it is distinguished from a cylinder. In optics, a prism is a three-sided bar of glass, any cross section of which shows an isosceles triangle with an acute angle at the vertex. The glass is transparent and polished, and a ray of light passing through it is decomposed, and appears in various colours, which are called prismatic.

Prismatic Colours. (*See* PRISM.)

Prison.—A gaol or place of confinement, the inmates of which are prisoners. Lord Coke observes that a prison is only a place of safe custody, and not a place of punishment. Any place where a person is confined may be said to be a prison; and when a process is issued against one, he must, when arrested thereon, either be committed to prison, or be bound in a recognisance with sureties, or else give bail, according to the nature of the case, to appear at a certain day in court, there to make answer to what is alleged against him. When a person is taken and sent to prison in a civil case, he may be released by the plaintiff in the suit; but if it be for treason or felony, he may not regularly be discharged until he is indicted of the fact and acquitted. Arrest on civil process is now, however, almost entirely abolished. (*See* ARREST.)

Private Communications. (*See next paragraph.*)

Privileged Communications.—These are of various kinds, and may be either spoken or written, according to circumstances. If an employer gives a discharged servant a character, whether written or not, to one *bonâ fide* applying for it, it is regarded as a privileged communication, and if true and not malicious, no action can be brought against him for it. True evidence given by a witness in a court of law is similarly privileged. Communications made by a client to his legal advisers are so far privileged that the recipients are not compelled to divulge them. In ordinary criminal cases, husband and wife cannot give evidence against each other; in exceptional cases they can, as in trials for assault, bigamy, divorce, &c. It frequently happens that the question whether a document or statement is privileged must be decided in a court of law. As a rule, prudent people will be careful how they incriminate others, and will remember that a communication is not made privileged by the mere exaction of secrecy, or the best intentions in the world.

Privileged Debts are debts which an executor or administrator must pay in preference to all others—such as sick-bed and funeral expenses, the expenses of mourning, servants' wages, &c. Also in bankruptcy proceedings, the following classes of debts are, under the Act of 1869, privileged—*i.e.*, entitled to priority of payment:—(1) Parochial and other local rates; (2) assessed taxes; (3) land tax; (4) property or income tax up to the 5th of April preceding—in each of these cases to the extent of one year's arrears only; (5) wages or salaries of clerks or servants, not exceeding four months' arrears or £50; (6) wages of labourers and workmen, not exceeding two months' arrears.

Privy Council is the principal council belonging to the Sovereign, and is generally termed, by way of eminence, "the Council." Privy Councillors are created by the Sovereign's nomination, without either patent or grant, and on taking the necessary oaths they become immediately Privy Councillors during the life of the Sovereign that chooses them, but subject to removal at his or her discretion. No inconvenience now arises from the extension of the number of the Privy Council, as those only attend who are specially summoned for that particular occasion. The duty of a Privy Councillor appears from the oath of office, which consists of seven articles:—(1) To advise the Sovereign according to the best of his cunning and discretion; (2) to advise for the Sovereign's honour and good of the public, without partiality, through affection, love, meed, doubt, or dread; (3) to keep the Sovereign's council secret; (4) to avoid corruption; (5) to help and strengthen the execution of what shall be there resolved; (6) to withstand all persons who would attempt the contrary; and lastly, in general (7), to observe, keep, and do all that a good and true counsellor ought to do to his Sovereign. The Privy Council is the *primum mobile* of the state, and that which gives the motion and direction to all the inferior parts. It is likewise a court of justice of great antiquity, the primitive and ordinary mode of government in England being by the Sovereign and Privy Council. It has been frequently used by all our Sovereigns for determining controversies of great importance. The ordinary judges have sometimes declined giving judgment till they have consulted the Sovereign and Privy Council; and the Parliament has frequently referred matters of high moment to the same, as being by long experience better able to judge of, and, by their secrecy and expedition, to transact some state affairs, than

the Lords and Commons. At present the Privy Council takes cognisance of few or no matters except such as cannot well be determined by the known laws and ordinary courts, such as matters of complaint and sudden emergencies, their constant business being to consult for the public good in affairs of state. This power of the Privy Council is to inquire into all offences against the Government, and to commit the offenders to safe custody, in order to take their trial in some of the courts of law. But their jurisdiction herein is only to inquire, and not to punish; and the persons committed by them are entitled to their *habeas corpus* by Statute 16 Chas. II. c. 10, as much as if committed by an ordinary justice of the peace. The *Judicial Committee* of the Privy Council is a tribunal established by several Statutes for the disposal of appeals and such other matters as the Sovereign in council may refer to them. No one is qualified to be on this committee who is not or has not been a judge of the superior courts, or a chief justice of the high court in Calcutta, Madras, or Bombay.

Privy Seal and Privy Signet.—The Privy Seal is a seal of the Sovereign, under which charters, pardons, &c., signed by the Sovereign, pass before they come to the Great Seal, and also used for some documents of less consequence, which do not pass the Great Seal at all, such as discharges of recognisances, debts, &c. The Privy Signet is one of the Sovereign's seals, used in sealing his private letters, and all such grants as pass his hand by bill signed, which seal is always in the custody of the Sovereign's secretaries. There were formerly four clerks of the Signet Office; but by 14 & 15 Vict. c. 82, s. 3, the offices of the clerks of the Signet and of the Privy Seal are abolished. The practice as to the passing of letters under these seals was altered and simplified by this Statute. (*See* GREAT SEAL.)

Prizes, School.—The custom of giving prizes at colleges and schools to students who have made a certain amount of progress, or have distinguished themselves by their general conduct and at examinations, needs no explanation. It is strongly advocated by some, and its general adoption proves it to be popular, but it is regarded as open to certain objections. To make it worth anything, prize-giving should not be indiscriminate, neither should it depend on favouritism. Besides, prizes given for passing successful examinations are by no means certain tests of the highest proficiency; it very often happens that those who fail to win them, owing to constitutional peculiarities or temporary influences, are yet in advance of those who succeed. Evidently the whole matter calls for much discretion, in order that as far as possible prizes, where given, should fall into the right hands.

Probate.—The engrossment or copy of a will or testament made out on parchment under the seal formerly of the ordinary, now of the Probate branch of the High Court of Justice, and usually delivered to the executor or administrator of the deceased, together with a certificate of the will having been proved, is commonly called the probate. The proving of a will may be thus explained:—An executor before he is allowed to take probate of the will is obliged to swear, formerly before the ordinary or his surrogate, and now before a registrar of the Court of Probate or a commission for administering oaths, that the writing propounded contains the true last will and testament of the deceased as far as he knows or believes, and that he will truly perform the same by paying first the testator's debts, and then the legacies therein contained, as far as the goods, chattels, and credits of the deceased will thereto extend and the law charge him, and that he will make a true and perfect inventory of all the goods, chattels, and credits, and exhibit the same into the registry of the court at the time assigned by the Court, and render a just account thereof when lawfully required. (*See* EXECUTOR.)

Probate and Administration Duty is regulated by the Statutes 55 Geo. III. c. 184, schedule part 3, and 22 & 23 Vict. c. 36, s. 1, and is as follows:—

	Probates of Wills and Letters of Administration with Will annexed.				Administration without a Will.
*Above	£20 and under	£50	10s.	...	10s.
*Amounting to	50	„ 100	10s.	...	£1
„	100	„ 200	£2	...	3
„	200	„ 300	5	...	8
„	300	„ 450	8	...	11
„	450	„ 600	11	...	15
„	600	„ 800	15	...	22
„	800	„ 1,000	22	...	30
„	1,000	„ 1,500	30	...	45
„	1,500	„ 2,000	40	...	60
„	2,000	„ 3,000	50	...	75
„	3,000	„ 4,000	60	...	90
„	4,000	„ 5,000	80	...	120
„	5,000	„ 6,000	100	...	150
„	6,000	„ 7,000	120	...	180
„	7,000	„ 8,000	140	...	210
„	8,000	„ 9,000	160	...	240
„	9,000	„ 10,000	180	...	270
„	10,000	„ 12,000	200	...	300
„	12,000	„ 14,000	220	...	330
„	14,000	„ 16,000	250	...	375
„	16,000	„ 18,000	280	...	420
„	18,000	„ 20,000	310	...	465
„	20,000	„ 25,000	350	...	525
„	25,000	„ 30,000	400	...	600
„	30,000	„ 35,000	450	...	675
„	35,000	„ 40,000	525	...	785
„	40,000	„ 45,000	600	...	900
„	45,000	„ 50,000	675	...	1,010
„	50,000	„ 60,000	750	...	1,125
„	60,000	„ 70,000	900	...	1,350
„	70,000	„ 80,000	1,050	...	1,575
„	80,000	„ 90,000	1,200	...	1,800
„	90,000	„ 100,000	1,350	...	2,025
„	100,000	„ 120,000	1,500	...	2,250
„	120,000	„ 140,000	1,800	...	2,700
„	140,000	„ 160,000	2,100	...	3,150
„	160,000	„ 180,000	2,400	...	3,600
„	180,000	„ 200,000	2,700	...	4,050
„	200,000	„ 250,000	3,000	...	4,500
„	250,000	„ 300,000	3,750	...	5,625
„	300,000	„ 350,000	4,500	...	6,750
„	350,000	„ 400,000	5,250	...	7,875
„	400,000	„ 500,000	6,000	...	9,000
„	500,000	„ 600,000	7,500	...	11,250
„	600,000	„ 700,000	9,000	...	13,500
„	700,000	„ 800,000	10,500	...	15,750
„	800,000	„ 900,000	12,000	...	18,000
„	900,000	„ 1,000,000	13,500	...	20,250
Above £1,000,000, for every £100,000, and any fractional part of £100,000	...	...	... 1,500	...	2,250

*The 27 & 28 Vict. c. 56, exempts Probates and Letters of Administration from Stamp Duty where the whole estate of the person dying after 25th of July, 1864, shall not exceed £100; but the old duties upon estates under £100 are still payable where persons have died before the passing of this Act.

They are also payable in respect of limited probates and administration, unless the practitioner certifies to the Registrars that the sum in question is the whole estate. By 31 & 32 Vict. c. 24, mortgage debts solely charged on leaseholds may be deducted from the value thereof for probate, &c.

Probationers.—Persons on trial with a view to some definite appointment or election. In Scotland the word is commonly applied to divinity students who, on the production of certificates from university professors, are allowed to make trials of their qualifications before receiving regular licences to preach.

Probe.—This is an instrument used by surgeons in exploring the depth and extent of a wound, and in detecting any foreign body, as a bullet, splinter, &c., which may be lodged in it. It is also useful in ascertaining whether the bone is injured or diseased. A probe is between four and five inches long, about as thick as a good-sized knitting-needle, has a blunt point, and is usually made of silver.

Proboscis.—The proboscis of the elephant is a flexible pipe, some eight feet in length, with which the animal has the power to pick up and carry minute things, and also substances of considerable weight. By this means it conveys food to its mouth. This extension of the nose —as it is in reality—is commonly called the trunk. Elephants are capable of making a noise resembling that of a trumpet; when doing this they throw the proboscis up in the air. The term is also applied to a certain class of insects which imbibe blood from animals by means of a proboscis, such as the gnat, gadfly, and others of a like kind.

Proceedings, Legal.—This term signifies the several steps or process in any action or prosecution, real or personal, civil or criminal, from the commencement to the end. Strictly, process means the summons by which any one is cited into a court, because it is the beginning or principal part thereof, by which the rest is directed.

Process, Legal. (*See preceding paragraph.*)

Proctor.—(1) A manager of another's affairs; (2) a species of constable in our universities; (3) an officer of the Ecclesiastical Courts while these existed. From the jurisdiction of the Ecclesiastical Courts having been mainly abolished, the 20 & 21 Vict. c. 77, ss. 43, 105, 106, and c. 85, s. 69, awarded compensation to the proctors, and admitted them to practise, not only in the Probate and Divorce Courts, but also in the Courts of Equity and Common Law. By 33 & 34 Vict. c. 28, s. 20, solicitors are authorised to practise as proctors, and the office of proctor has thus ceased to be an exclusive profession.

Profits.—The gains arising from the pursuit of a trade or profession. Wages or earnings are said to be all profits, where no expenditure of money is involved. The profits of a trader are his gains after his expenses and other outlay are deducted. Interest accruing from the investment of money, rents of property, annuities, and other forms of income are profits, the extent of which is what remains after deducting current charges—in other words, the net result. (*See* INCOMES,)

Prognostics.—Signs or tokens of something future, such as the state of the weather, the result of symptoms in disease, and many other things. The word sometimes denotes the arts by which diviners pretend to foretell future events; under which head may be classed the utterances of astrologers and fortune-tellers, and similar delusions and impostures.

Promenade Dresses.—In selecting the material, combinations of colour, and general style of a promenade dress, it should be remembered that the whole of that costume is seen at a glance, and is far more exposed to view than an in-door toilette. There is also more to be borne in mind, as it consists of so many articles: the bonnet or hat, the over-costume—cloak, mantle, shawl, scarf, or other garment in vogue at the time—the boots, gloves, and parasol, harmony in colouring, and suitability in shape and material as well as colour (in reference to the form and size, to season of the year, the age of the wearer, and the occasion on which the dress is to be worn), are to be duly consulted. Costumes in linen and cotton materials may be worn out of doors by those for whom they are suitable till mid-day; after that—the time for paying and receiving visits—it would be a mark of disrespect to others as well as to self to appear in any style of "undress." Stuff materials, mohair, grenadine, velvet, silk, and satin should compose promenade costumes. The last-named material was formerly worn exclusively as evening dress, but its suitability for out-door wear appears to be now conceded. Age and personal appearance must influence the choice of colours as much as their relative harmony. The length of skirt varies with other changes of fashion; thin, light-coloured costumes look ill even in summer on a dark windy day. Bonnets suit the middle-aged better than hats, and should be larger than those of young girls. The parasol need not match the colour of the dress, but should not conflict with it. The gloves, if the hand be large, should be of a dark or neutral tint to reduce it; they should not be so tight as to stiffen the fingers and squeeze the ball of the thumb into the palm when buttoned. Boots are more becoming and cleanly for promenade wear than shoes; the latter, though pretty in front, are unbecoming behind. They should be buttoned, and reach high over the ankles, the heels low and broad; high and narrow ones give the appearance of long heels to the foot, are dangerous in wear, and permanently injurious, unduly straining many delicate ligaments. Pointed toes force into unseemly prominence the large joint of the big toe. (*See* COLOURS, CONTRASTS AND HARMONIES OF.)

Promethean.—The name given to a sort of chemically-prepared match; a kind of lucifer match now out of date. Prometheans were little rolls of paper with a red composition enclosed at the end, and this, on being struck, ignited and lighted the paper. The red compound consisted of chlorate of potash and sugar, and behind it was a glass bead containing

sulphuric acid. By striking the match the bead was broken and the liberated acid brought into contact with the other ingredients, the result of which was ignition. The contrivance, though ingenious, was rather clumsy, and not a safe one.

Promise, Breach of. (*See* BREACH OF PROMISE.)

Promise to Pay. (*See next paragraph.*)

Promissory Note.—A written promise by A. to pay to B., or to his order, a specified sum of money, either on demand or on a certain fixed day. The person giving the promise is called the "maker" of the note, and occupies a position similar to that of the acceptor of a bill, being the person primarily liable; the person to whom payment is promised is called the "payee." The words "endorser" and "endorsee" are applicable with reference to promissory notes just as with bills of exchange (*see* ENDORSEMENT), and the law affecting promissory notes is in all respects the same as that relating to bills of exchange. (*See* BILL OF EXCHANGE.) A bank note is merely a banker's promissory note (*see* BANK NOTES); but the stamp duty on bank notes is special. The stamp duty on promissory notes is the same as that on bills of exchange. (*See* BILLS OF EXCHANGE, DUTIES ON.)

Prongs.—This name is given to the sharp points or spikes of instruments, such as forks, which have two, three, or four prongs. The agricultural implement called the hoe, which is used for breaking the earth, is also supplied with prongs.

Proof, Legal.—Testimony; evidence; convincing fact. It consists in the showing or making plain the truth of any matter alleged, either in giving evidence to a judge or jury on a trial, or else on interrogatories, or by copies of records or exemplifications of them.

Proof Spirit.—The proof of the existence of spirit in liquid consists in the appearance of little bubbles which rise to the surface after agitation, and are called the "head." In commerce, the name of proof spirit is given to such spirits as have been tested and found to contain no more than the requisite amount of water. When the proportion of the alcohol to the water is greater than a certain fixed quantity, it is said to be over proof, and *vice versâ*. The areometer, or, as it is also termed, the hydrometer, is the instrument employed in the testing of spirits.

Proofs.—In engraving, proofs are impressions taken from the wood-block or plate to prove its state before printing. (*See* ENGRAVING.) Proofs of steel or copper plates taken before the letters are engraved thereon, and printed by hand on India paper, are known as India proofs. In printing, proofs are impressions taken from the type for the purpose of correction. Proofs taken directly after manuscript has been set up are known as *first* or *rough* proofs, and contain all the compositor's errors. These are then read by the copy, and all errors are marked by the printer's reader. When these have been corrected, another proof is taken, to be sent to the author, and this is known as a *clean* proof. On this the author marks any necessary corrections (*see* PROOFS, CORRECTION OF); and when these have been made in the type, a final proof is printed and read over carefully: this is known as the *press* proof. First proofs of books, &c., are generally in long slips the length of the type galleys, and *not in pages*; they are consequently often termed *slip* proofs.

Proofs, Correction of.—It is very essential that authors and others who may have to read printer's proofs should understand the technical method of correcting them. The various typographical marks may, perhaps, be best shown by giving a specimen proof duly corrected, and an explanation of each mark.

SPECIMEN PROOF.

1 e/	"Chatham sleeps near the ~~the~~	2 ⨀
	northern door of the church	3 ⨀/ 4 ,/
	in a spot which has since ever	5 trs.
	been appropriated to states-	
6 ,/	men, as the other end of the	7 ⨀
	same transept has *long* been to	8 Rom.
9 ⊙	poets.	
10 run on	Mansfield rests there, and the	
11 second	~~2nd~~ William Pitt, and Fox, and	
	Grattan, and Canning, and Wil-	12 /-/
	berforce. In no other cemetery	13 l.c.
14 ‡	do so many great citizens lie	
15 ⁀	with in so narrow a space.	16 ⎵
17 High over those/	venerable graves towers the	
	stately monument of Chatham,	17 n/ 18 w.f.
	and from above his effigy, ~~graven~~	19 stet
	by a cunning hand, seems still,	
	with eagle face and outstretched	
	arm, to bid England be of good	
	cheer, and to hurl defiance at	21 sm. caps.
20 "/	her foes.—Macaulay's Essay on	
8 ital.	the Earl of Chatham.	22 "/

The same passage with errata corrected would read as follows:—"Chatham sleeps near the northern door of the Church, in a spot which has ever since been appropriated to statesmen, as the other end of the same transept has long been to poets. Mansfield rests there, and the second William Pitt, and Fox, and Grattan, and Canning, and Wilberforce. In no other cemetery do so many great citizens lie within so narrow a space. High over those venerable graves towers the stately monument of Chatham, and from above his effigy, graven by a cunning hand, seems still, with eagle face and outstretched arm, to bid England be of good cheer, and to hurl defiance at her foes."—MACAULAY'S *Essay on the Earl of Chatham.*

EXPLANATION OF THE MARKS.

1. A wrong letter is noticed by drawing a short line through it, and writing the correct letter in the margin, followed by a vertical line.
2. A superfluous letter or word is run through with

the pen, and a mark—the technical initial of the Latin *dele*, delete—inserted in the margin.

3. To alter a small letter into a capital, the small letter is run through with the pen, and written in the margin, with three small lines under it.

4. The omission of a letter or stop is noticed by the insertion of a *caret* at the place of omission, and by writing the required letter or stop in the margin.

5. Words to be transposed are thus marked.

6. In the case of wrong punctuation, a perpendicular line is drawn through the wrong point, and the required one is written in the margin. A period should have a small circle drawn round it (*see* 9) in the margin; the other points should be followed by the vertical line.

7. A letter turned upside down should be run through, and a mark as shown inserted in the margin.

8. When a word requires to be changed from Italic to Roman type, or from Roman to Italic, it should be underlined, and *Rom.* or *Ital.* written in the margin, as the case may be.

9. Stop omitted. (*See* 4 and 6.)

10. When a new paragraph is commenced where it is not intended, the matter should be connected by a line, and *run on* should be written in the margin.

11. To change one word for another, a line is drawn through the wrong word, and the desired one is written in the margin.

12. A hyphen omitted is thus marked.

13. When it is desired to substitute a small letter, *i.e.*, the body or ordinary type, for a capital, a line is drawn through the capital, and *l.c.* (lower case—referring to the arrangement of the compositor's cases) is written in the margin.

14. When it has been omitted to leave a space between two words, the omission is thus marked.

15. Too much space between the letters of a word is thus marked.

16. Too much space between words is thus marked.

17. The omission of a word, or words, or a letter is thus marked.

18. Should a letter of the wrong size or face be used, it should be marked through, and the letters *w.f.* (wrong fount) should be inserted in the margin.

19. When words have been struck out by mistake, dots should be placed under them, and the word *stet* (let it stand) should be written in the margin.

20. Omitted quotation marks are thus noticed.

21. When a word is to be changed from the ordinary type to capitals or small capitals, three lines in the first case and two in the second are drawn under the word, and *caps.* or *sm. caps.* is written in the margin.

22. The omitted apostrophe mark is thus noticed.

Property is the most extensive right a man can have in anything; its application is boundless, as it includes every species of acquisition in which a man may have any interest—lands, goods, chattels, and effects; and almost every term which represents an object in which an interest or right may be acquired are included in the word property. Property is of three sorts: absolute, qualified, and possessory. Property in real estate (*i.e.*, lands and tenements) is acquired by entry, conveyance, descent, or devise; and in personalty by many ways, but most usually by gift, bequest, or bargain and sale.

Proportion.—In arithmetic and geometry, the similitude or equality of ratios. Four numbers or magnitudes are said to be in proportion when the ratio of the first to the second is the same as the ratio of the third to the fourth; that is to say, when the first divided by the second gives the same quotient as the third divided by the fourth. In arithmetic, proportion is a rule by which, when three numbers of a proportion are given, the fourth may be found; it depends upon a certain property of proportionals, which may be defined as follows:—The product of the first and fourth terms of a proportional is equal to the product of the second and third; or, as it is commonly stated, the product of the extremes = the product of the means. Hence, given three terms of a proportion, the fourth can readily be found—*i.e.*, by multiplying together the second and third terms of the proportion and dividing by the first; this process is commonly known by the name of the Rule of Three.

Prosecutor, Public.—In England the Sovereign is nominally the public prosecutor, because all offences are said to be against his or her peace, or crown and dignity. In Scotland there is an official public prosecutor in the person of the Lord Advocate.

Prosody.—That part of grammar which treats of the quantities of syllables and of the laws of versification. In the Greek and Latin languages every syllable was either long or short, and verses were made up of a certain number of recurring feet, containing a definite arrangement of long and short syllables. (*See* Metre.) In the modern European languages, however, versification depends rather on accent and the number of the syllables than on their quantities. (*See* Rhyme; Rhythm.)

Protection Order.—A wife deserted by her husband may obtain from a magistrate or the Court for Divorce an order to protect property acquired, and to be acquired, by her since desertion, as if she were a *feme sole*. The husband may apply to the magistrate who made the order, or his successor, for the discharge thereof (20 & 21 Vict. c. 85, s. 51; 27 & 28 Vict. c. 44). Now, by the Married Woman's Property Act, 1870, the earnings of a married woman are to be deemed her own separate property, as also deposits by her in savings banks. Any married woman, or any woman about to be married, and being entitled to or being about to acquire money in the public stocks and funds, shares or stocks in companies, or interests in friendly and benefit societies, may have the same registered in her own name, as for her separate use. Personal property coming to her during the coverture, as next of kin, and any sum of money not exceeding £200, under a deed or will, so coming, shall belong to her separate use; and as to freehold, copyhold, or customaryhold property coming to her as heiress or co-heiress of an intestate, the rents and profits thereof shall, subject to the trusts of any settlement affecting the same, belong to her for her separate use; and she may insure her own life or the life of her husband for her own separate use. (*See* Coverture; Husband and Wife.)

Protocol.—The original of any writing. The term is generally applied to writings of a diplomatic character.

Proverbs. — Short sentences expressing well-known truths in the form of familiar maxims or aphorisms. In dramatic literature, the term has been applied to short dramatic pieces, in which the plot is founded on some proverb or popular saying. (*See* Acting Proverbs.)

Provident Institutions.—A term of somewhat extensive application, denoting all institutions contrived for enabling the industrial classes to invest their savings in view

of future contingencies. Savings banks may be regarded as at present the most important of the class, and the reader is referred to the article on that subject.

Provincialisms.—Words and phrases which are not used everywhere, but are local or provincial, and characterise particular districts. They sometimes win a recognised position in the language of the country, but as a rule the use of them is regarded as an offence against refinement and purity of diction. Provincialisms are, for the most part, relics of antiquity, and as such have been diligently collected and studied by philologists; but, like old coins, they are treated as curiosities and not as currency. There are provincial accents and modes of pronunciation which are in a similar predicament, and of which well-educated persons will rid themselves as soon as possible. Cockneyisms of all sorts, whether of vocabulary or of pronunciation, are dealt with as provincialisms, and as such their use is condemned by the masters of language. It is not desirable every time we speak to proclaim where we come from.

Provost.—In Scotland a provost is defined to be the principal magistrate of a royal borough, and the office corresponds with that of mayor in England, &c. The Provosts of Edinburgh and Glasgow are designated Lord Provosts; the same honour is commonly conceded to the Provost of Aberdeen; and it is said the Provost of Perth is entitled to it. The use of the word is limited in England; but, as the equivalent of its Latin form, *præpositus*, it is applied to the heads of certain colleges at Oxford, and of one (King's College) at Cambridge, and to the head of Eton College. A provost-marshal in the navy has charge of a prisoner who is to be tried by court-martial, and until the sentence is executed. In the army, a provost-marshal has to superintend the preservation of order, and is empowered to punish certain offenders summarily.

Proxies.—The word proxy, from the Latin *procurator*, signifies a substitute who acts as the agent of another person. In the House of Lords, a temporal peer may appoint another of the same class to vote for him in his absence; and spiritual peers have the same privilege, but only in certain cases, as when the House is in committee. The custom of voting by proxy is common in elections to various charitable institutions, and in connection with other bodies. Sometimes the word proxy is applied to a document which authorises one person to vote for another, or to act as proctor.

Prunes.—The variety of the plum-tree called the Juliana is the fruit generally employed in the preparation of prunes, which are simply dried plums. Prunes are used medicinally, and are also valuable in cookery in the manufacture of puddings and pies. French plums are a superior variety of prunes; they are much larger than the common kind, and when ripe are much sweeter. As well as being finer fruit, they are prepared more carefully, and are used chiefly for dessert.

Prussian Blue.—The colour of a salt, produced by cyanide of potassium and iron, of a beautiful shade of blue. This salt is much used as a pigment, and is also employed as a medicine.

Prussian Brown.—An iron oxide, prepared by calcining an aluminous Prussian blue, or treating an aluminous ferro-cyanide of peroxide of iron with an alkali. It possesses the nature and properties of burnt sienna, and is transparent, permanent, and dries well in oil. It is of an orange hue, and it is better employed as a glaze than in body.

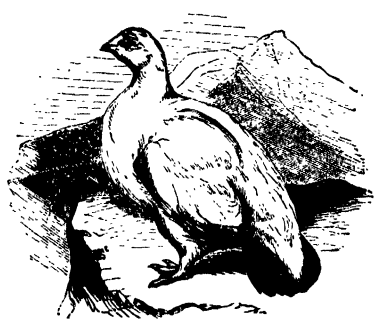
Prussian Green.—A composition of Prussian blue and gamboge, which, containing a great excess of the former, is of a deep bluish-green, verging on black. There are two other ways of preparing it, but they are not considered equal in colour or so permanent. The former of these is composed with a base wholly of iron; the latter has a base of cobalt, and is obtained by precipitating the nitrate of that metal with yellow prussiate of potash.

Prussic Acid.—The old name of hydrocyanic acid (*which see*).

Pseudonyms.—Fictitious names assumed by writers, the word being derived from the Greek *pseudónumos*, falsely-named.

Psychology.—The science of the soul, or that which treats of man's spiritual nature. Sometimes the word is used of mental philosophy in general, of metaphysics, and of the scientific consideration of the lower faculties of the human mind. It deals with intellectual activity in all its manifestations, investigates the relations of the phenomena to each other, and observes the laws to which they are referrible. It necessarily assumes a distinction between man's body and his spiritual part, regarding it as proved by consciousness, and not needing to be explained or accounted for.

Ptarmigan.—This bird belongs to the *Tetraonidæ* family, to which the grouse, &c., belong, and is called the *Lagopus mutus* by



PTARMIGAN.

naturalists. It is the smallest of the grouse kind, and is only found as a British bird on high mountains in Scotland. It is found in many parts of Europe, and also in America nearly as far north as Greenland, but is most

common in Scandinavia, which might with propriety be called the home of the ptarmigan. The most remarkable thing about this grouse is the fact that it changes its plumage as winter approaches, and instead of being a speckled black, brown, or grey, as it is in summer, it becomes almost white. Its food consists principally of the berries which it finds in the regions where it dwells, and in winter it eats the heath shoots.

Ptolemaic System.—This system of astronomy originated with Apollonius of Perga; his theories were developed by the observations made by Hipparchus at Rhodes; and these were collated and systematised by Ptolemy of Alexandria, whose name has ever since been associated with the system expounded in his great work. Clinging to the popular belief of the ancients, which assigned to the earth the central position, Apollonius solved the problem of the stations and retrogradations of the planets by means of epicycles and deferents. Hipparchus, working on the same lines, added the great discovery of what he believed to be the eccentricity of the solar orbit, and calculated the magnitude of the variation. Ptolemy adopted the theory of the former and the observations of the latter, and supposed the planet to describe an epicycle by a uniform revolution in a circle, the centre of which was carried forward uniformly in an eccentric round the earth. By means of these suppositions, and by assigning proper relations between the radii of the epicycle and deferent circle, and also between the velocity of the planet and the centre of its epicycle, he was enabled to gain tolerably accurate results. In proportion, however, as the observations became more numerous and accurate, the difficulty of representing them by the Ptolemaic system became greater; and it would soon have utterly failed to have satisfied the requirements of modern astronomy, with its improved apparatus, even if the great Polish astronomer, Kopernik (or Copernicus), had not established the system which has the sun for its centre, and which will ever render his name memorable. The Ptolemaic system, dating from the time of Apollonius to that of Copernicus, enjoyed public credence for the long period of 1,700 years.

Public Funds.—The public funded debt of the country. (*See* NATIONAL DEBT.) Any amount of money may be invested in the public funds at the market price of the day. In buying Government stock a broker must be employed, who will charge for his services ¼ per cent., or 2s. 6d. on every £100 of stock purchased. The dividends on the public funds are paid half-yearly.

Public Health.—The first Public Health Act was passed in 1848 (11 & 12 Vict. c. 63), and was followed in subsequent years, down to 1874, by a great variety of other Acts, the whole of which, except so far as they relate to the metropolis, have now been repealed by the Public Health Act, 1875, which consolidates the law relating to public health, and re-enacts the substance of the repealed Acts. It provides that England, except the metropolis, shall consist of districts, to be called "urban sanitary districts" and "rural sanitary districts." The urban authority is in boroughs constituted such, the mayor, aldermen, and burgesses acting by the council; in Improvement Act districts the Improvement Commissioners; and in Local Government districts the Local Board. In rural districts the guardians are the sanitary authority. The Act contains elaborate decisions with reference to sewers and drains, the disposal of sewage, the making of sewage works, &c.; scavenging and cleansing, water supply, cellar dwellings and lodging-houses; the prevention, abatement, &c., of nuisances, offensive trades, unsound meat, &c.; infectious diseases and hospitals, epidemic diseases, mortuaries, &c.; highways and streets, the lighting of streets by gas or other means of lighting, public pleasure grounds and clocks, markets and slaughter-houses, police regulations, contracts, purchase of lands, arbitration, officers of local authorities, mode of conducting business, expenses of urban authorities and urban rates, expenses of rural authorities, borrowing powers, audit of accounts, prosecution of offences, recovery of penalties, notices and appeals, alteration of areas and union of districts, inquiries and provisional orders by the Local Government Board, miscellaneous and temporary provisions, saving and repealing clauses, &c. In schedules to the Act are contained rules as to meetings and proceedings, rules for the election of Local Boards, and other rules and forms.

Public Houses.—Places of public resort or entertainment, more particularly for purposes of drinking. The proprietors of such establishments are termed publicans or innkeepers. (*See* INNKEEPERS.) By the Intoxicating Liquors (Licences Suspension) Act, 1871, the issue of new licences and certificates was suspended until Parliament had further dealt with the law relating to the sale by retail of intoxicating liquors. This has now been done by the 35 & 36 Vict. c. 94, and the 37 & 38 Vict. c. 49, by which Acts the law on this subject is principally governed, and by which the various earlier Acts relating thereto have been altered and modified.

Public Schools.—It is quite impossible to define within strict limits what is meant by the term "public school." It is the designation of certain high-class schools, principally of royal or private foundation, and conferring more particularly a classical education. Among them may be mentioned the three colleges—Eton, Winchester, and Westminster; the great country public schools — Harrow, Rugby, Shrewsbury, Marlborough, Cheltenham, Wellington; and some of the great metropolitan endowed schools, such as Charter House, St. Paul's, and Merchant Taylors'. The majority of these schools have a large number of *foundationers*—boys educated on the collegiate principle, boarded together, and with the greater part of their expenses defrayed by the foundation. In addition to the foundationers, or *collegians*, there are also a large number of non-foundationers, known at many schools as *oppidans*. These latter are educated in the school together with the foundationers, but

usually reside in the private houses of the masters. The expense of sending a boy to a public school, unless he is on the foundation, is considerable, and varies from about £100 to £200 per annum, Eton and Harrow being in all probability the most expensive. At all the public schools there are a large number of entrance scholarships and exhibitions, as well as university scholarships, which are open to competition.

Public Worship Regulation Act.—By this Act (passed in 1874), which proceeds on the preamble that it is expedient in certain cases to make further regulations for the administration of the laws relating to the performance of divine service according to the use of the Church of England, it is provided that whensoever a vacancy shall occur in the office of Official Principal of the Arches Court of Canterbury (*see* ARCHES, COURT OF), the judges appointed under that Act shall become *ex officio* such official principal, and all proceedings thereafter taken before the judge in relation to matters arising within the province of Canterbury shall be deemed to be taken in the Arches Court of Canterbury; and whensoever a vacancy shall occur in the office of Official Principal or Auditor of the Chancery Court of York, the judge shall become *ex officio* such official principal or auditor, and all proceedings thereafter taken before the judge in relation to matters arising within the province of York shall be deemed to be taken in the Chancery Court of York; and whensoever a vacancy shall occur in the office of Master of the Faculties to the Archbishop of Canterbury, such judge shall become *ex officio* such Master of the Faculties. The court may be set in motion on representation by archdeacons, churchwardens, parishioners, or inhabitants of the diocese, on the following grounds:—(1) That in any church any alteration in or addition to the fabric, ornaments, or furniture thereof has been made without lawful authority, or that any decoration forbidden by law has been introduced into such church; (2) that the incumbent has, within the preceding twelve months, used or permitted to be used in any church or burial-ground any unlawful ornament of the minister of the church, or neglected to use any prescribed ornament or vesture; or (3) that the incumbent has within the preceding twelve months failed to observe, or to cause to be observed, the directions contained in the Book of Common Prayer relating to the performance in such church or burial-ground of the services, rites, and ceremonies ordered by the said book, or has made, or permitted to be made, any unlawful addition to, alteration of, or omission from such services, rites, and ceremonies. Rules and orders have been issued under this Act.

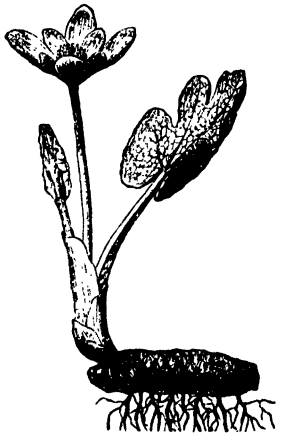
Publican. (*See* PUBLIC HOUSES.)

Publishing.—Many and various are the stages through which a book must pass before it reaches the hands of the reading public. Speaking broadly, however, they may be arranged in three groups. In the first place, the book must be written, and this stage comes to an end when the revised manuscript is placed in the hands of the printer. Then follows the second stage—the MS. is set up in type, the proofs are corrected, the book is printed and bound. And then, in conclusion, the printed copies are handed to the publisher, who through the medium of the booksellers disseminates them all over the country. Arrangements for the publication of a book are usually made directly between the author and the publisher, the latter undertaking to get the book printed. Unknown authors naturally experience some difficulty in finding a publisher willing to take up their works, and in the majority of cases they will find that they must bear all the cost of publication, should they determine to print their work. The following summary of the various arrangements that may be come to between author and publisher may not be without interest:—1. The sale of the copyright to the publisher, the author relinquishing all interest in the work. When a publisher can be induced to buy a book outright, the author will, as a rule, find it most advantageous to close with his offer. In this way all pecuniary responsibility is avoided, as well as all the worry involved in the details of publishing on one's own account. In some cases, however, such as when the author is known, and the copyright is likely to increase in value with his growing fame, or when the book is of such a nature that it will probably have a steady sale for a great number of years, some other arrangement may be found more lucrative. 2. The sale of the copyright of *one* edition only of so many copies to be published at a specified price, leaving all arrangements for further editions for after-consideration. Except in the case of well-known writers, such an arrangement as this is rarely entered into by the publisher. 3. The publication of the work at the sole risk of the publisher, who agrees, in consideration of his taking any profits that may arise out of the transaction, to pay to the author a royalty of so much a copy on, or so much in the shilling on the published price of, every copy sold. Royalty accounts between authors and publishers are usually made up every half-year; no royalty is paid on copies given away for review, &c., and the number of copies sold are reckoned thirteen as twelve—this last because a bookseller's dozen consists of thirteen copies, he only accounting to the publisher for twelve. 4. The author publishing at his own expense and risk. In this case the author may either get the book printed himself, and hand over the copies to the publisher for sale, or the publisher may get it printed for him, charging him with the cost. The publisher then accounts to the author for all the copies sold at the lowest trade price, usually 8d. in the 1s. of the published price, reckoning thirteen copies as twelve, and then deducts a commission varying from 5 to 15 per cent. in return for his trouble in the matter. Some amateur authors seem to expect that if they print 1,000 copies of, say, a five-shilling book, and the publisher succeeds in getting rid of them all, they will receive something like £250 as the result. The account of sales returned by the publisher would probably stand somewhat as follows:—

Number of copies printed . .	1,000		
Less author's and review copies .	50		
Number of copies sold	950 @ 3/4, 13/12 =	£146	3 4
Less Commission @ 10%		14	12 4
		£131	11 0

Thus a little more than half the published price of the copies would be received. This may appear to be a large reduction, but a consideration of the expenses—publisher's and booksellers'—will show that it is not in any way excessive. 5. Publication at the joint risk of author and publisher, who divide the profits, if any result. 6. Publication at the publisher's sole risk, he and the author dividing any profits that may accrue. 7. Publication at the publisher's sole risk, on condition that the author takes a specified number of copies at a fixed price. 8. Publication by subscription. In this case the author, before his book is printed, secures sufficient promises from his acquaintances and friends to purchase copies of his book to cover the cost of production. In this way the author is secured from loss in producing a work which possibly might have little or no sale through the ordinary channels of a publisher's business. Such then are some of the many methods by which a book may be brought before the public. It is of course impossible to say which of these is most advantageous to the author, for in publishing the old proverb holds very true, and circumstances must to a great extent alter cases. One thing to be remarked in conclusion is, that no book—except in the case of those published by subscription—can be expected to have a remunerative sale unless it is well advertised, both by sending out numerous copies for review, and by liberal advertisements in the newspapers and magazines. (*See* ADVERTISING; AUTHOR.)

Puccoon.—This is a plant of the poppy kind, called the *Lithospermum hirtum*, from



PUCCOON.

the roots of which the Indians of North America obtain a deep orange-red fluid, which they employ as a pigment.

Puce, To Dye.—This colour has been defined as wavering between brown, red, and blue, the general hue being a dull red-violet. This appears to have been the real colour of the famous "Tyrian purple." Puce, being a compound colour, would be produced by dyeing the cloth first blue and then red. Cochineal and indigo would probably be used, but no one but an experienced dyer could be sure of the exact effect or the quantity of dye required. This colour is produced in great beauty by means of the aniline dyes (*which see*).

Puck.—An imaginary being; a merry, mischievous fairy or sprite, but sometimes disposed to do a good turn for his favourites. He is identified with Robin Goodfellow and the Scottish "brownie," and is the fairy of the household.

Puddings. — The culinary preparations known under this name are in Great Britain extensively used by all classes, and the pudding may even be regarded as a national dish. Puddings are both boiled and baked. Boiled puddings are either made of pastry, and contain fresh or preserved fruits or meats, or they are light, and eggs enter into their composition. Soyer says that all puddings, whether sweet or savoury, are best when boiled in a mould rather than in a cloth, because when boiled in a basin the paste receives the nutriment of the materials, which if boiled in a cloth are dissolved in the water. Other authorities are of opinion that a pudding is more likely to be heavy and indigestible when a mould is used, and that the cookery is more certain if through being boiled in a cloth the water is allowed to percolate through the mixture, thus mingling the materials together. Superior cooks, however, generally prefer to use moulds, as puddings have a better appearance when they are employed. When moulds are used they should be sufficiently greased, or the pudding will not turn out properly. They should also be quite full. The water should be boiling quickly when the pudding is put in, and should be kept boiling until it is done enough. Solid puddings are best when turned out as soon as they are done; they may be dipped for an instant into cold water before the basin is removed. A pudding in which there is much bread should be tied loosely, to allow room for swelling. Batter puddings should be tied firmly. All light puddings are better when boiled gently, and they should stand a few minutes after they are taken up before being turned out. They may with advantage be steamed. This may be easily accomplished by placing a saucer upside down in a saucepan, and setting the pudding upon it, then pouring in boiling water to the depth of about three inches. When a cloth is used a plate should be put at the bottom of the pan, to prevent the pudding sticking. The cloths should be washed out as soon as possible after the pudding is turned out; hot water should be used for them, but no soap or soda. When clean they should be rinsed in cold water, dried quickly, then folded, and kept in a drawer free from dust. Before being used again they should be passed through boiling water, squeezed till no moisture is left in them, and floured. Baked puddings require to be

cooked gently. If the heat is too great they will be liable to crack or become watery. Milk puddings which are gently baked are far better than those which are hurried; and a custard pudding will be thicker and richer if made with one egg and baked slowly than if made with three eggs and baked quickly. The ingredients used in making puddings should be perfectly sweet and good of their kind. One bad article, especially one bad egg, will spoil the whole preparation. The yolks and whites of eggs are best beaten separately. Currants should be washed in several waters, stoned, and dried before being used. Suet should be fresh and firm, and free from fibres. Many cooks prefer mutton suet to beef suet for puddings, considering it the lighter of the two. Sugar should always be sparingly used. It turns to liquid when cooked, and an excess of sugar is the cause of many a broken pudding. As a rule, the majority of puddings that are to be baked may be boiled instead if one or two more eggs are added to the preparation.

Puff-ball.—A species of fungus, or mushroom, which is full of dust. The word is a corruption of puck or pouk-ball, anciently called puck-fist, from the Saxon *pulkerfist*, a toad-stool. The Irish name is pooka-foot. Amongst the peasantry puff-balls are regarded as a specific against bleeding.

Puff-paste. (*See* PASTRY.)

Puffing.—Exaggerated praise, commonly intended to recommend persons or things as better than they really are. The practice of puffing is one of the most usual of the dishonourable devices resorted to by some tradesmen, and is exemplified by their advertisements, their placards, and the persuasive language of their shopmen. In ordinary cases the proper protection against it is found in correct knowledge and the resolution to exercise one's own discretion.

Puffings.—Bands of material of various widths, cut either on the bias or the straight way of the stuff, and gathered on both sides. They are used as headings to a flounce or kilting, and are more suitable to thin materials, like net or tarletan, than to thick ones. Puffings on sleeves are sometimes much in fashion; they may be all round the arm, divided by bands, or run longitudinally upwards. At different epochs they have been worn at various parts of the arm. In the reign of Francis I. of France, the puffs were on the shoulders. This fashion continued in vogue in England throughout the Tudor reigns. At the time of the Stuarts the puffs were worn to the elbow. Puffed trousers have also been amongst the fashions worn.

Pug Dog.—A breed of dogs that for many years was almost extinct, until shows brought it once more into vogue, and it is now deservedly fashionable. The size of pugs is a great point with judges and fanciers. They must be small, while any approach to leggiiness in a pug would be fatal to his chance of winning a prize. In colour the pug should be a beautiful cool grey, like the mastiff, with a black distinct mask, and a fainter black line extending along the spine to the point of the tail. There is also a black mole on each cheek, with three hairs growing therefrom. There is usually a darkish spot on the forehead, called the thumb-mark. The body is small, compact, and rounded and firm, and the average weight should be about twelve pounds. The head is short and rounded; the forehead high, with a very prominent and wrinkled brow; the ears are thin and soft and black, and lie close to the cheeks. The jaw is square and the teeth level, and the tongue should not loll from the mouth; the eyes are large and soft and tender, and with something of an outward squint, like that of the hare; the nose is square, short, and slightly *retroussé;* the neck is longish and muscular, the chest very broad, the legs *straight*, the feet hare-like, coat soft and glossy, and the tail curled right over the rump. In disposition the pug is exceedingly affectionate and winning in all his ways, and makes a remarkably nice pet dog.

Puisne (pronounced *puny*).—A term commonly employed of judges of inferior rank. It properly denotes younger, junior, or last-created.

Pulley.—A mechanical contrivance used for raising weights or for drawing them in any direction. It consists of a small wheel, with a groove cut all round its circumference, and turning on an axis, by means of which, with a cord, it accomplishes its purpose. The pulley is said to be *fixed* or *movable*, according as its block is fixed or rises and falls with the weight. An assemblage of several pulleys is called a *system* of pulleys, of which some are in fixed blocks and others in a movable one. The properties and application of the pulley have been explained by some writers by considering a fixed pulley as a lever of the first order, and a movable one as a lever of the second order; but one of the most simple and natural methods of computing the power and explaining the effects of the pulley appears to be that every movable pulley hangs by two parts of the same rope equally stretched, and which must therefore sustain equal parts of the weight.

Pulmonary.—This is the technical term for anything connected with the lungs. Thus the pulmonary arteries and veins are so called because they carry the blood to and from the lungs. The substance of the lungs is called the pulmonary substance, and disease of these organs is frequently called pulmonary disease.

Pulse.—This is, properly speaking, the peculiar beating or throbbing which occurs at each contraction of the heart and arteries, and which can be heard or felt by applying the ear to the chest over the heart, or by placing the finger upon some important artery. The term has, however, been popularly limited to the pulse of the radial artery where it becomes superficial at the wrist, and it is to the latter fact, as well as to the convenience of making an examination at this part, that this artery owes its pre-eminent position. As the circulation is very soon disturbed under the influence of disease or disorder of any kind, it is manifest that the state of the pulse must and does afford very important

indications. It is true that great rapidity of the pulse may be temporarily compatible with perfect health, as it may be due to nervous causes only; and on the other hand, there may be a great deal of disease in the body, and the pulse remain, comparatively speaking, unaffected. Again, an unusually slow pulse may indicate disease of the heart or some other organ, yet it may and does exist without any disease whatever; but after making due allowance for these peculiarities, the pulse still remains as one of the best guides the physician has as to the state of health, strength, temperament, &c., of his patient, without which he would often be very much in the dark. It will be gathered from the foregoing that the pulse is subject to great variations from individual peculiarities; but it is also affected by a great many other causes, as age, temperament, posture, period of the day, sleep, exercise, food, emotion, state of the atmosphere, &c. For example, with reference to age, the pulse at birth averages 140; in infancy, 120; in childhood, 100; in youth, 90; in adult age, 75; and in old age, 70. Again, as to temperament, it is well known that persons of a so-called sanguine or nervous temperament have usually a pulse fully up to, and generally above, the average just given, whilst those of a lymphatic or bilious temperament have usually a slow pulse. Posture, that is to say, the difference between standing, sitting, or lying, makes an increase or decrease of ten beats in a pulse. Sleep causes the pulse to fall sometimes as much as ten beats, whilst violent exercise increases it very much. Animal food increases the pulse; so does alcohol, except in special circumstances of exhaustion. It is well known also how much the emotions affect the pulse. Lastly, every mountaineer knows how in the regions of snow and rarefied air the pulse bounds and the breath quickens sometimes to an unpleasant degree. But besides the frequency of the pulse there is another important point which should be noticed concerning it—viz., its regularity or irregularity. A pulse may be very slow, or temporarily very fast, and still, as we have already said, be compatible with perfect health; but this infers that it must at the same time be regular. Irregularity of the pulse may be only temporary from flatulence or indigestion (*which see*), but it is a symptom always demanding attention, as it may indicate valvular or other disease of the heart. It may be mentioned here that medical men sometimes meet with certain peculiarities of pulse which have existed from birth, and which appear in no way to affect the health or shorten the life. One of the most common of these is a remission or pause after each second, third, fourth, or some subsequent beat, but occuring regularly at that particular beat only. Lastly, the pulse when pressed may feel hard, as in hypertrophy of the heart, inflammatory fever, aneurism, &c.; or it may feel soft to the touch, as in the commencement of the fevers of childhood, and in typhus and typhoid fevers, scarlatina, small-pox, &c.; it may also be wanting altogether at the point where it is usually looked for, owing to some irregularity in the course of the artery—a possibility which it is well to bear in mind. It should not be concluded that, because the pulse cannot be felt at the wrist in certain cases, life is therefore extinct; the circulation may be so feeble there as to be imperceptible, yet still may be going on. By applying the ear to the chest over the heart, any doubt as to this important point will be at once removed.

Pulse (Beans, &c.).—This term is used to signify the edible seeds of leguminous plants, as the word corn is used to signify the edible seeds of grasses. Among the many varieties of pulse, peas and beans are the most important, and next to them are lentils, kidney-beans, pigeon-peas, chick-peas, and others. The farinaceous seeds known by this name are characterised by the large amount of nitrogenous matter they contain, consequently they should be accompanied by articles in which fat or starch abound. Though pulse is never made to form the staple article of vegetable food, there is no country which does not produce some member of the family; and in India, pulse combined with rice is very extensively used. The nutritive value of these seeds as a vegetable is slightly deteriorated by the fact that they are rather difficult of digestion. They sometimes occasion flatulence, and have a stimulating, heating effect upon the system. The rind of the larger kinds especially should be avoided, and no part should be eaten that has not been thoroughly cooked.

Pumice-stone.—A substance which is frequently ejected from volcanoes, hard, rough, and porous in texture, and varying in colour—sometimes it is white, at other times black, reddish-brown, or grey. It is so light as to float on water. It is supposed to be produced by the disengagement of gas within the lava while in liquid and plastic condition, and appears to consist of parallel fibres, owing to the parallelism and minuteness of the crowded cells. It is employed for the purpose of procuring a fine polish on other and various substances, the human skin included, to which use it was generally applied by the ancient Greeks, and is sold in our own druggists' shops for that purpose at the present time.

Pump.—The common pump usually consists of two hollow cylinders, placed one under the other, and communicating by a valve which opens upwards. One cylinder is called the suction-pipe, and has its lower end immersed in the well or reservoir from which the water is to be raised. In the top barrel of the pump a bucket or piston is moved, having a valve in it which opens upwards: this piston should move air-tight in the cylinder. The spout for discharging the water is situated a little more than half-way up the upper cylinder. The height to which the water will rise in the suction-pump will be proportioned to the length of the stroke of the piston. In using pumps to draw muddy or sandy water, it is always advisable to set the bottom of the pump in a close wicker basket or other strainer, because sand and small stones very soon destroy the leather and working parts of any pump; and when pumps are used for hot liquors, which is the

case in many manufactories, thick hempen canvas must be substituted for leather, unless the valves and pistons are made entirely of metal, which is of course preferable. (*See also* AIR-PUMP; STOMACH-PUMP.)

Pump, Air. (*See* AIR-PUMP.)

Pump, Stomach. (*See* STOMACH-PUMP.)

Pumpkins.—The fruit bearing this name (*Cucurbita pepo*) is closely allied to the cucumber, and, although a native of warm climates, is cultivated in almost all parts of the world. It is of the same genus of plants as the gourd. The fruit is smooth and pear-shaped, varying very much in size and weight; some pumpkins are only as large as apples, while others are so large as to be fifty or sixty pounds in weight. Pumpkins are not cultivated to any very great extent in England; indeed, nowhere are they so little understood and so much undervalued as in Great Britain, consequently their use is limited; but in countries where they abound they are an important article of food amongst all classes. They are not eaten raw, but dressed in many varieties of ways, being converted into sweet dishes and also made into soups. Pumpkins have one peculiar quality in addition to a good deal of natural sweetness: they will absorb and retain the flavour of whatever they are cooked with. If stewed with apples they taste exactly like them in puddings and tarts; and for savoury cookery it would be difficult to say in what dish they may not be used with advantage as an addition. In Gower, in South Wales, pumpkins are added to hashed meat, made into pies with apples, and put into soup. The shoots and other parts of the plant, and sometimes even the fruit itself, are given to cattle. In North America this useful fruit is very extensively cultivated.

Pumps (Shoes).—These are made of enamelled leather, with low heels and thin soles, and tied with ribbon. During the first half of this century these shoes were worn by gentlemen when attired in evening dress; they were then superseded by boots with elastic sides. Pumps are worn by footmen.

Punch.—The favourite beverage known by this name is a composition of sugar, lemon, milk or water, and spirit, in addition to some aromatic or cordial—wine or spirit being used according to taste. There are so many ways of making punch that no precise recipe can be given. The great secret of success consists in so happily compounding the mixture that the flavour of no special ingredient may be detected. Instead of water, tea is frequently used, and a small piece of butter will be found to soften the liquid. The word punch is supposed to be of East Indian origin, and to mean "five." The beverage is named from the five ingredients which compose it—namely, spirit, acid, sugar, spice, and water. A recipe easily remembered in making punch is the following: One of sour, two of sweet, four of strong, and eight of weak.

Punch and Judy.—The principal characters in the popular puppet show named after them. Punch and Judy are supposed to be husband and wife, and their personal defects and domestic brawls are held up to ridicule and represented by puppets for the amusement of the spectators. Another leading character is the dog Toby. (*See* PUPPET SHOWS.)

Puncheon.—This is rather the name of a cask than a measure, although often taken for a definite quantity. A puncheon of brandy or rum ranges from 70 to 100 or even 120 gallons; an admiralty puncheon is given at 72 gallons; and by some a rum puncheon is fixed at 91 gallons. Gutch's Tables make the puncheon of spirits rather less than 70 gallons, and that of ale rather more than 73 gallons. Mair says a punchoon of wine is 84 gallons, and one of prunes 10 to 12 cwt. Other estimates might be quoted, but the moral is that no one should buy a puncheon of anything without knowing its contents in gallons. The word puncheon sometimes means the same as punch, a tool for piercing, &c.

Punches.—Iron instruments used for the purpose of perforating holes in metal, &c., by direct pressure.

Punchinello.—A character in Italian puppet shows, represented as fat, short, and humpbacked; the same as Punch. (*See* PUNCH AND JUDY.)

Punctuation.—An American author says:—"Punctuation is the art of dividing written language by points in order that the relation of words and clauses may be plainly seen, and their meaning be readily understood." Points or stops, and other signs, are used for the purposes indicated. The points we use are the comma (,), the semicolon (;), the colon (:), and the period or full stop (.). Besides these there are the note of interrogation (?), the note of admiration or exclamation (!), the dash (—), the parentheses ( ), and brackets [ ]. The comma is usually regarded as a pause while *one* may be counted, but it really denotes a division of a sentence. The semicolon, usually considered as a pause while *two* may be counted, indicates a larger division of a sentence. The colon is scarcely a note of time at all, but denotes the division of a sentence into parts, each of which is almost complete in itself. The period marks the end of a sentence. The note of interrogation marks a question, and may fall at the end or before the end of a sentence. The note of admiration follows a sudden exclamation or certain interjections. The dash occurs either alone or following other points, especially the comma and the colon, but also sometimes it comes after the signs of interrogation and admiration. The parentheses are used to include something which may be omitted without violating the grammar of a sentence. The bracket contains something in the nature of an explanation, note, or other remark, especially in quotations, but not exclusively so. To the above may be added the apostrophe, like a comma above the line: it sometimes marks the possessive case of a noun, and sometimes a shortened form of a word. The hyphen, like a short dash, is used between the separate portions of some compound words. Inverted commas, or quotation marks, are either single or double.

When double they are represented thus (“”), the first pair being placed at the beginning of an extract, and the second at the end. If a second extract is embodied or introduced in the first, it is indicated by single commas in the same way (‘’). The complete mastery of the art requires practice and careful observation, but it is a valuable acquisition. The foregoing hints are of necessity very meagre, and by no means provide for all cases; for example, the colon often occurs in psalm books not as a stop at all, but to denote a division of the music to which the words are chanted.

Puppet Shows.—Mimic performances of a dramatic order, in which the characters are represented by dolls, puppets, or artificial figures. Puppet shows are of different kinds, especially (1) those in which the characters are mostly held by the showman, as in Punch and Judy (*which see*); (2) those in which the figures are suspended and moved by wires or threads, as in the case of marionettes or dancing dolls; (3) those in which not the figures but their shadows are seen by the spectator. We might, perhaps, regard as a sort of puppet show the representations of dancers, musicians, &c., which are set in motion by machinery. Amusements of this class are of ancient origin, and have been always popular. Some old English writers call them Motions, and the mock plays performed included sacred as well as secular subjects. In all their forms, the men who speak or sing the words, perform the music, and direct the action, are as far as possible kept out of sight, in order to increase the illusion. The magic lantern has probably helped to lessen their frequency, and Punch and Judy is almost the only puppet show that remains.

Purchaser, Purchase.—A purchaser is one who acquires land or houses by way of bargain and sale for money or other valuable consideration. In its legal acceptation, purchase signifies the acquirement of land or houses in any lawful manner other than by descent or the mere act of law, and includes devise, escheat, occupancy, prescription, forfeiture, and alienation. “So many years' purchase” is a common mode of estimating the value of any particular property; and the number of years' purchase which any property may be said to be worth is dependent on a variety of circumstances—the higher the class of property, as to tenure, situation, condition, &c., the greater number of years' purchase will it be found to command, and *vice versâ*. “Inwood's Tables” will be found a very excellent and useful work, containing, among many others, tables for calculating value according to the different per-centages which any one may desire to realise for his outlay.

Purchases. (*See* Bargains; Shopping.)

Purée.—The purée of any vegetable or meat is prepared by simmering it till the substance is sufficiently pulpy or soft; then passing it through a horsehair or tammy sieve. In the case of meat it is sometimes necessary to beat in a pestle and mortar after simmering. The sieve is placed bottom upwards over a dish or tin, and with a wooden spoon or purée-presser the substance is worked through, and what passes through is called a purée. It is occasionally found necessary to moisten with a little liquor, which facilitates the passing of the purée. The purée of any vegetable stirred into a clear beef stock makes a soup, and gives it its characteristic name.

Purgatives. (*See* Cathartics.)

Purl.—All lace has two edges, one being straight and firm, for the purpose of being attached to the material it is to trim, and the other edge having a little row of purl round it to give a more complete finish. Purl edging of this description is also made separately for the edging of plain net. Pearl-purl is a gold cord of twisted wire; it bears a resemblance to a row of minute gold beads strung closely together, and is used chiefly for edging bullion embroidery. It is of delicate workmanship, and should be carefully handled; it requires to be laid on the surface and never pulled through the material, and is held in its place by close stitches of yellow silk, which should be well waxed before being used. This cord is sold by the ounce; its price is the same as that of bullion, but being heavier, pearl-purl is the more costly of the two. The word purl is from the Italian *pirlare*, twist.

Purl (Drink).—The name of early birds is sometimes given to the beverage known under this name, probably because it is a favourite drink early in the morning. Purl is composed of ale, ginger, and nutmeg, made sweet and whisked up with eggs, and when well frothed a glass of spirits is added. Half the ale is made hot, so that purl is a warm beverage, and is meant to be taken as soon as made.

Purple.—A mixture of red and blue, the red predominating—not merely a dark shade of blue, as the word is commonly, but erroneously, supposed to designate. The word *purpura* seems to be derived from the Greek *porphura*, or porphyry, which is of a dark brownish-red, and which assumes a warm violet shade when rocks of that formation are seen at a distance. Purple and “puce” are nearly, if not quite, synonymous terms, and designate a dull red violet. This was the only purple colour known by the ancients, and was discovered by an inhabitant of Tyre 1,500 years B.C., the colour being obtained from small shell-fish (not a flea, as improperly so named by the French). A little drop of this colouring matter was secreted in a sac within the shell, which, at first yellow, was laid on a white slab in the sun, when a bluish shade followed; then green, then the blue predominated; and lastly red appeared, which resulted in that deep reddish-blue, or “puce,” known as the “Tyrian purple.” Solomon sent to Tyre for the “purple” stuffs and pigments used in the decoration of the Temple; and our Lord described Dives as “clothed in purple and fine linen.”

Purple Pigments.—There are only two purple pigments which can be classed as durable: these are purple-madder and the

true Mars-violet, neither of which is vivid or brilliant. The other pigments used are burnt-carmine, burnt-lake, Indian-purple, purple-madder, violet-carmine, archil-purple, bismuth-purple, cobalt-purple; gold, Prussian, sandal-wood, and tin purples. None of these are considered to be permanent.

Purple, To Dye.—This colour is a compound of blue and red, and also comprises lilac and violet, which are different shades of it. Wool is first dyed blue and then scarlet. By mixing cochineal with sulphate of indigo, the process may be performed at once. Silk is dyed with cochineal, and then dipped into indigo. Cotton and linen are first dyed blue, then galled, and dyed by oxide of iron.

Purse-silk and Twist.—A strong, evenly-twisted silk, introduced some years ago for the purpose of making purses, which at that period were knitted, netted, or crocheted with silks. In consequence of the perfect regularity of its twist and its strength, this silk is used extensively in needlework, more especially in church embroidery. There are three sizes, known as coarse, medium, and fine. The first is often used in lieu of fine cord when such is required to edge monograms on alms-bags or book-markers; it is sometimes called twist. The medium size is used for sewing down gold, and for every purpose where a strong even silk is required. The fine is used for couching or laying work, especially to fasten down crochet twist when that is employed.

Purser.—The commissioned officer in the Royal Navy, whose duty consisted in making payments and taking charge of the provisions and clothing on board a man-of-war ship, was at one time known by this title. Paymaster is now the cognomen employed. These officers, like the master, surgeon, and others, rank with lieutenants, but are subordinate to them. Their full pay varies from £250 to £600 per annum, according to the length of time they have been in the service.

Purses.—Leather is now almost universally employed in the manufacture of these useful receptacles, as it is found to be the most durable and the most convenient in every respect. Of this there are many kinds and many qualities. Russian leather is the best for the purpose; it does not easily tear, and it carries with it a pleasant perfume. Doeskin, calfskin, pigskin, dogskin, moleskin, are all brought into use in various ways. A modern addition to the catalogue is that of crocodile-skin; this is of a light buff colour, and its surface has a crinkled appearance. Ivory, mother-of-pearl, and tortoiseshell are used for outer coverings of purses, but these are not fitted for every-day use. Sealskin purses are serviceable, but expensive. Various inventions of snaps and fastenings have been invented, but the most convenient and safest method is that of the broad elastic strap.

Purslane.—This plant, called by botanists the *Portulaca oleracea*, belongs to the *Portulaceæ* or Purslane family, the largest number of which are natives of South America or the Cape of Good Hope; others inhabit Europe, and two or three are found in Australia. Common purslane was at one time used as a pot-herb, but is not so now. The *Calandrinias* belong to this family; they are very handsome annuals, being purple flowered, crimson, or rose.

Pus. (*See* Matter.)

Put.—A game at cards, played with the entire pack by two or four persons. A feature of this game is that the cards have a special value, different to all other games, a three being the best in the pack, then a two, then ace, king, &c., as at whist. Five points constitute the game, which is commenced by the players cutting for deal, at which the highest "put" card wins. In two-handed put the deal is made by giving one card alternately till each player has three; there is no trump. The non-dealer looks at his cards, and if he is dissatisfied with them he is at liberty to put them upon the pack, and his adversary scores a point. It is never politic, however, to do this; always play the first card, for whether your adversary beats it, passes it, or plays one of equal value, you have still the option of refusing to play, and your adversary scores only one point. If your opponent says "I put" (=I play), you may play or not, losing a point should you decline to do so. If you play, whoever wins three tricks, or two tricks out of three, scores five points and wins the game. It may sometimes happen that each player wins a trick, and the third is a tie; in such case neither player scores anything. Four-handed put differs only in this, that any two of the players give each their best card to their respective partners, who throw out one in lieu of it, and the game is then played by these two as in two-handed put.

Putty.—A description of cement or paste, which is compounded of soft carbonate of lime, or whiting, and linseed oil, which are kneaded together till the mass arrives at the consistence of dough. It is employed in fastening panes of glass into window-sashes, and for the purpose of stopping crevices in wood preparatory to painting, &c.

Putty Powder.—An oxide of tin, or of tin and lead in various proportions. It is much employed for the polishing of glass and other hard substances.

Puzzle Rings.—These rings are formed of several hoops connected like the links of a chain, and so contrived that they can be combined into one ring. They are called puzzle rings because it requires ingenuity either to separate them or to join them into one. Their principle is referred to in the article on Gimmal Rings.

Puzzles.—Of these there are several species distinct each from the other, and of each kind there are a great variety. The simplest forms are those which are provided for the amusement of children, known as dissected puzzles. A picture is pasted on to a tabular piece of wood, and this piece is then cut through in various directions in an indiscriminate manner. The puzzle consists in fitting together the several pieces so that the whole picture assumes its proper aspect. Another form is the mosaic puzzle, which is composed of

small pieces of ivory, coloured in different hues; a book of designs is furnished, and the minute pieces have to be arranged in like mosaic patterns. The Egyptian puzzle is of a more advanced order; it consists of five small squares of cedar-wood; each square is of the same size, and each is divided once in the same manner. In every design in the book supplied the whole number of pieces are to be employed. The most difficult problem, and one which has puzzled wranglers, is that of forming a perfect square while using the five smaller ones. Persons can be puzzled by being told to draw three rabbits so that they will have but three ears between them, and yet each will appear to have the two that belong to it; or to add five strokes to six strokes and thereby make the number nine. Arithmetical puzzles are a source of great interest to many minds who take a delight in wrestling with and overcoming perplexing and difficult queries. Puzzles may be said to be of no use in themselves, but they are an exercise for the mind, and tend to make it alert and active, and also to quicken the faculties in the same way that sports of an athletic nature exercise the body and have a quickening and invigorating effect upon it. Added to these beneficial effects, the virtue of patient perseverance is encouraged and strengthened. (*See preceding and following paragraphs.*)

Puzzles, Chinese.—What are known as Chinese puzzles are chiefly the boxes within boxes, and the wonderfully carved balls, sometimes curiously contained within a cage, with which we have been familiar from our earliest years. They are cut out of ivory, bone, sandal-wood, and ebony, the workmanship being exquisite, quite beyond that which can be accomplished in Europe. Nests of nine, or even more, movable balls, one within another, beautifully carved in ivory, each of a different pattern, are amongst their so-called puzzles. Another kind consists of mother-of-pearl boxes, containing pieces of the same material cut into geometrical forms to fit one with the other and complete a square, yet so constructed as to puzzle the person who attempts to put the several pieces together. Both the box and its contents are delicately engraved or carved with ornamental designs. The ingenuity displayed in some of these articles is sometimes very surprising.

Puzzuolana.—Another name for pozzolana (*which see*).

Pyramid.—A square-sided figure rising from a broad base and tapering upwards to a point.

Pyramids.—This game is played on an ordinary billiard-table, fifteen red balls and one white ball being used. The fifteen red balls are arranged in a pyramid, with the apex towards the player, at the top of the table, the ball forming the apex being situated on a special spot on the table, known as the pyramid spot. (*See* Billiards.) The game is played by two persons, who strike in turn with the white ball and endeavour to pocket the red balls, the game consisting entirely of winning hazards. The player who pockets a red ball scores one point, and he who pockets the majority of the fifteen balls wins the game. Should any player run into a pocket with the white ball, he loses one point, and has to replace a red ball on the table—on the pyramid spot, should it be vacant; otherwise on the billiard spot. Failing both of these spots, the ball must be placed as near the pyramid spot as possible. Each player continues to strike until he fails to score, as at billiards, and many of the billiard rules hold good equally for pyramids. This game, slightly modified, may also be played by three or more players.

Pyrites.—A mineral, or rather class of minerals, which has obtained its name from the fact of its readily yielding sparks of fire when struck. The term includes the sulphides and arsenides of several of the metals, but as the commonest of these is iron, the sulphide of iron is generally understood when no particular metal is expressed. The others of most common occurrence and practical importance are copper pyrites, cobalt pyrites, nickel pyrites, and arsenical pyrites. They are hard, possess a high metallic lustre, and occur in many different kinds of rocks, sometimes disseminated in single crystals or small groups; are commonly found more or less pervading most mineral veins, and sometimes form masses of very great extent. Extraordinary accumulations exist at Rammelsberg, in the Hartz district of Germany; at Pomaron, in Portugal; and in other places. *Iron pyrites*, called mundic by the Cornish miners, is very widely diffused, as it occurs in rocks of all ages. When it is found in coal it goes by the name of brasses, and should be picked out, as the pyrites fly when put in the fire, and the heat occasioned by their decomposition is one of the chief causes of the spontaneous combustion of coal. Iron pyrites is used largely in the making of sulphuric acid, the supply of rock sulphur being totally inadequate for this purpose; and with this object great quantities are imported from Spain, Portugal, and Norway, in addition to what is raised in the United Kingdom. The German ores are mostly converted into acid on the spot where they are mined. The variety known as magnetic pyrites is of less value to the manufacturer, as the proportion of sulphur to iron is smaller. *Copper pyrites*, or *chalcopyrite*, is the most abundant ore of copper in this country. In colour it is of a brighter yellow than the foregoing. It consists of copper, iron, and sulphur in nearly equal proportions. The principal home localities for mining it are Cornwall and Devonshire, Anglesea and Wicklow. It is used in copper-smelting. The Wicklow ores usually contain a sufficient percentage of silver to be worth the trouble of extracting. Large quantities of chalcopyrite are imported from Cuba, Chili, and other foreign parts. *Mispickel* is another important ore, consisting of arsenic, sulphur, and iron. Nearly one-half of its weight consists of the first-named metal, and hence it is used in the manufacture of arsenious acid. Several of the Cornish and Devonshire mines derive their profits almost exclusively from this mineral.

There is another kind of arsenical pyrites, containing less sulphur and more arsenic, called *leucopyrite*, which is common in Germany, though rare in England. *Cobalt pyrites* contains both arsenic and sulphur. *Nickel pyrites* is an arsenide of the metal, with which a considerable proportion of antimony is sometimes associated. Both these occur to some extent in Cornwall, but Germany is the country that furnishes the chief supply.

Pyrography.—This name is usually applied to a system of producing ornaments or pictorial works in a somewhat eccentric way—namely, by scorching the wood to different degrees of brownness by means of heated iron. The degree of ingenuity required for producing these works—sometimes called poker drawings—and their novelty, at one time rendered them exceedingly popular as curiosities, but the art is now but little practised.

Pyroligneous Acid, as its name suggests, is an acid derived from wood by the action of fire. It is sometimes called wood vinegar, which is indeed a substantially correct description of it, the acid being used very largely as a substitute for ordinary vinegar. For making this acid, wood is placed in iron ovens or retorts, and subjected to distillation, when about seven ounces of crude acid liquid come over, and three and a half to four ounces of charcoal are left in the oven, for every pound of wood used. The charcoal is then drawn out, and is sold for making gunpowder, and for other purposes, the quality of the charcoal thus made being very excellent. The crude acid is rectified, and then yields pure acetic acid (*which see*). Methylic alcohol is also made from pyroligneous acid, and hence is frequently called wood spirit. The crude alcohol has the peculiar odour of the pyroligneous acid (though when rectified this is no longer observable), and hence it is used in making methylated spirit (*which see*). Pyroligneous acid is now an article of very large manufacture in this country—sawdust, spent dye-woods, spent tan, as well as wood, being used as the source of supply; the first three are thus turned to profitable account, whereas otherwise they would only be waste.

Pyromania. (*See* INSANITY.)

Pyrope. (*See* GARNETS.)

Pyrotechny. (*See* FIREWORKS.)

Pyroxylic Acid. (*See* WOOD NAPHTHA.)

Pyx, or Pix, Trial of.—In former times the master and workers of the Mint were required to affix a private mark to every piece of gold and silver coin they struck. Specimens of these coins were deposited in a box called a pix, or pyx, and at stated seasons the pyx was opened and the money in it tested by authority. The old marks were then changed for new ones, which were used till the next trial of the pyx. At present the pyx is a strong case with three locks, the keys of which are held by the warden, master, and comptroller of the Mint. In this box are deposited specimen coins, taken at random from every 15 lbs. weight of gold and every 60 lbs. of silver coined. From time to time the pyx is opened by royal command at Goldsmiths' Hall, in presence of the Lord Chancellor and other high officials, before whom trial is made by a sworn jury of goldsmiths. Some pieces are taken at random and weighed, after which the separate parcels are melted and assayed. This is the trial of the pyx, and the verdict of the jury is called the verdict of the pyx. The assaying also takes place at Goldsmiths' Hall.

Q

Quadragesima Sunday.—In the calendar, the first Sunday in Lent, or about the fortieth day before Easter (Latin, *quadragesimus*, fortieth).

Quadrangle, in geometry, is a figure consisting of four sides and four angles. In architecture, it is a square or court surrounded by buildings, any range of houses or buildings forming four sides being a quadrangle. The cloisters of monasteries were generally arranged in quadrangles. Colleges and large houses are also frequently arranged in the same way, the most notable examples being Somerset House and the colleges of Oxford and Cambridge.

Quadrant.—In geometry, the fourth part of a circle, or an arc of ninety degrees. A mathematical instrument used in astronomy and navigation is also termed a quadrant. It is very variously contrived according to the purpose for which it is intended, but its principal feature is an arc of a circle equal to the fourth part of the circumference, divided into ninety degrees and into subdivisions of degrees. (*See also* SEXTANT.)

Quadrille (Game).—A game at cards, a great favourite in fashionable circles in the last century. As is implied by its name, it is played by four persons with a pack of forty cards, the four tens, nines, and eights being rejected. It is a very complicated game, and is in consequence rarely played at the present day. To convey anything like an adequate knowledge of it in a work like the present is quite impossible, and for a full account of its rules reference must be made to one of the recognised handbooks of card games.

Quadrilles.—These belong to the class termed square dances. They are of French origin, and were arranged at the beginning of this century, and consist of five consecutive dance movements, which were originally danced by four couples only, and frequently at the state balls in France each set was danced by four couples dressed in particular costumes. A later novelty in this country is that of the dancers singing at the same time. Old nursery rhymes have been set to descriptive music for this purpose, and the effect is exceedingly pretty, especially where the four voice parts are sung in proper distinction. In quadrilles of the present day, eight couples frequently form a set, but sometimes more are included. When this is done, the couples should be arranged in two lines, and the alternate couples

on either side should be the leading couples; the spectacle being much prettier and less formal, more space afforded, and confusion avoided, when this is so arranged, than when all the couples on one side advance at once. The following description will show the manner in which quadrilles are performed:—The first figure is called *Le Pantalon*, that being the tune to which it was originally danced. The couples at the top and bottom of the set walk over and change places; the lady always crosses in front of a gentleman, and each, in turning round, turn towards one another, and not from each other, as in the Lancers. Couples return to their places, partners *balancez* and turn round. Ladies' chain follows; then the two couples promenade across, and finally return right and left to their places. This is repeated by the side couples. The second figure is called *L'Eté*, in consequence of its similarity to a country dance, *Pas d'Eté*, which was formerly in vogue. Its movements are thus: the lady at the top of the square and the opposite gentleman advance and retire, *chassez* to right and left, cross into each other's places, *chassez* again, return to their own places, partners then *balancez* and turn round. This is repeated by the other lady and gentleman, and then by the side couples in their turn. Sometimes this figure is shortened as follows: both couples advance and retire at the same time; they then cross over, advance and retire again, return to their places, partners *balancez* and turn round. Figure three is *La Poule*. This name originated also from a country dance, which commenced with an imitation of the crowing of a cock. The figure is performed thus: the first lady and opposite gentleman cross over, giving their right hands, then return, giving left hands; the four then fall in line, and set so to opposite places. The couples advance four steps and retire, then return right and left to own places. The fourth figure is *Trenise*, which owes its name to the dancing-master who originated it. In this, first couple advance, retire, advance again, when lady is left on opposite side; the gentleman takes the hands of the two ladies and leads them down and back again, then down, when all four dancers take hands, turn round, and go to their places. This is repeated by each couple in the set. The fifth figure, *La Pastorale*, is so called because it resembles a class of peasants' dances then performed. In this figure the two couples promenade or galopade four steps, retire, advance in same manner, and cross to opposite places; ladies' chain follows, the couples advance and retire, and then cross to their places in the galopade step. This is a quick *chassez;* the couples do not turn round as in the galop. Usually the last figure is danced twice through both by the couples at the top and bottom and at the sides in succession. A variation is sometimes introduced by *le grand rond*, which is, all the dancers join hands, advance to the centre, retire, advance and retire; this is followed by ladies' chain, and then by *le grand rond* again, or by a universal galopade round the square.

Quail.—The quail is called by the naturalist the *Coturnix vulgaris*, and belongs to the *Tetraonidæ* family. It is a small bird, being not more than seven inches long, brownish on the upper parts, with darker shaded streaks and mottles; the upper portion of the breast is the same, while the lower part, the belly, and tail-coverts are a yellowish-white. We read of this bird in very ancient histories, and it is



QUAIL.

believed it is the same that supplied the Israelites with food in the wilderness. The flesh is exceedingly tender and delicious, but it is a curious fact that one cannot eat of it day after day without taking a loathing to it. Quails arrive from Africa in this country in May, and in the islands of the Mediterranean in April. They are not very abundant in this country, however, and our market is chiefly supplied from France.

Quarantine.—This term, which has also other significations, is commonly applied to a regulation by which communication with persons, ships, or goods arriving from places infected with the plague or other contagious disease, or liable thereto, is interdicted for a certain time. The term is derived from the Italian *quaranta*, forty, it being supposed that if no infectious disease break out within forty days, or six weeks, no further danger need be apprehended. During this period all the things which were supposed to be capable of retaining infection are subjected to a process of purification. The notion that the plague was imported from the East into Europe seems to have prevailed in all ages. The Venetians were the first who endeavoured to guard against its introduction from abroad, by obliging ships and persons coming from suspected places to perform quarantine. The regulations upon this subject were probably issued for the first time in 1484; they have since been gradually adopted in every other country. Their introduction into England was comparatively late. Various preventive regulations had been previously enacted, but quarantine was not systematically enforced till after the alarm occasioned by the dreadful plague at Marseilles in 1720. The regulations then adopted were made conformably to the suggestions of the celebrated Dr. Mead in his famous "Discourse concerning Pestilential Contagion." The existing quarantine regulations are embodied in the 6 Geo. IV. c. 78, and the different Orders in Council issued under its authority. These orders specify what vessels are liable to perform quarantine, the places at

which it is to be performed, and the various formalities and regulations to be complied with. The publication in *The London Gazette* of any Order in Council with respect to quarantine is deemed sufficient notice to all concerned, and no excuse of ignorance is admitted for any infringement of the regulations. To obviate any foundation for such plea, it is ordered that vessels clearing out for any port or place with respect to which there shall be at the time any Order in Council subjecting vessels from it to quarantine are to be furnished with an abstract of the quarantine regulations. (See further provisions on this subject in 29 & 30 Vict. c. 90, ss. 51, 52.)

Quart.—A measure of capacity, being two pints, or the fourth part of a gallon. (*See* WEIGHTS AND MEASURES.)

Quartan-ague.—This is that form of ague in which the paroxysms occur once in every seventy-two hours. (*See* AGUE.)

Quarter Days and Half-quarter Days.—In England and most Continental countries the four quarter days of the year are as follow:—Lady Day (March 25), Midsummer Day (June 24), Michaelmas Day (September 29), and Christmas Day (December 25). The half-quarter days are February 8, May 8, August 11, and November 11. The Scotch quarter days are—Candlemas (February 2), Whit-Sunday (May 15), Lammas Day (August 1), and Martinmas (November 11).

Quarterings.—These are the four divisions into which the field of a shield is divided when the bearer of it possesses the right of exhibiting several coats of arms. The term also refers to the arms emblazoned upon these divisions. The area is marked in four equal parts by one vertical line cutting one horizontal line. In cases where there are more than four coats to be quartered, the quarterings are divided again in the same manner, and are spoken of as quarterly quarterings. In apportioning coats of arms, precedence is given to that which has been borne for the longest period; it is placed in the first quarter. If there are only three to be quartered, the first is repeated in the fourth. Thus, in the Royal Arms, those of England occupy the first and the fourth quarter of the shield, those of Scotland the second, and those of Ireland the third. They are thus quartered according to seniority of acquisition. Quarterings have been adopted from an early period; they are chiefly used to show descent from an heiress.

Quartette.—A composition in music specially arranged for four performers. There are vocal and instrumental quartettes; in both of these the nature of the composition is the same—namely, that the presence of all the parts is essentially necessary to give the proper effect, the absence of one voice or instrument not being permissible.

Quarto.—A book of quarter-sheet size, each sheet of paper making four leaves or eight pages. It is commonly abbreviated 4to. (*See* BOOKS.)

Quartz.—A very common mineral, consisting of an oxide of silica; sometimes crystalline and transparent, as in rock crystal, at other times amorphous and more or less opaque, as in flint. It has generally a conchoidal fracture. The most important of the crystalline varieties are rock crystal, which is colourless; amethyst, when blue; topaz, when pale yellow or pale pink; cairngorm, when yellowish-brown. In the amorphous class the most valued are opals, jaspers, agates, chalcedony, and bloodstone, on account of the beautiful combinations of their colours. Flint is of more humble use, but of economic importance for making glass, as a building material, in gravelling roads, &c. Its use for producing sparks of fire by percussion is now superseded by inventions of more convenient application. Some of the varieties of quartz mentioned above are more fully described under their respective headings.

Quass.—A mixture of rye flour and warm water, kept by the fireside till it becomes sour. The Russians are said to use it as vinegar when it grows too sour to drink.

Quassia.—This is the wood of the *Picræna excelsa*, belonging to the natural order *Simarubaceæ*, imported from Jamaica. It is seen as little chips, which have no smell, but have an intensely bitter taste. Quassia is extensively employed as a bitter tonic and stomachic, especially in those cases where the stomach is wanting in tone. It is frequently combined with iron, with which it is chemically compatible, owing to its containing no tannin. Mixed



QUASSIA.

with lime-water in equal proportions it is employed successfully as an enema in thread-worms. The preparations of quassia are:—1. *Infusion.* This is made by steeping a drachm of the chips in half a pint of cold distilled water for a few hours. The dose is from one to two ounces. The infusion should not be kept more than a few days, as it soon decomposes, especially in hot weather. 2. *Tincture.* This is made from the chips and proof spirit. The dose is about a tea-spoonful. 3. *Extract.*

This is prepared from the chips by maceration, percolation, and evaporation. The dose is from two to five grains.

Quatrefoil. — In ornamental art, the quatrefoil is an arrangement of four cusps so as to form a flower-like opening. Placed in rows, small quatrefoils are frequently found as ornaments in the Perpendicular style of architecture, and sometimes in the Decorated.

Queen Cakes.—Delicious cakes, known by this name, are made of sugar, flour, butter, and eggs. They are usually made with currants, and are baked in tins of different shapes —round, square, heart-shaped, and oval. The ingredients require to be carefully mixed, and the oven must be brisk, but not too hot. Sometimes a coating of ice is put on after the cakes are baked.

Queen's Bench.—The Supreme Court of Common Law in the kingdom, taking its title from the fact of the king or queen formerly sitting there in person. It consists of a chief justice and four puisne justices, who are by their office the sovereign conservators of the peace and supreme coroners of the land. This court was the remnant of Anta Regia, and was formerly not stationary in any particular spot, but attended the Sovereign's person wherever he went. The jurisdiction of this court was very high. It kept all inferior jurisdictions within the bounds of their authority, and might either by writ of certiorari remove their proceedings to be determined here, or by writ of prohibition prohibit their progress below. It superintended all civil operations in the kingdom. (*See* Quo Warranto.) By writ of mandamus it commanded magistrates to do what their duty required in every case where there was no other specific remedy. By writ of *habeas corpus* it protected the liberty of the subject by speedy and summary interposition. It took cognisance both of criminal and civil causes; the former in what is called the crown side or crown office, the latter in the plea side of the court. On the crown side it took cognisance of all criminal causes, from high treason down to the most trivial misdemeanour or breach of the peace; on its plea side it exercised a general jurisdiction over all actions between subject and subject, with the exception of real actions and suits concerning the revenue. Its jurisdiction in civil actions was formerly limited to trespass or injuries said to have been committed *vi et armis*, but by means of fictitious proceedings, called Bill of Middlesex and Latitat, it usurped jurisdiction over all personal actions. It has exercised latterly a direct jurisdiction in all such actions by virtue of 2 Wm. IV. c. 39, which abolished these fictitious proceedings. In describing the jurisdiction of the Queen's Bench we have used the past tense, from the circumstance that this ancient and supreme court has now ceased to have a separate and independent existence, but has, by the Judicature Acts, 1873—5, become a division of the High Court of Justice, under the title of the "Queen's Bench Division." Most, if not all, the subjects of the ancient jurisdiction of the Queen's Bench still attach to, and are transacted in, the Divisional Court. (*See* Court and Courts of Justice.)

Queen's Counsel.—A distinct rank at the bar, consisting of barristers appointed counsel to the Crown and called within the bar, those attaining this distinction being popularly known as "leaders." Queen's counsel are somewhat similar in character to the advocates of the revenue — *advocati fisci* among the Romans. They must not be employed against the Crown without special licence, which is not refused unless the Crown desires to be represented by the particular Queen's counsel applying for it. Under the 13 & 14 Vict. c. 25, they may act as judges of assize when named in the commission.

Queen's Household. (*See* Royal Household.)

Queen's Metal is an alloy of tin with lead, antimony, and bismuth, consisting usually of nine parts of the former to one part of each of the three latter. It is a moderately soft alloy, and melts at a comparatively low temperature. Hence it is a convenient substance for making common spoons, tea-pots, and other domestic utensils.

Queen's Taxes. (*See* Assessed Taxes.)

Queen's Ware.—A celebrated kind of table-ware invented by Josiah Wedgwood, and named after its great patron, the Queen of George III. It had a cream-coloured ground, variously ornamented, or plain, and it was moulded into a great variety of forms, chiefly for use but sometimes for ornament. Its popularity led to many imitations.

Queen's Yellow (otherwise called turbith mineral). — A subsulphate of mercury, of a beautiful lemon-yellow colour, but so liable to change by the action of impure vapours or light that it cannot be safely used as a pigment.

Quern.—This name was given to the hand-mill used in the time of the Romans by the Britons. It was composed of two stones, the upper stone, or runner, being furnished with a handle, by which it was rotated upon the lower stone. The grain was inserted at an eye in the axis of the runner, and the meal was dispersed between the edges of the stones. The stones were of granite, and are occasionally met with among ruins in different parts of the world. A Roman quern dug up in Yorkshire, about 1710, was found to be twenty inches in diameter. One stone was slightly conical, and the other somewhat disked.

Quicksilver. (*See* Mercury.)

Quid pro quo.—A very popular form of expression. It is used in law to denote the giving of one valuable thing for another. It signifies the mutual consideration which passes between the parties to a contract, and which renders it valid and binding.

Quidnuncs. — Gossipy inquisitive people who know, or pretend to know, all that is going on, especially among persons of some note. In other days such characters would probably

have been despised as eavesdroppers, or dealers in tattle, which they commonly are.

Quietus.—A word formerly used by the clerk of the pipe and auditors in the exchequer in their acquittances or discharges given to accountants, signifying to be freed, acquitted, or discharged. It long since passed into a common phrase, as to give a particular person his "quietus." It is used in this sense by Shakespeare in the soliloquy in *Hamlet* (act iii., scene 1).

Quill Pens.—The best quills for writing purposes are obtained from the wings of the goose, the five outside feathers in each wing being used for this purpose. Quills for pens are also obtained from the turkey; the stems of these are much stronger than those of the goose, and turkey quills are therefore employed for purposes where a strong pen is required. Swan quills make pens of exceptional size and strength. Crow quills are largely employed to make fine-nibbed pens for delicate writing or drawing. Quills when first plucked are unfit for use, and require a great deal of preparation. In the natural state the stem is soft, tough, and opaque, instead of being hard and transparent; the quill is also covered inside and out with a vascular membrane, and a considerable quantity of fatty matter adheres to it, which would seriously interfere with the flow of the ink if the quills were used in their natural state. There are several methods of treating quills with a view to rendering them fit for use. The method originally employed by the Dutch, who were at one time noted for their quills, was to press the quills into red-hot ashes. In this way all moisture and fat were got rid of, and the membrane was detached. Great care was, however, necessary in order to prevent the quills from being injured by a too great exposure to the heat. A more improved method is to introduce the quills for a second or two into a sand-bath heated to a temperature of 140° Fahr., and then to rub them while hot with flannel. Another method is to introduce the quills into boiling water, and then to expose them to the heat of burning charcoal; while hot, the quills are drawn under the edge of a blunt knife, which squeezes them flat and cleans them. The round shape is then restored to the quills by again exposing them to heat. By all these methods the inner membrane that lines the inside of the barrel of the quill becomes detached, shrivels up, and drops out when the quill is cut, while the outer membrane readily peels off.

Quilling.—This method of making a trimming consumes a great deal of material, at least twice the quantity of the actual length wanted being required to make ordinary quilling; and when it is desired very full, three times the quantity will be necessary. The work requires delicate handling and nimble fingers; the flute-like folds should not be pressed or crushed, and they should all be of one size. Practice is required to quill ribbon or silk neatly; few needlewomen are clever enough to quill net or tulle satisfactorily. The latter process is now done mostly by machines.

Quills, Porcupine.—These are quite different in appearance to those obtained from birds; they are long sharp-pointed spines, ringed white and black, and have no filaments attached to them. Porcupines are found in Southern Europe, in Africa, Canada, and India. The back and sides of the animal are covered with quills, some of which measure twelve inches; they are easily detached. The North American Indians dye them various colours, and ornament belts, shoes, pouches, and other articles with them. The spines are also sometimes mounted with silver and used as penholders.

Quillwork, or Ecaille.—A sort of embroidery, small pieces of flattened quill, cut out by means of punches while the quill is in a soft state, being sewn upon velvet, satin, &c., in various patterns. Its effect, whether in relief or in flat embroidery, is said to be best displayed on velvet when intermixed with gold. Mother-of-pearl is sometimes cut into similar forms, and wrought in the same way.

Quilting.—This work is now done mostly by the sewing machine, which is very expeditious in its movements. Small hand-machines are capable of quilting, and for the purpose are provided with an additional help called a quilter, which guides the needle in a straight course. Quilting looks the best when the material is silk or satin; the working thread should always be silk. The usual pattern is that known as the diamond; there are others more fanciful, but none prettier in effect. In preparing work for quilting, sheets of wadding are necessary to place between the outside material and the lining; the outer fleece should be peeled off the wadding, as it not only adds to the weight, but also prevents the soft puffy appearance desirable in quilting. The three materials should be tacked together before the work is begun. In marking the lines on the material, great exactness should be observed. If a simple diamond is to be traced, a length of string dipped in moistened pipe-clay will do the work; it is held at each end, and is allowed to rest for a moment on the material at the desired intervals, all the lines slanting in one direction being done first, and then those which cross them. For elaborate patterns it is necessary to use the process of pouncing. (*See* POUNCING PATTERNS.)

Quilts. (*See* BED-QUILTS.)

Quince, called by naturalists the *Cydonia vulgaris*, belongs to the family *Pomaceæ*. The fruit is a species of apple of rare fragrance, covered with a kind of down, and harsh to the taste. There are two sorts, the seeds of which are used in medicine to produce a mucilage, which, given internally, is demulcent, and externally may be employed as a lotion to the skin in cold weather. Jelly is made from quince as well as marmalade. The quince may be cultivated from the seed, but is best propagated from cuttings or from suckers, which should be planted in autumn. The layers in a year's time will be ready for transplanting and subsequent training. The fruit of the quince is gathered on a dry day in November, care being taken to

bruise them as little as possible, and to discard all that show any signs of decay.

Quinia, Sulphate of. (*See* QUININE.)

Quinine.—This is, properly speaking, the highly important alkaloid which is found in cinchona bark (*which see*). The term is, however, popularly applied to the sulphate of quinia, a crystallisable salt which this alkaloid forms with sulphuric acid, and in which form it is sold. Quinine, or sulphate of quinia, appears as pure white feathery crystals, insoluble in water, but soluble in excess of spirit. It is prepared by a very elaborate process from the yellow cinchona bark, by first powdering, and then macerating in hydrochloric and sulphuric acid and water; a solution of soda is also employed, then steam, heat, and afterwards filtering and crystallising. Quinine is one of the most valuable drugs we possess, and in those forms of malarious fevers, as ague, &c., which originate in marshy countries or districts, it is unquestionably a specific. In neuralgia, also, and other affections of an intermittent character, it is most beneficial. As a remedy in typhus, typhoid, scarlet, and other zymotic fevers, it is of great value, as it is found to at least temporarily lower the temperature, and thus diminish the excess of fever. In the various forms of blood poison, also, quinine has been found useful; but in these, as well as in the affections just mentioned, it must be given in doses sufficiently large to get the full benefit of the drug without producing the condition of being over-dosed—known as quinism. The symptoms of the latter are buzzing in the ears, giddiness, headache, and sleeplessness. As some people are much more susceptible to the influence of this drug than others, the dose, which varies from two to ten grains, should be gradually increased to test the power of toleration, and stopped when any of the symptoms just mentioned make their appearance. In ordinary circumstances, from two to four or five grains may usually be taken without experiencing any unpleasant effect. The preparations of quinine are:—1. *Pill of quinine.* This is made with quinine and confection of hips. The dose is from two to ten grains. 2. *Tincture.* The dose is from one to two tea-spoonfuls. 3. *Ammoniated tincture.* This is prepared with solution of ammonia and proof spirit. The dose is the same as the tincture, each containing the same quantity of quinine—viz., one grain in every tea-spoonful. 4. *Quinine wine.* This is a compound of quinine twenty grains, citric acid thirty grains, orange wine a pint. The dose for an adult is from one to two table-spoonfuls.

Quinquagesima Sunday.—In the calendar, the seventh Sunday before Easter, or about the fiftieth day before that festival (Latin, *quinquagesimus*, fiftieth).

Quinsy.—This is an inflammation of one or both tonsils, which frequently terminates in suppuration. The uvula and part of the pharynx are generally more or less implicated. Quinsy is said to be produced by cold, but it is more probably due to so-called bacteria, or disease germs in the air, which have settled in the throat and excited irritation and inflammation there. In this way it may be classified as one of the zymotic diseases, and is accordingly preventible. The symptoms of this affection are a high state of fever, soreness of the throat, with difficulty of swallowing, white furred tongue, and thirst. As the disease progresses, one or both tonsils soon become very much swollen, and the difficulty of swallowing increases, the food often regurgitating through the nose. These symptoms rapidly reach a crisis; and just when the sufferer imagines he is about to be suffocated, relief is suddenly experienced, either from the suppuration of the tonsil or from what is called resolution of the inflamed condition. The treatment of quinsy in the earliest stage, if the bacteria theory be correct, is, if possible, to destroy these germs, and this may probably be accomplished by the careful inhalation of sulphurous acid. When inflammation has been established, and the tonsils much swollen, frequent inhalations of steam will be of the greatest service. The bowels should be thoroughly cleared with a full dose of calomel (three grains), taken at bedtime, and followed in the morning by a black draught. The following mixture should then be taken three times a day for a week:—Chlorate of potash fifteen grains, nitrate of potash five grains, nitro-muriatic acid five drops, syrup of orange a tea-spoonful, and decoction of bark or infusion of gentian one ounce. The best external application consists of fomentations of hot water or hot poppy-water, and in some cases a blister.

Quintessence. — Concentrated or pure essence. Also, colloquially, the superlative degree, as the quintessence of wisdom, folly, goodness, wickedness, &c. The word is sometimes, but rarely, used for designating certain preparations, as quintessence of noyeau, quintessence of lemon-peel, &c.

Quinze.—A game at cards, usually played by two persons with an entire pack of cards. It is called quinze (French for fifteen) because fifteen is the game, which is made as follows:—The two players cut for deal, which is determined by the lowest card. The cards are then shuffled, and the dealer gives one card to his opponent and another to himself. Should the dealer's adversary not approve of his card, he is entitled to have as many cards given him successively as will make the total number of pips fifteen, or come nearest to that number. Should he overdraw and make more than fifteen, he loses the game, unless the dealer should do the same, which constitutes a drawn game; in such a case the stakes are doubled, and play goes on till one of the players wins the game by standing and being nearest fifteen. At the close of each game the cards are shuffled, and the players again cut for deal, the advantage being almost invariably on the side of the elder hand.

Quire.—In printing, twenty-four sheets of paper, or the twentieth part of a ream (*which see*). A quire of printed newspapers consists of twenty-five sheets.

Quire, or Choir. (*See* CHOIR.)

Quit, Notice to.—The term applied to a notice to determine the tenancy, either by the landlord or tenant. Where the tenancy is from year to year, it can only be determined (except by special agreement) by a six months' notice, expiring with the current year of the tenancy. Particular local custom will, however, override this general rule. A parol (*i.e.*, verbal) notice to quit by a tenant is sufficient; but it should, however, in all cases be in writing, as it is thus more easily proved. The notice should be clear and unambiguous. Leaving a notice to quit at a tenant's house with a servant, without further proof of its being explained to the servant, or that it came to the tenant's hands, has been held insufficient; personal service is therefore in all cases desirable. If a landlord receive rent, or distrain for it, after the expiration of a notice to quit, it is a waiver thereof, and a second notice waives the first. If a landlord have given notice to quit, and the tenant holds over, the landlord cannot waive his notice and distrain for rent subsequently accruing. If at the end of the year (where there has been a tenancy from year to year) the landlord accept another person as his tenant in the place of the former tenant, without any surrender in writing, such acceptance shall be a dispensation of the notice to quit.

Quit Rents.—Certain established rents of the freeholders and ancient copyholders of manors are denominated quit rents, because thereby the tenant goes quit and free of all other services. (*See* COPYHOLD.)

Quo Warranto.—A writ formerly in use in the Court of Queen's Bench (now the Queen's Bench Division of the High Court of Justice). It was in the nature of a writ of right for the Crown to inquire against any one who claims or usurps any office, franchise, or liberty, *by what authority* he supports his claim, in order that the right may be determined. The writ would lie also in case of non-user or long neglect of a franchise, or misuser or abuse of it, commanding the defendant to show by what warrant he exercise such a franchise, having never had any grant of it, or having forfeited it by neglect or abuse. This writ having fallen into disuse, on account of the delay with which it was attended, a more expeditious mode of proceeding has been adopted by filing an information by the Attorney-General in the nature of a *quo warranto*, in which the person usurping is considered as an offender, and consequently punishable by fine. This proceeding is generally adopted for the purpose of trying the right to corporate offices. Informations in the nature of *quo warranto* are of two kinds, and are filed either by the Attorney-General, or by the Coroner and Attorney of the Queen, usually called the Master of the Crown Office. Informations *quo warranto*, filed by the Attorney-General, are only filed for the purpose of trying the right to some private franchise claimed by the Crown and usurped by a subject. When the proceeding is adopted with reference to the exercise of offices of a public nature, it can only be filed by leave of the Court, at the relation of a particular person, regulated by the preceding Statutes (9 Anne, c. 20). The Court exercises a discretion in granting this information, and where there is adequate relief by another mode of proceeding the Court will not generally interfere. (*See* QUEEN'S BENCH.)

Quoits.—This is a game of very ancient origin, said to be derived from the discus-throwing of the Greeks and Romans. To play at quoits, two iron pins called "hobs" are driven into the ground, within a few inches of their tops, at a distance of from 18 to 25 yards apart. Each player is provided with two quoits, which are flattish rings of iron, convex on the upper side and slightly concave on the under, usually from 8¼ to 9½ inches in diameter, the ring being between 1 and 2 inches in width. The weight of the quoits is usually from four to five pounds per pair. The players stand at one of the hobs, and in succession throw their quoits as near to the other hob as possible. The player whose quoit lies nearest to the hob scores one point; if both his quoits lie nearer than any other he scores two; while, should he succeed in making a "ringer," *i.e.*, throwing his quoit exactly over the hob, he scores three. The quoit when thrown must fall with its flat side to the ground; should it fall with this side upturned it is considered dead, and is out of the play. When there are four players they generally choose sides and stand two at either end, throwing the quoits alternately, so that the contest can be maintained without any change of position. When, however, there are only two players they throw alternately from either end. Fifteen points generally form the game for four players, and eleven for two players.

Quorum.—A competent number of committee-men and others for the transaction of business. Thus, if a committee consists of twenty members, it may be decided that so many shall form a quorum; that is, shall have authority to transact business at any meeting regularly called. The word is Latin, meaning "of whom," and its use arose out of the form in which certain appointments were made when written in Latin.

Quotidian.—Occurring daily. The word is specially applied to some agues and other intermittent forms of disease which recur regularly every twenty-four hours.

R

R.S.O. (Postal abbreviation).—These letters following the name of any place in this kingdom denote that the office at such place is what is called a railway sub-office, or one which receives its correspondence direct from a travelling post-office, and not through a post-town. The letters S.O. sometimes alone occur for sub-office, or an office which does not receive all its correspondence from its proper head-office. Where these abbreviations are appended to the names of places in the "British Postal Guide," they should be added to the address of

letters for such places, to facilitate delivery and prevent mistakes.

Rabbit Fur. — The chief use to which rabbit fur is appropriated is that of making felt hats, and this process is now accomplished by means of very efficient machinery. The skins and fur combined are dressed in many ways, and are successfully made to imitate the rarer and more costly furs. Ermine and miniver are made from white rabbit skins, and the dark skins are dyed to imitate dark valuable furs. In the reign of Henry VIII., rabbit fur was highly valued and worn by the nobility. The skins separately are sold to glue-makers, and used with shreds of other skins to make glue and size.

Rabbit Skins. (*See preceding paragraph.*)

Rabbit, Welsh and English.—The name of Welsh rabbit is given to a preparation of toasted cheese, which the Welsh consider is made to perfection in their country only, though when made according to some of the recipes we have in England, it may be questioned whether the result of the Welsh method is any more satisfactory than ours. Toasted cheese, spread over a square of toast on a hot dish, accompanied by a glass of good ale, is as good as a feast to a hungry man. The word rabbit, used in this sense, is really a corruption of rarebit, which was the original name given, and which means a tit-bit or delicious morsel.

Rabbits.—The rabbit (*Lepus cuniculus*) is an animal that very much resembles the hare, though it is smaller in size and shorter in the length of its limbs. There have been cases known of hares and rabbits living together, though as a general rule the animals regard each other as enemies. The wild rabbit is of a greyish-brown colour, with a tail rather



WILD RABBIT.

larger than that of the hare, and more conspicuous, brown above and white beneath. Attempts have frequently been made, but unsuccessfully, to rear young wild rabbits with tame ones. Even when young the wild rabbit seems to have a horror of being looked at, and hides itself if possible. Tame domestic rabbits are merely varieties of the wild rabbit, and those are found to be the most hardy and healthy that most nearly approach to the wild animal in growth and colour. Stoutly-built rabbits of medium size, short in ear and leg, are recommended as the most profitable for keeping on a large scale. Fancy rabbits, which are generally kept more for amusement than for economy, demand the greatest outlay and the most attention. The length of their ears and the manner in which they fall are points of great importance, and the most esteemed colour for rabbits of this description is tortoiseshell of a rich brown, white, and yellow. The style also in which the colours are distributed over the body affects the value; it is essential that the ear should be dark, and any white or grey hairs upon the dark spots are regarded as blemishes. The rabbits imported to us from Ostend are a much finer, larger breed than English rabbits; some are as large as hares, and the flavour of the meat is tender and delicate.

Rabbits as Food.—The flesh of the rabbit, in its nutritive character, greatly resembles that of the hare, but it is very different in taste. It is pale in colour, loose in texture, devoid of any marked flavour, and is by some considered easy of digestion. The meat is tender, and its fibres close, but it cannot be regarded as possessing the digestibility belonging to many other kinds of animal food. It is characterised by the small amount of fat it contains, and its constant use soon induces satiety. By the healthy it is consumed rather as a change than as a staple article of food. Owing to the delicacy of its flavour, it is a favourite dish for convalescents. The Jews were prohibited from eating the rabbit and the hare, but the reason for so doing is not clear. Coney is the old English name for the rabbit, and its name in many other languages is similar to this.

Rabies.—This is the technical name given to madness in the dog; the equivalent disease in the human being is called hydrophobia. There is one remarkable difference between the symptoms of rabies and hydrophobia—namely, the great dread of water evinced by mankind while suffering from this disease; while, on the other hand, a rabid dog will plunge his head into the water even when he cannot swallow. For the symptoms of rabies, *see* DOGS, MAD.

Raccoon or Racoon Fur.—This is used for lining coats and carriage-rugs, and also in the manufacture of hats; it was a distinctive ornament assumed by the Jacobins in 1793. This fur is thick and deep; the undergrowth, which is soft and of a woolly character, is grey in colour; the hair on the surface is somewhat stiff, and is black and light grey; the tail, which is long and bushy, is ringed with black and grey. The raccoon is exclusively American; its characteristics are those of the bear and the badger; its size that of a small fox. It frequents marshy districts and river banks; it is easily captured. When pursued it usually takes refuge in a tree, from which it is very soon dislodged. The South American raccoon is larger than that which inhabits North America.

Raceme. — A word used in botany to designate a peculiar kind of inflorescence; that of the common currant may be taken as an example.

Racemic Acid is identical in composition with tartaric acid (*which see*), but differs in some of its physical properties, especially in its being optically inactive.

Rachitis. (*See* RICKETS.)

Rack-rent.—A rent of the full annual value of the property, or near it.

Rackets.—A game much resembling fives and tennis (*which see*), usually played out of doors on an open space of ground bounded at one end by a high wall. The ground is marked out into four equal compartments or *courts*, so that there may be two courts adjoining the wall and two beyond. A broad white line is marked on the wall about forty-two inches above the ground, and in play every ball struck against the wall should hit it above this line. The game is played by either two or four players; in the latter case they form sides, two on each side. When there are only two players, each guards two courts; when there are four, they each occupy a court, those nearest the wall being the in-hand, and those farthest from the wall the out-hand players. To strike the ball a light bat or *racket* is used. This racket, which supplies the name of the game, consists of a framework of wood or cane, with a strong network of catgut, and provided with a handle. The balls are ordinary tennis balls, and should not weigh more than an ounce each. A large number are required, as after being struck once or twice they require to be dipped in powdered chalk, so that they may leave a mark on the wall where they strike it. Having determined by chance who is to commence play, the in-hand player strikes the ball against the wall; should it go over the wall, or under the white line, or rebound anywhere but in one of the outer courts, the striker is out, and the out-hand player takes his place. Should it, however, rebound into one of the outer courts, the out-hand player must strike it against the wall above the line in such a way that it may rebound into one of the inner courts. Should he fail to do this, the in-hand player scores one point or ace, and serves the ball again, and so on. Should the out-hand player succeed in his endeavour, the in-hand player must take the ball as it rebounds and strike it so that it may in turn rebound in one of the outer courts. The great object of the game is, in fact, so to strike the ball that on its rebound in the legitimate court the opposing player may fail to strike it correctly. It will be seen, by a reference to LAWN TENNIS, that in all important respects that game and its rules are very similar to rackets.

Racking Wines.—The racking of wine from one cask to another is a process necessary in order to clarify the wine, and also to check in it any tendency to fermentation. Both these objects are attained by leaving the yeast, with the sediment, in the cask in which the wine was originally deposited. As a rule, strong wines are not racked for a year after being made, which delay allows time for a partial fermentation to have taken place. Light wines are racked much sooner. Spring is the most suitable time of the year for the operation to be performed, since cold or cool weather is necessary, as the wine is apt to be turbid if racked in damp close weather or when south winds prevail. The use of a clean syphon, well managed, will be found to answer the purpose better than a tap or faucet. When the tap is used, the wine should be drawn as quickly as possible. The refuse or thick portion may be strained through a wine-bag, and added to some inferior wine. New casks must not be used until they have undergone some preparation. After washing the cask, hot brine should be poured into it; it should then be bunged up, well shaken, and left to stand till the brine has cooled. The cask may then be emptied, and will be ready to receive the wine. In order to prevent the contraction of any bad taste or smell, a brimstone match should be burned in it. This may be done by hanging the match by a crooked wire from the bung-hole, taking care that the match does not fall into the cask. The sulphuring of casks by this means tends to check any after-tendency in the wine to fermentation. When tainted or mouldy, casks should be cleaned with lime and water, afterwards with dilute sulphuric acid, and lastly with boiling water.

Racks.—In a general sense the word rack signifies something used for stretching or for spreading articles out for use. As an instrument of torture also, in the time of the Inquisition, the rack will ever be remembered as the means employed to extort a recantation from those accused of heresy. Among the numerous requisites that have to be supplied for domestic use, two or three of these come under the name of rack, as toast-rack, egg-rack, plate-rack, and bottle-rack. In connection with husbandry, horology, shipping, and other sciences, the word is given to various distinct articles peculiar to each department.

Racoon. (*See* RACCOON.)

Radiation.—A property attaching to both light and heat. All luminous and heated bodies give out their light and heat in all directions into the surrounding space, the emissions travelling always in direct lines or rays until intercepted. The intensity of the heat or light thus radiated will be in inverse proportion to the square of the distance from its source. Our principal source of both light and heat is the sun; and were it not for radiation, we should be altogether deprived of this supply. The amount of heat received from the sun diminishes as the thickness of the air traversed by the sun's rays increases. When the sun is nearing the horizon, the absorption by our atmosphere is therefore greater than when it is at the zenith, and hence we feel the intensity of the sun's rays more at noon than at other times; but the chief absorbent is not the oxygen and nitrogen of which the atmosphere is composed, but the aqueous vapour which is held in suspension by it. A great part of the heat received by our earth from the sun during the day is radiated back into space during the night, and hence a fall in temperature takes place at night, which is all the greater when the sky is free from cloud or watery vapour.

Those substances, such as grass, wood, &c., which radiate the heat they have received during the day most rapidly, will generally be found covered with dew or hoar-frost at night, especially if it happens to be a starlight one. It is on account of the clearness of the atmosphere that the nights in tropical climates are often delightfully cool during the dry season, and the dew-fall very heavy.

Radicle, in botany, is the name given to the rudimentary rootlet in the embryo.

Radiometer.—This instrument, which has also been called a "light mill," was invented by Mr. W. Crookes in 1875. It consists of four arms of very fine glass, supported in the centre by a needle point, and having at the extremities thin discs of pith lamp-blacked on one side, the black surfaces all facing the same way. The needle stands in a glass cup, and the arms and discs are delicately balanced, so as to revolve (horizontally) with the slightest impetus. The whole is enclosed in a glass globe, which is then exhausted of its air to the highest attainable point, and then hermetically sealed. The vane revolves under the influence of radiation, whether of heat or light, the rapidity of the revolutions being in proportion to the intensity of the incident rays. The speed with which a sensitive radiometer will revolve in full sunshine is almost incredible. Nothing is apparent but an undefined nebulous ring, which becomes at times almost invisible. The number of revolutions per second cannot be counted, but it must be several hundreds, for one candle will make the arms spin round forty times a second. The blackened side of the vane is the one usually repelled by the incident rays; but under certain conditions a reverse action can be produced. The instrument has been adapted as a photometer, and to measure the force of radiation, and it has proved to be very accurate in its results.

Radish, Horse. (*See* HORSE-RADISH.)

Radishes.—The varieties of the common radish (*Raphanus sativus*) are very numerous, but the two kinds classed under the heads of long-rooted and turnip-rooted radishes are most commonly known, the roots of the former resembling the carrot in shape, and the latter the turnip. Radishes are sown at different seasons, and are easily cultivated in a rich light soil, where they are grown quickly. It is important that they should be thinly sown, and that where crowded they should be thinned. It is advisable also to sow frequently, in order to ensure a constant supply of tender radishes, for when allowed to stand long in the ground they become hard, and the flavour is not unlike mustard. For frame growth, Wood's early frame and white-tipped olive are the best kinds, but for successional summer growing the turnip radish cannot be surpassed. Radishes are usually eaten raw, though sometimes they are boiled and served as a vegetable.

Radishes as Food.—The root of the radish is supposed to possess great power in exciting the appetite. In its nature it is demulcent, stimulating, and diuretic, and is sometimes used in cases of debility or of excessive secretion of mucus by the organs of digestion or the urinary organs. Radish-juice mixed with sugar-candy is a popular and useful German remedy for hoarseness and cough.

Radishes, Pods of, To Pickle.—In the cultivation of radishes a few generally remain which have become too large to eat. The pods of these make excellent pickle, if gathered when the seeds within them are fully grown but soft—that is, when they are in the condition of green peas. They may be taken from the garden and put into bottles as they become ready for gathering, and have cold vinegar poured over them. Mace, ginger, and pepper may be added as desired. The bottles must be made air-tight, and kept in a cool place.

Raffles.—A raffle is a kind of lottery, or game of chance, in which various persons contribute part of the value of what is proposed as a prize. The result is determined by chance in various ways, and the winner takes the whole. Raffles come under the condemnation of the law, and, though often resorted to at bazaars and on other occasions, are illegal. What are called sweepstakes at races closely resemble raffles, and it has been held that winners cannot recover if they bet in that way, because the transaction is a lottery and illegal by statute.

Rafters.—This is the old Saxon term for the sloping timbers which rise from the opposite side walls, and, meeting at their tops, form the sides of a roof on which the boards are fixed to which the external covering is attached. They play a secondary part to the great beam or roof-tree. It is a rule in building that rafters should not be placed more than twelve inches apart.

Ragged Schools. — The originator of these was John Pounds, a shoemaker, of Portsmouth, who for many years gathered about him ragged children, and taught them as he sat at work. He died in 1839; and at the same time, or a little earlier, a Ragged School Union was formed in London. The movement became popular, and spread over the country. In 1877 the Ragged School Union reported 28,451 scholars. Modern legislation has so materially affected the ragged school system that its peculiar sphere is almost wholly occupied by the school board agencies. It unquestionably accomplished a vast amount of good, and it must be remembered that it was based on purely philanthropic principles, and made its way against every kind of obstacle. The ragged school system includes not only day schools, but Sunday schools, ragged churches, shoe-black brigade, penny banks, mothers' meetings, and a number of other departments.

Ragouts.—Correctly speaking, a ragout is a rich, highly-flavoured sauce, made with mushrooms, truffles, sweetbreads, quenelles, and stewed vegetables, and is used as a garnish for other dishes. Ordinarily, however, a ragout is understood to mean any highly-flavoured preparation of meat, game, or fish. The French word is *ragôuter*, to revive the appetite, and is evidently derived from the Latin *regustus*, tasted again. Both these words are well applied with regard to ragout as an article of

cookery, for it has been described by some one as something "moreish," or something you will wish to be served with twice.

Rail.—An outer cloak or covering; a neckerchief for women. A "woman's night-rail" is a name derived from the Anglo-Saxon, being a diminutive of *ray*, the past tense of the verb to cover, or to cloak. These night-rails were worn in the daytime in the streets during Queen Anne's reign. In "Walker's Historical Memoirs of the Irish Bards" (1818), the fashion of "wearing bed-gowns in the streets" is mentioned, and also the fact that "the *canaille* of Dublin were so disgusted with it that they tried every expedient to abolish it," insulting the ladies who adopted it, and ridiculing it in ballads. But it is stated that "the only expedient that proved effectual was the prevailing of an unfortunate female, condemned for murder, to appear at the place of execution in a bed-gown."

Rails.—The bars which rest over and under balusters of balconies, or extend from post to post in fences, are called rails. The term is also applied to the boards between the panels of doors, wainscoting, &c., and to the moulding ornaments in the bow and stern of a ship.

Railway Passengers.—The 24 & 25 Vict. c. 100, enacts that whosoever shall unlawfully and maliciously put or throw upon or across any railway any wood, stone, or other matter or thing, or shall unlawfully and maliciously take up, remove, or displace any rail, sleeper, or other matter or thing belonging to any railway, or shall unlawfully and maliciously turn, move, or divert any points or other machinery belonging to any railway, or shall unlawfully and maliciously make or show, hide or remove any signal or light upon or near to any railway, or shall unlawfully and maliciously do, or cause to be done, any other matter or thing, with intent to endanger the safety of any travelling or being upon the railway, shall be guilty of felony, and liable to be kept in penal servitude for life, or for any term not less than three (now five) years, or to be imprisoned for any term not exceeding two years, and if a male under sixteen years of age, with whipping. Whosoever shall unlawfully and maliciously throw, or cause to fall, or strike at, against, into, or upon any engine, tender, carriage, or truck used upon any railway, any wood, stone, or other matter or thing, with intent to endanger any person in or upon such engine, &c., or in or upon any other engine, &c., of any train of which such first-mentioned engine, &c., shall form part, shall be guilty of felony, and liable to the same punishment; and whosoever, by any unlawful act, or by any wilful omission or neglect, shall endanger, or cause to be endangered, the safety of any person conveyed or being in or upon a railway, or shall aid or assist therein, shall be guilty of a misdemeanour, and, being convicted thereof, shall be liable, at the discretion of the Court, to be imprisoned for any term not exceeding two years, with or without hard labour. (See also 24 & 25 Vict. c. 97, ss. 35—38.)

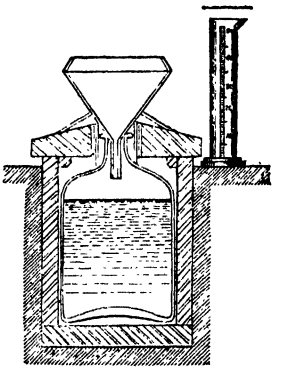
Railway Travelling, Etiquette of.—This is very much made up of mutual concessions and the endeavour not to do or say anything which may be disagreeable to others or cause them inconvenience. Smoking will be avoided where there are ladies; and as smoking compartments are generally provided with every train, it can scarcely be necessary to ask permission of ladies. One rule seems to be established, and it is that the control of the windows belongs to those who occupy the end places of seats which face the engine; but, of course, such persons will listen to requests made by their fellow-travellers. It is not etiquette to take dogs in carriages meant for passengers, nor to drag in heavy luggage and parcels. The question of conversation must be settled as it would be in any place where people who are strangers are brought together; speaking may be even necessary, and slight attentions may be called for, and every well-bred person will then know what to do. It is, of course, not etiquette to force conversation on those who appear to be disinclined for it.

Railways, or Railroads, are so called because the vehicles upon them run upon continuous lines of iron or steel rail. They seem originally to have been what we call tramways, and were introduced, perhaps, two centuries and a half ago in the mining districts of England. Steam power was first used upon them early in the present century, but the great railway system of our day was practically inaugurated by the Stockton and Darlington line, for which an Act was passed in 1821, and which was opened in 1825. The next great work of the kind was the Liverpool and Manchester line, opened in 1830. Others followed in rapid succession, and schemes multiplied to such an extent, that in 1846, the year of railway mania and panic, 272 Acts were passed for railways. The London and Birmingham, now London and North Western, was opened in 1838; the Eastern Counties, now Great Eastern, in 1839; the Great Western in 1841; the Great Northern in 1842; the Edinburgh and Glasgow in the same year; and the London, Chatham, and Dover in 1844.

Rain.—Whenever the moisture which is suspended in the atmosphere in the form of mist or cloud can no longer be retained in a finely-divided state, the minute particles become collected together in the form of drops, and then fall to the earth in the shape of rain. This may be produced either by a sudden cooling of the air, which will cause the moisture to be precipitated (because cold air is much sooner saturated with watery vapour than warm air), or by the radiation of heat from a warm moist stratum into dry cold air above, or by the coming together of opposing currents in the atmosphere. Raindrops vary greatly in size, as they must increase from taking up additional particles of moisture in the course of falling, independently of the different circumstances under which they are generated. There is great divergence in the annual amount of rainfall in different localities, as the natural features of the place or neighbourhood exercise a great influence. As a

rule, there is the greatest rainfall in the tropics, and it generally becomes less as the poles are approached; this is readily accounted for, as the hotter the climate, the greater will be the evaporation; but proximity to the sea, exposure to certain prevailing winds, the neighbourhood of high mountains, and many other circumstances, will cause an exceptional rainfall. In British Guiana (near the equator) it is found to vary from 85 to 132 inches, according as it is a wet or dry year. At Calcutta from 52 to 93 inches, and at Mauritius from 20 to 68 inches—these two stations being just within the Tropics of Cancer and Capricorn respectively. At Cape Town from 18 to 36 inches; at Adelaide, South Australia, from 15 to 30 inches; at Brussels from 18 to 35 inches; at Greenwich from 13 to 34 inches; at Haddington from 17 to 33 inches; at Christiania from 13 to 26 inches: these six stations all lie in the temperate zones. The east coasts of the British Isles receive much less rain than the west coasts, on account of the warm westerly winds bringing with them the result of the evaporation from the Atlantic Ocean, the difference being perceptible in the luxuriance of the vegetation of the western counties. While it is very desirable that the rain-water which thus falls on the surface of the country should not be allowed to accumulate and stagnate, it is equally necessary to guard against the other extreme of making our drainage system so very complete as to carry off the natural irrigation too rapidly. Wooded land always retains moisture longer than that which is denuded of timber-trees; and hence the reduction of these and the increase of drainage are tending to increase the liability of the valleys and river-courses to sudden temporary floods, and to subject the rest of the country to drought. This is already seriously felt in many districts, and the evil appears to be on the increase. Rain-water is nearly free from the earthy and saline ingredients which make most spring waters hard, and hence it is much to be preferred for washing and any other operation in which soap has to be employed. It is, however, insipid in taste, and generally too much contaminated by the smoke which pervades the air of our large towns to be agreeable for drinking or culinary purposes. As much as 4¾ gallons of rain will be required to cover a square yard of ground to the depth of one inch. The weight of that covering an acre of ground will be 100 tons for every inch deep.

Rain-gauge, or pluviameter, is an instrument for ascertaining the amount of rain which has fallen on a given surface. These gauges are of simple construction, consisting of an open receiver to catch the rain, with a funnel-shaped bottom leading to a graduated glass tube, on which the level of the water can be read off to a nicety; or the water collected may be poured into a measuring glass, as in the woodcut. In order that the gauge should give accurate results, judgment must be exercised in so placing it that no large objects, such as houses, trees, &c., should screen it from the full amount of rain, from whatever direction that may come. For purposes of comparison, the reading should be made once a day, 9 a.m. being the hour generally adopted; and the height of the receiver above the surface of the ground, as well



RAIN-GAUGE.

as that of the latter above the sea-level, must be recorded, as both these elements will materially affect the quantity of rain entering the receiver. The rain-gauges most in use are either five or eight inches in diameter at the top.

Rain-water. (*See* RAIN.)

Rainbow.—This familiar object is due to the decomposition of the white light of the sun when it passes into the drops of rain, and its reflection from their inside face. Hence it presents the colours of the solar spectrum. Sometimes only a single bow is perceived, but there are usually two—a lower one, the colours of which are very bright, and an external or secondary one, which is paler, and in which the order of the colours is reversed. In the interior rainbow the red is the highest colour; in the outer bow the violet is. A third rainbow is only rarely seen, the colours of this, or of any greater number that may exist, being usually too feeble to attract notice. The appearance and the extent of the rainbow depend on the position of the observer, and on the height of the sun above the horizon, as only some of the rays refracted by the raindrops are reflected back to the eye of the observer, and these alone can produce the phenomenon. The nearer the sun is to the horizon, the larger is the visible part of the rainbow; but as the sun rises the arc diminishes, and entirely disappears when the sun is 42° above the horizon. Hence the rainbow is best seen early in the day or towards the evening. The spray of waterfalls or of artificial jets of water will produce the same effect.

Raised Embroidery. (*See* EMBROIDERY, RAISED.)

Raised Pies.—The meat pies known by this name are usually made of pork, though, if preferred, any other kind of meat may be used that is perfectly free from bone and gristle. The pastry in which the meat is enclosed, instead of being short and flaky like that made for tarts and fruit pies, is made firm and solid, so that when baked the crust of the pie forms a complete wall round the meat. Owing to the

solidity of the crust, the raised meat pies, when baked, may be kept a considerable time before being used; the crust prevents the entrance of any air from without, and thus the meat is kept good. Very frequently difficulty is found, especially by inexperienced cooks, in successfully raising the crust; to meet this difficulty, moulds are supplied, made of tin, and by means of these the pies are easily made to assume a proper shape. Sometimes the crust of these pies is made not to be eaten, but simply as an enclosure for the meat; in such cases the pastry contains so little lard or butter that it may easily be made to stand firmly without a mould; when the pastry is of a richer quality, the use of the mould will be found advisable.

Raised Stitch, or Velvet Stitch.—So called from the representation of the pile of velvet made by this stitch. In order to form it, peculiar meshes, sold for the purpose, are required; the mesh is placed along a row of threads on the canvas, having its sharp edge uppermost, the needle is brought up close to the mesh, the wool is taken over it, and the needle is taken back on the other side; each stitch should pass over one thread in length and two in breadth. The stitches are cut by the withdrawal of the mesh.

Raised Work.—This is an imitation of velvet, made by a raised thick pile of wool on canvas. This appearance is obtained by means of meshes, over which each strand of wool is passed. A full description of the process is given under the heading of CANVAS, RAISED WORK ON.

Raisin Wine.—There are several recipes for making excellent wine from raisins, and when well made and carefully bottled, this beverage will keep good for a long time. Imitations, too, of foreign wines are often made from raisins, as British Cape and British champagne, and frequently the quality of wine of this description has been so excellent that it has been mistaken for the genuine article. British sherry is also made from raisins, the requisite flavouring being bitter almond-cake, or, what is more convenient, a little of the essential oil of almonds dissolved in alcohol. No fruit is better adapted to make light dry wine than the choicer kind of raisins, the muscatel being the best for the purpose. The matter which in fermentation converts a solution of sugar into vinous liquor exists in raisins in sufficient quantity to change into wine a greater quantity of sugar than the fruit itself contains, so that the addition of a large amount of sugar is advantageous, both as regards quantity and quality. Good raisin wine is not so weak as many suppose. Both raisin and other British wines are frequently stronger than the average specimens of port, in consequence of the saccharine matter contained, or of added sugar which is suffered to ferment into alcohol. On the other hand, British wines sometimes contain a great deal of unfermented sugar, or they have become pricked (*see* PRICKED WINE), and hence are extremely apt to disorder the stomach.

Raisiné.—A kind of sweetmeat of French origin. It may be made of new wine boiled down to one-half. Apples, pared and cut into quarters, are added, and the whole is allowed to simmer gently till the apples are well mixed with the wine. Grape-juice may be used for wine, and pears instead of apples. Cider also can be used for wine; and finally, some use both wine and grape-juice or pulp.

Raisins.—Dried raisins, or grapes, have long been in repute, and enter largely into the various recipes of household cookery. There are two methods of preparing them. The first of these consists in allowing the fruit to shrink and dry upon the vine by the heat of the sun, having previously partially cut through the stalk. The other method is to hang the bunches on lines, or lay them on prepared floors, to dry in the sun. According to the latter process, the fruit is also dipped in a hot solution, made by dissolving the alkali out of wood ashes with water, and to this is added olive oil and salt. The oil disposes them to shrink and wrinkle, and the alkaline solution serves to remove the waxy coat which impedes the drying of the berry. Muscatels, which are the finest variety of the raisin, are prepared according to the former method, and are sometimes called raisins of the sun. The vine leaves around them are cut away, and the foot stalk is half cut off, after which the branches are left undisturbed and the fruit unbroken, until they are removed and packed in boxes. These are the largest and sweetest raisins in the market. Malagas are so called from the place of that name from whence they come. Sultanas are the smallest raisins sold, and are characterised by an absence of stones, which saves a great amount of trouble in cookery, though they are not so full of flavour and sweetness as the large raisins. This variety comes to us from Turkey. Among the other qualities well known are Alicantes, Valencias, and Denias—from Spain—black Smyrnas, Elemo raisins, and Lexias. Raisins contain more sugar and less acid than the fresh fruit, and are therefore more nutritious, but less refrigerant. When eaten to excess, they are apt to derange the digestive organs.

Rake.—A well-known agricultural implement, the forms and varieties of which are many. It is very useful in flower-gardens, for which purpose it should be light but strong. For levelling and clearing the ground intended for seeds, and for covering seeds sown broadcast, it is essential to every gardener. It is also much used for keeping gravel walks clean and level, for tidying lawns and grass plots, and for removing dead leaves from around the roots of shrubs and trees.

Ramadân, or Ramazan.—The ninth month of the Mohammedan year. (*See* MOHAMMEDAN CALENDAR.) It is the month in which Mohammed received his first revelation, and his followers are therefore enjoined to observe every day in it, from dawn to sunset, as a strict fast.

Ramboose.—An old-fashioned beverage, which in winter was made of ale, wine, eggs, and sugar; and in summer of milk, wine, rose-water, and sugar. Bailey, who writes the word rambooze and rambuze, calls it "a drink chiefly

drunk at Cambridge, made of wine, ale, eggs, sugar, and rose-water." Johnson spells the word rambooze and rambuse.

Rampion.—This is the *Campanula rapunculus* of botanists, belonging to the natural family *Campanulaceæ*. Although a native of Southern Europe, it is found in England as far north as Norfolkshire. It is esteemed for the sake of its root, which is somewhat like a small turnip or white radish, and is eaten boiled, either with sauce, or cold with vinegar and pepper. It is accordingly cultivated to a considerable extent in some parts of France and Italy, and sometimes also in England. It delights in deep though light soils, and should be sown in drills, thinned like turnips, and will be ready for use in the following autumn.

Ramson.—This is an old name used for a kind of garlic, the *Allium ursinum* of botanists, natural family *Liliaceæ*. It is found growing wild in some parts of our islands, and until superseded by the *Allium sativum*, or true garlic, used to be cultivated in our kitchen gardens. The true garlic is a native of Sicily.

Rancidity, To Correct. — The strong sour flavour of rancidity is acquired by oleaginous bodies with age or by exposure to the air, and may be removed by dissolving in them a little benzoin acid or gum benzoin. In most cases, either of these acids will prevent the accession of rancidity, or will at any rate greatly defer it. Nitric ether and its alcoholic solution will be found to have the same effect, and will not only prevent rancidity, but will also destroy any disagreeable odour that may have arisen. Rancidity may also be removed from oil by shaking it in hot water, in which a little hydrated magnesia has been suspended, though the former plan is more likely to be successful.

Ranges.—The fireplaces that are now fixed in the kitchens of modern-built houses are without doubt greatly superior to the old-fashioned kitchen ranges, a few of which are still in use. The convenient contrivances now supplied for roasting, boiling, baking, and cooking in every form imaginable are so numerous, that success in the art of cookery is much more easily attained than formerly. With the old-fashioned open ranges an unnecessary large space was devoted for the burning of the fuel, and the pans containing the meat and vegetables, &c., were placed in the open flame, consequently waste was often occasioned by the food being either burnt or smoked. The hot plate that is fixed over the fire of the modern stoves is so constructed that almost any number of pans may stand upon it and be kept simmering at the same time. The common name for the close stove is kitchener (*which see*). Cottage ranges are simply kitchen stoves made on a smaller scale, and at a very much cheaper rate than the larger ones. The fireplace, the hot plate, and the oven resemble those fixed in the kitcheners, and they may be procured with boilers or without, as desired. Where only very little space can be allowed, the cottage ranges without boilers will be found most convenient. Although made after the same principle as the large ranges, the conveniences of the cottage ranges are necessarily very limited, owing to the smallness of their size, and are only intended for use in very small houses.

Rank.—The position to which a person is entitled in any particular scale, as social, civil, military, naval, &c. The article on PRECEDENCE enters into details essentially connected with and arising out of rank, which may be either hereditary or official and acquired; sometimes official rank is itself hereditary. The rank of our titled aristocracy is mostly hereditary, but not altogether so. Rank which is due to personal creation or appointment is duly recognised in society, and the commoner of to-day takes his place without hindrance to-morrow as a peer. Military rank is sometimes acquired by purchase or by favour, sometimes by merit or customary promotion. What is called relative rank shows what persons in different scales are regarded as of equal rank: thus the relative rank of a general is the same as that of an admiral. The same rule, of course, extends to superiors and inferiors.

Ranula.—This is a small tumour, containing a glairy fluid, which is frequently found underneath the tongue in the front part of the floor of the mouth. If it attains to any size, it pushes the tongue upwards and backwards, and thus interferes with talking and swallowing, thereby causing much inconvenience. There are various modes of treating this tumour. Some surgeons pass a seton through it, others excise a portion of it, allowing the remainder to contract and become obliterated. Surgical treatment of some kind is necessary in most cases.

Ranunculus.—The ranunculus belongs to the order *Ranunculaceæ*, or crowfoots. ' It is a great favourite in gardens, the best kind being, perhaps, the *Ranunculus Asiaticus*. The flower is usually propagated by division of its roots, or the seed may be sown in October and February in flat boxes or pans filled with good loam, mixed with a sixth part of leaf-mould, care being taken to keep out worms and insects. The seed ought to be sown thinly, else the young plants will be weaklings. The young plants require great care to defend them from insects and frost. The seed pans must be planted in the soil in an open sunny border in May, and when in July the foliage has withered, they may be taken up, and the roots kept in sand until after the middle of October, when if planted out they will bloom next season.

Rape Seed and Oil.—Rape is a plant of the cabbage kind, which is cultivated in this country chiefly for the sake of pasturing sheep upon. The crop is not thinned out like turnips; the seed is sown more sparingly—a few pounds to the acre. It is usually sown in May, and the sheep may be folded on it by the beginning of August. The leaves and stalks of the plant being very succulent, the sheep fatten well on it, while at the same time the land is manured. Rape-seed may be sown on almost any soil. From rape-seed an oil is extracted by pressure and grinding. The seeds are also used for the food of birds in a state of

domestication, such as canaries, whose staple of diet should be a mixture of rape and canary seed, with a little green food occasionally.

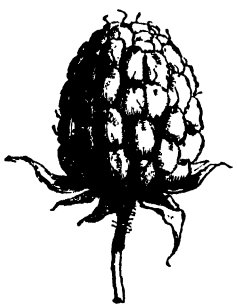
Rappee.—A sort of snuff, either brown or black. It is made of the darker and ranker sorts of tobacco-leaves, moistened, and sometimes scented. The veins and fibres of the leaves are said to be chiefly used, and the snuff is coarse.

Rarebit, Welsh and English. (*See* RABBIT, WELSH AND ENGLISH.)

Raree Show.—Properly a rarity show, an exhibition carried about in a box by an itinerant showman; a peep-show.

Rashes.—This is the popular term for many forms of skin affections, especially those of the exanthematous character, as measles, scarlatina, small-pox, &c. The origin of the term is not very clear, but it may have reference to the usually very sudden appearance of the rash or eruption in these diseases.

Raspberries.—This delicious fruit (*Rubus Idæus*), so well known in England, is extensively used in cookery, and in the manufacture of various cordials. In Britain it grows in abundance, and there are many cultivated varieties, in addition to those growing in a wild state. Wild raspberries are found in thickets and woods in the north of Asia and throughout the whole of Europe. Of those reared by cultivation, there are two kinds—the red and the white. The white are the rarer of the two. Although very valuable as a fruit, the raspberry is scarcely equal to either the strawberry or the red currant. It is a drier fruit, and very quickly loses its freshness and becomes mouldy. The best season for raspberries is from June or July to the beginning of September.



RASPBERRY.

Raspberry Brandy.—Raspberry ratafia, as this beverage is sometimes called, is made by mixing the juice of raspberries with brandy. Usually the juice of the fruit is first extracted and boiled with sugar, after which the brandy is added. The whole is then bottled securely, and may be kept for years.

Raspberry Liqueur.—In the preparation of raspberry liqueur, spirit of any kind may be used, the proportions being equal quantities of the juice and of the alcohol. In addition, essence of vanilla is often added as a flavour.

Raspberry Vinegar.—As an accompaniment to many sweet dishes, raspberry vinegar is a very great improvement. It is made by adding to ordinary good vinegar a proper proportion of raspberry juice, or by infusing the fruit in the vinegar, after which sugar is added, and by some cooks brandy also. The latter tends to preserve the liquid from fermentation. Glass bottles are best for keeping the vinegar when made, as any mouldiness or fermentation can then be easily detected; besides which, the glaze with which stone jars are lined would be likely to make the vinegar injurious.

Raspberry Wine.—Excellent home-made wine may be made from raspberries, as from most other English fruits. When the juice has been extracted from the fruit, it is fermented with yeast, and sugar and flavouring are added according to taste. The flavouring ingredients may be bruised mace, ginger, almonds, orris-root, or odoriferous flowers, such as cowslip or mignonette. Raspberries are considered a delicate fruit, so that care must be exercised in boiling them. If boiled to excess, the flavour and bouquet they contain will be greatly reduced, if not entirely dissipated.

Rasps are a kind of files, the surfaces of which are "cut" somewhat differently from those in more ordinary use, being formed of a series of angular indentations or teeth running diagonally in rows, called rough cut when the indentations are of a larger kind, bastard when the tooth is smaller, and smooth when it is smallest.

Rat. (*See* RATS.)

Ratafia.—The numerous cordials known by this name are all made after the same principle, and vary according to the flavouring ingredient introduced in each case. It is thought by some that the name originated from the fact that at one time liquor of this description was drunk at the ratification of an agreement or treaty, though it is more probable that the word is a corruption of Rectifié or rectified spirit. With us, ratafia is the name given to spirituous liquor flavoured with the kernels of various fruits, such as peaches, cherries, and apricots, and is used as a flavour for sweet dishes. It is necessary to bear in mind that though ratafia is very delicious when used sparingly, it is unpleasant and even poisonous when moderation is not exercised. Distilled peach or apricot leaves may be used instead of ratafia for flavouring puddings. The biscuits known as ratafia cakes are flavoured with almonds.

Ratan. (*See* CANES.)

Ratany, or Rhatany.—This is a plant called by the botanist *Krameria*, and belonging to the natural order *Polygalaceæ*, and is a native of Peru, where it grows on sandy hills and flourishes all the year round. The root is used medicinally in this country as powder, extract, infusion, or tincture, principally in the treatment of chronic diarrhœa or dysentery, it being a powerful astringent. It is also used as a styptic, to stop bleeding from abrasions or small cuts. The tincture may be applied to spongy gums; the dose of it internally is from half a tea-spoonful to two tea-spoonfuls in water. The root finds its way into most tooth-powders, being useful for reddening and hardening the gums.

Ratatouville.—A savoury dish of this name is made by the French out of the remains of cold meat, and is considered by them very delicious. It is not necessary that one kind of meat only should be used; it is very common to have a mixture of meats, all of which must, however, be perfectly free from taint. The meat is cut into small pieces, and simmered gently in stock that has previously been boiled with various vegetables and seasoning. Sometimes the gravy is thickened with curry powder, and boiled rice is generally served as an accompaniment.

Ratchet, or Ratch, is a bar, one extremity of which abuts against the teeth of the ratchet-wheel. (*See next paragraph.*)

Ratchet Wheel.—A wheel supplied with projecting teeth, against which one end of the ratchet abuts, so as to prevent its rotating in any but one direction.



RATCHET WHEEL.

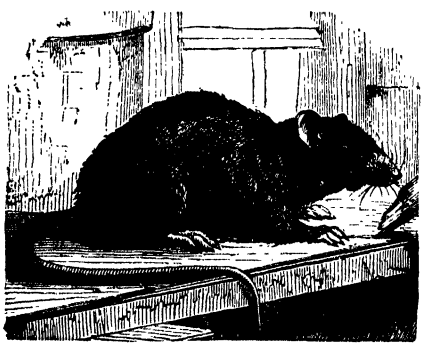
Rate of Exchange. (*See* EXCHANGE.)

Ratel-i-coum.—A sweetmeat of Turkish origin, also called "lumps of delight." It is said to be a compound of syrup and starch, whether coloured or not. It is in square cakes an inch thick, commonly powdered with sugar, and packed in small boxes. The manufacture of it has been introduced into this country.

Rates.—Information respecting the principal parish rates will be found in this work under their respective headings. (*See* TAXES.)

Rations.—The allowance of provisions, as made to soldiers, sailors, paupers, &c., in accordance with a dietary scale settled by authority. A ration is what is granted for a single meal.

Rats.—The common rat belongs to the same genus as the mouse, though, as is well known, the former is larger and fiercer. There are two



BROWN RAT.

species, the black rat (*Mus rattus*) and the brown rat (*Mus decumanus*), both of which are natives of Central Asia. It is only within the last few centuries that they have been known in Europe, and not until the eighteenth century was it discovered that they existed in Britain. Although so much alike, the black rat and the brown rat are sworn enemies to each other; and as the brown rat is the larger and more powerful of the two, it has succeeded, after repeated attempts, in almost extirpating the black rat. By householders and farmers, rats are regarded with feelings of horror, on account of their ferocity and their voracious propensities. They feed indiscriminately on almost any kind of animal and vegetable food, and make fearful depredations in fields of grain and pulse, often carrying off large quantities to be stored in their holes. Their strong teeth enable them to gnaw through the hardest of substances, which they do in order to make their way in search of food; and the rapidity with which they multiply is something surprising. In ships their numbers increase amazingly, and also in the sewers of towns. When in the sewers, however, they render good service by devouring substances which, if left to putrefy, would be productive of pestilential diseases; and it is a fact that since the time rats became plentiful, the visits of the plague into Western Europe have ceased. The skin of the rat is used for making a fine kind of glove leather. (*See also* RATTAN.)

Rats, To Extirpate.—The extirpation of rats may be accomplished either by means of trapping or poisoning. The rat-trap, which is somewhat similar to a mouse-trap, must be rendered attractive by some dainty morsel of food, and may also be sprinkled with rat scent, which can be obtained from the chemist. It is said that rats are very fond of powdered cantharides steeped in French brandy. Pastes and powders made from arsenic, tartar emetic, nux vomica, and other poisons, are made and used very effectively in the form of rat poisons.

Rats, Traps for. (*See* RATS, TO EXTIRPATE.)

Rattan.—A name given to a kind of water-rat, or vole, common in some parts of Aberdeen and Banff shires. Our common water-rat is sometimes also so called. This latter animal always frequents the banks of streams, or pools in marshy places, where it burrows in the banks, usually producing only one brood of five or six about the month of May. It feeds upon roots and water-plants, and the creature is quite amphibious. It is very cleanly in its habits, and although it has been accused of being an enemy to fish-ponds, the accusation has not been substantiated. Rattan, or ratan, is also the name applied to a class of palms, of which there are numerous species. (*See* CANES.)

Ratteen.—A woollen stuff of thick texture and twilled appearance. It is of Spanish manufacture, and at a former period was used for men's garments.

Rattinet.—A woollen stuff of French manufacture, very similar in appearance to the above-named, the distinction being that ratteen is of thicker texture than rattinet.

Ravelling.—All materials are more or less liable to ravel. It will be found that the threads which go across fabrics are more easily loosened than those which run the selvage way of them. The ends of ribbons should either be cut in a slanting direction, or they should be fringed by taking the weft threads away for a little distance; immediate ravelling will be stopped by either method. Over-casting and binding are other remedies which are sometimes applied to the edges of garments when not seen: thus the edges of skirts and bodices, and those of sleeves where joined to the bodice, require to be over-cast; and the edges of all thick materials, such as cloth, require to be bound together with narrow ribbon. Fine cotton should be used for over-casting, and the needle should be put in regularly and not very far from the edge, for otherwise the work looks coarse and clumsy. In ravelling crinoline for a fire-grate, a yard and a half should be bought, and the threads should be taken off lengthways, for the greater the length of thread, the lighter will be the appearance of the heap; the threads taken away are more inclined to curl than those left. The process is greatly expedited if two people apply themselves to the work, each one taking either end and separating the threads half-way.

Raven.—This well-known bird is a kind of crow, called by naturalists *Corvus corax*, belonging to the family *Corvidæ*. It is somewhat rare now in our own country, except in Scotland, but in America it is found, and as far south as the Cape of Good Hope, and even north as far as Greenland. In its wild state it is exceedingly rapacious, and is an object of dread to the shepherd or farmer; for although it eats with avidity grain of all kinds, young birds' eggs, dead fish, or any small animal, it will



RAVEN.

attack sheep if they show any signs of weakness, and speedily eat the eyes out. Ravens will also watch for and carry off young chickens and ducklings. They build either in rocks by the sea-side, or in the topmost branches of tall trees. They pair early in February, make a nest of sticks, lining it with wool and hair; and the female lays four or five eggs of a greenish colour, spotted and speckled with a blackish-green.

Raw Hides.—The undressed skins of animals, especially the larger kinds. They are called raw, although salted or dried, and until they are tanned or otherwise converted into leather.

Raw Sienna Earth (termed *raw* because in its native state).—A kind of yellow ochre, called terra di Sienna after the Italian city near which it is found. It is very fine in quality, and is used as a pigment. When burnt it is redder, and is known as Burnt Sienna (*which see*). It naturally occurs in small masses.

Raw Silk.—This term is applied to silk after it is reeled and before it is spun or woven. Of it there are three classes, which are severally known as organzine, tram, and floss. The filaments of organzine (*which see*) are fine and twisted; those of tram are inferior in quality, and but slightly twisted; while those which constitute floss are broken, are shorter, and of a a different character to the two aforenamed. These silks are reeled from the cocoons of silk-worms—a process which requires infinite care, as the filaments are exceedingly fine. The size of a cocoon, which is formed in about five days, is that of a pigeon's egg. The silken threads have to be detached by being placed in warm water, which dissolves the gum around them, and loosens the ends. These are taken, and the silk, measuring about three hundred yards, is wound off the cocoon. The quality of raw silk is pronounced by the relative weight afforded by a certain quantity. This means of determining has led to much deception, for as silk in this state will absorb a considerable amount of moisture, inferior silk thus made heavier has been passed off as that of superior quality. Another method of deception has also been practised by means of vegetable decoctions, which greatly increase the natural weight, but at the same time greatly injure the filaments of silk.

Ray (Fish).—The rays are well-known fishes, belonging to the natural family *Raiidæ*, and generally called skates, large quantities of which find their way into the London markets, and are greatly relished by many as food. There are a number of different species of rays, such as the long-nosed skate, the white skate, the flapper skate, the blue skate, the sandy ray, the thornback ray, said to be in best condition in November, and to be the best flavoured of all the rays. In spring and early summer, rays are out of season, being then maturing their young. Like the shark, the rays deposit their offspring in little horny square cases; these are black in colour, with four horns at the corners, making them resemble a butcher's tray. These may often be found by the sea-shore, where they are known by the name of skate cradles or skate barrows. There are altogether eleven distinct species of rays found on the coasts of Great Britain.

Razor Paste.—Some prefer this to soap lather, and it may be either bought or made. It may be made by melting together one drachm each of spermaceti, white wax, and almond oil, which are to be beaten up with a little rose-water and a sufficient quantity of Windsor soap. For shaving soap any good soap will do; but some, instead of making a lather, wet a cake of soap

and rub it into the beard, using the shaving brush upon it afterwards.

Razor Strops.—These are commonly purchased, and consist of strips of leather attached to one of wood. Some have the leather on two sides, and some on four. On one side is plain leather, and on the other is a reddish preparation; or on one side, instead of plain leather, is a preparation of black-lead and lard. Where both sides are coated, both will from time to time be benefited by the application of a little of the paste used upon each. The red paste is made of crocus martis or iron oxide, mixed with lard or spermaceti ointment. Some strops are made round, but whatever their form they require to be kept scrupulously free from dust. The use of them is an art which needs skill and practice, or a razor may be rather blunted than sharpened. In former times it was common to have a razor strop of genuine buff leather, which was improved, when necessary, by the application of the contents of the snuffers rubbed into the greasy surface of the strop.

Razors, Care of.—When not in use, a razor should be kept in a case from which the external air and damp are effectually excluded, and it should be absolutely dry and clean when deposited in its case. At least a pair of razors should be in use, as it often happens that one will cut when the other will not until it has had a rest. Before using, a razor should be passed to and fro upon the strop a few times, which operation requires a little skill and practice to do it well, as the motion of the blade should be from the "heel" next to the handle to the point at every stroke. For shaving, the razor is better wet than dry, and cuts better when dipped in hot water than in cold (in all cases the beard should be previously lathered with soap and water, or one of the preparations supplied for the purpose). The razor, be it noted, will work better on a clean chin than on a dirty one; *ergo*, wash before you shave. A razor should be set upon a hone from time to time, but this is best left to a cutler or a barber. Stropping, cleanliness, and warmth are the three things to help a razor in use; and the exclusion of damp, air, and dust is necessary for one out of use. (*See* SHAVING.)

Reading.—The art of reading need not here be either defined or recommended, but it may be useful to throw out a few very brief hints upon the subject. The first is that readers should read with a motive. It has been said that readers are of three classes: those who simply retain all they read, without either selecting or digesting it; those who retain nothing that they read; and those who retain what suits their taste or what they can turn to account. Be this as it may, it should be borne in mind by those who would profit by what they read that they should not proceed too rapidly, but should realise the ideas which come in succession before them, should pay continued attention, and should mentally judge of what they read, in regard to style as well as mattter. Reading aloud is an accomplishment, success in acquiring which depends partly upon natural gifts and partly upon study and practice. Skill in this is most desirable; and the young should be carefully trained to it. They should moderate the voice according to the size of the room or building and the number of hearers. The tones, emphasis, speed, and other details, vary with the subject and class of composition. A novel should not be read like a sermon, nor a sermon like a novel; poetry should not be read like prose, nor prose like poetry. The intonations in dialogues should be carefully attended to; so in speeches, descriptions, narratives, &c. Every effort should be made to master an author's ideas, and to express them suitably, forcibly, and naturally. The more complex the composition, the greater the difficulty, but the greater the honour of success. The student should begin with the more simple and easy, and gradually proceed to what is more complicated and difficult. A conversational style has been pronounced the best; but this rule must be modified in the case of orations, dramatic writing, and the grander forms of poetry. It is a great thing to place the emphasis properly, to avoid a sing-song manner, to pronounce distinctly, and to observe the natural divisions indicated by punctuation. Let it be remembered that in reading aloud the reader should be himself, that is, should be natural. However varied the inflections of the voice, they should be those of the reader's natural voice, and not of a voice which is feigned and artificial. This defect is especially common with preachers who read their sermons, and who do so in tones to which they never accustom themselves in conversation or when speaking unofficially. A similar remark applies to public prayers; but wherever the habit is found it is a vicious one, and greatly detracts from the merit of the reader and the effect of what he reads. Of the need for correct pronunciation of every word nothing need be said.

Reading Desk.—This piece of furniture is usually so constructed that the sloping desk prepared for the reception of the book can be raised or lowered to any height, or turned to any angle, that may be most convenient to the reader. They are made to various designs, some being exceedingly plain, light, and simple; others more elaborately ornamented and designed, and usually less portable.

Reading Easel.—This is a small frame for the table, with a ratchet arrangement, enabling the reader to alter the angle at which it stands to support a book.

"Reading-in."—The observance of certain forms by a new incumbent of a benefice is thus termed. The title of a person admitted to a rectory or other benefice will be divested unless, within two months after actual possession, he publicly read in the church of the benefice upon some Lord's Day, and at the appointed times, the morning and evening service, according to the Book of Common Prayer; and afterwards publicly, before the congregation, declare his assent to such book; and also publicly read the Thirty-nine Articles in the same church, in the time of common prayer, with declaration of his assent thereto; and, moreover, within

three months after his admission, read upon some Lord's Day in the same church, in the presence of the congregation, in the time of divine service, a declaration by him subscribed before the ordinary, or other bishop, of conformity to the Liturgy, together with the certificate of the ordinary of its having been so subscribed.

Reading Lamp.—This is a lamp made to slide on a perpendicular rod up and down, and to carry a shade concentrating and throwing down the light. Reading-lamps vary largely in design, but are all constructed on a similar principle. The information already given on the subject of lamps (*which see*) and their burners, the oils in use for them, and the best mode of cleaning, lighting, &c., will of course apply to these as to other lamps.

Readings, Penny. (*See* PENNY READINGS.)

Readings, Public.—Under the name of readings, persons who have made a special study of elocution give entertainments, the chief feature of which is their dramatic air. The reader takes a play, perhaps, and endeavours, as far as one man can do so without stage accessories, to produce it so as to bring out the peculiarities of its characters, incidents, and sentiments. In like manner, poems and other forms of composition are dealt with. The qualifications for success in this are really those of a first-rate actor, and some readers possess them.

Ready-made Clothes.—The extent to which the trade in ready-made wearing apparel of every description has developed of late years is simply surprising. This is true of other countries besides our own, which exports vast quantities to all quarters of the globe. In every town and in almost every village in this kingdom there are shops for the sale of everything that is worn by both sexes from infancy to the end of life, and in every grade of society. Many articles can scarcely be procured in any other way, and of them we need say nothing. For the rest, it is a doubtful question as to where the line should be drawn. Manufacturers on a large scale are able to produce goods for the general public which answer every purpose, and which are of good materials and workmanship, well shaped, and cheaper than they can be made to order. It happens, however, and this is the chief difficulty, that ready-made clothes are sometimes of very inferior quality, and it behoves those who purchase them to examine them carefully, and not to be led away by mere show and cheapness.

Ready Money.—By this is meant payment in cash for articles, as distinguished from credit. There are cases in which payments must be made at intervals, as for rent, rates, &c.; but for articles required for daily consumption and use, it is a good rule to pay for them on delivery. The advantages are numerous: very often a lower price is charged for ready money; in some instances the customer who takes credit is in a manner tied to a tradesman, who, if he will not charge a higher price, will perhaps supply an inferior article, send more than is ordered, &c. Cash payments, resolutely adhered to, not only keep people out of debt, but out of difficulty; they always know how they stand in money matters. It is unnecessary to go fully into the matter, but long experience proves that in all households the ready-money system is the one which most abundantly rewards its patrons and followers, and which in the long-run would be found the best for ordinary retail tradesmen.

Ready Reckoners.—Books containing reckoning tables of all descriptions—interest, commission, annuity, and life assurance tables, and a variety of useful information in tabular form. To those engaged in commercial pursuits a ready reckoner is almost indispensable, while in the household it is also of great value.

Real Estate, or Realty.—Landed property, including all estates and interests in land which are held for life, or for some greater estate, and whether such lands be of freehold or copyhold tenure.

Ream.—A bundle or package of paper containing 20 quires or 480 sheets, the word being probably derived from the Anglo-Saxon *ream*, a strap or band used to tie up each parcel of paper. A printer's ream contains 21½ quires or 516 sheets.

Reasty or Rusty Bacon.—Few things can be imagined more disagreeable to the taste than what is called rusty bacon, the fat of which has a yellow appearance instead of being white and firm. For bacon to be in this condition, it has either been improperly cured, or when cured it has not been hung in a suitable temperature. To ensure sweet fine bacon, the flitches when being cured should not be sopped, as it were, in brine; this is sure to impart the nauseous taste that sea pork has. Fresh dry salt must be used, which should be renewed every four or five days. By placing the flitches in a salting-trough which has a gutter round its edges to drain away the brine, the bacon will be kept dry; and though more salt will be used according to this method, the result will be much more satisfactory than the wet process. Rustiness is sometimes occasioned by bacon being over-smoked, or by being left too long hanging in the air. Before hanging bacon up for smoking it is well to lay it on the floor and scatter the flesh side pretty thickly over with bran, which, if well patted down upon it, will keep the smoke from getting into the little openings, and will make a sort of crust to be dried on. After being well cured, bacon may be kept good and sweet by being placed in a box covered six inches deep with clean dry wood-ashes; after placing the bacon in the box, the same amount of wood-ashes should be placed on the top of the bacon, and the box kept in a dry place. By using precautions such as these, the bacon will doubtless be as good at the end of a year as when freshly cured.

Réaumur. (*See* THERMOMETER.)

Rebate.—A discount of interest on account of payment before due date; a return of discount upon bills taken up by the discounter previous to their arrival at maturity.

Rebate (Woodwork).—A groove cut longitudinally in a piece of timber to receive the end or ends of other pieces of timber. This is also commonly known as a *rabbet*.

Rebus.—An enigmatical representation of a word, name, or sentence by means of pictures and various devices instead of letters, the term probably originating in the Latin phrase, *non verbis sed rebus*, not by words but by things.

Receipt.—An acknowledgment of the payment of a sum of money or other valuable consideration; a voucher of an obligation or debt discharged. By 33 & 34 Vict. c. 97, a penny stamp duty is imposed upon a receipt for money amounting to £2 and upwards. There are several exemptions. The 24 & 25 Vict. c. 98, s. 23, deals with forgery of receipts; the offence is felony, punishable with penal servitude for life or for any term not less than three years, or imprisonment not exceeding two years. There is no particular form applicable to a receipt. (*See also* Recipes, or Receipts.)

Receiver.—An officer of the Court of Chancery appointed to collect rents and manage property pending a suit. Receivers are appointed in suits respecting the estates of infants, against executors, and between partners for winding up business. A practising barrister may be a receiver; a solicitor in the cause cannot, unless by consent and without salary; nor can the Receiver-General of a county, for the Crown might by its prerogative sweep away the whole of his property; nor peers, next friends of infant plaintiffs, nor trustees. The allowance of the receiver depends on the difficulty of management and collection; the usual allowance is 5 per cent. on the gross rental. A receiver is required to enter into a recognisance jointly with two sureties in double the amount of the yearly value of the estate. He passes his accounts in the chief clerk's office, and pays the balance into the office of the Paymaster-General, formerly known as the Accountant-General.

Receiving Stolen Goods from Thieves is, by Statute 24 & 25 Vict. c. 96, made a felony, and subjects the offender to penal servitude for any term between fourteen and three years, or to be imprisoned for any term not exceeding two years with or without hard labour, and with or without solitary confinement, and if a male under sixteen years of age to whipping. It is of course essential to the offence that the offender knew the goods to have been feloniously stolen. Where, however, the original act of stealing, &c., is a misdemeanour, and not a felony, the receiving of such goods is a misdemeanour only, and the punishment is somewhat less. By 34 & 35 Vict. c. 112, facilities as to evidence in proof of this crime are given.

Reception of Guests and Visitors.—The host and hostess should always be ready for this duty; it is considered to be a great breach of good manners if both are not in the room when the first guest arrives; the host should be near the door, and the hostess should be in close proximity, with her face towards the door, so that each guest on entering may at once perceive her, and be able to pay their *devoirs* to her and be received by her before they speak to others or seat themselves. The host and hostess should shake hands with every guest; thus, in cases where a friend is brought by another guest, or if a gentleman has been invited who is not personally known to the hostess, she must shake hands with him when introduced. The lady of the house should make a point of welcoming her visitors on their arrival. It often happens that the master of the house cannot be at home, and therefore his absence is excusable; but the absence of the mistress is a dereliction of duty, and no afterapologies will atone for or efface from the visitor's mind the impression of neglect. The reception of visitors should be cordial; the hostess should meet them in the hall or at the door of the room in which she is sitting.

Reception Rooms.—When these are required for afternoon or evening "at homes," or on any occasion when many guests are expected, some special arrangements have necessarily to be made. The chief art is to make these without their being observable, for if the preparations are very visible the effect is sure to produce stiffness and formality. The movable pieces of furniture can be placed so as to give the greatest available space, but at the same time it is a mistake to arrange an empty space in the centre of the room and to put the seats all round, either in a semi-circle or against the walls—a plan which is too often adopted. A few small tables here and there in different positions, and a few chairs near them of different sizes, induce people unconsciously to form little coteries, and this encourages conversation. The rooms should look bright and cheerful with flowers; and a few curiosities, one or two books, magazines, or photographs, a pretty work-basket, and fancy work should be scattered about on the various tables.

Recipes, or Receipts.—These two words are practically interchangeable, though the former is more used for medical prescriptions, and for instructions how to prepare provisions and a multitude of things used in domestic economy and other departments. In framing a recipe it is important to indicate the exact quantities and names of ingredients, and the precise mode of compounding or otherwise preparing them. This rule is of universal application, and the observance of it would prevent many failures, facilitate operations, and be a saving of expense. (*See also* Receipt.)

Reclining Chairs.—These chairs have their backs and seats arranged at angles, which give the body and thighs a position of repose, and are usually also supplied with rests for the legs and feet, which may be folded underneath when not in use. They are sometimes constructed lightly, but strongly, with a stout framework and laths of oak or any strong cheaper wood, and are frequently upholstered in American cloth, leather, velvet, silk, or similar materials. (*See also* Arm-chair.)

Recognisance.—A recognisance is an acknowledgment upon record of a former debt; and he who so acknowledges such debt to be due

is termed the "recognisor" or "cognisor," and he to whom or for whose benefit he makes such acknowledgment is termed the "recognisee" or "cognisee." A recognisance is in most respects similar to a bond, the difference being chiefly that a bond is the creation of a new debt, whereas a recognisance is merely an acknowledgment upon record of a debt which was previously due. The form of a recognisance runs thus: "That A.B. doth acknowledge to owe C.D. the sum of £100;" and it is also conditioned to be void on performance of the thing stipulated. It is certified to and witnessed by an officer of some court, and not by the seal of a party, as in the case of deeds strictly so called. Recognisances are also frequently taken from persons either to secure their prosecution of a suit or their presence in court upon a certain day, or to secure their careful administration of property entrusted to them in some official capacity; *e.g.*, in the case of administrators of a deceased intestate, and also of receivers appointed by the Court of Chancery.

Recognition.—It is very often necessary to accost or speak to persons with whom we neither are acquainted nor wish to be. A recognition implies a previous knowledge or acquaintance, and the question is how it should be expressed and reciprocated. Where the recognition is not mutual, the one who does not recognise the other should politely explain the fact if circumstances seem to call for it. Forgetfulness may account for it, or it may be due to other causes. If the recognition is mutual, it may be acknowledged by a bow, a raising of the hat, or by words and hand-shaking, as the case may be, but no fixed law can be laid down. Etiquette directs us how to demean ourselves towards comparative strangers: a lady bows and passes on; a gentleman must wait till he is recognised, and then he raises his hat and slightly bows. With parties who are somewhat better acquainted, a lady must be the first to recognise a gentleman, who raises his hat, but does not offer to shake hands unless the lady offers hers, and if a conversation follows the lady terminates it. With old acquaintances and friends formality is less exacting; but always recognition should be in good taste, at a proper moment, and as politely as possible. The mere fact of an introduction does not constitute a hard and fast friendship; and though bound to recognise those to whom we are introduced at the time, recognition in future will depend upon circumstances.

Record.—An authentic testimony in writing, usually contained in rolls of parchment and preserved in Courts of Record. The record of *nisi prius* is an official transcript or copy of the proceedings (*i.e.*, the pleadings) in an action entered and sealed and passed, as it is termed, at the proper office; it serves as a warrant to the judge to try the cause, and is the only document at which he can judicially look for information as to the nature of the proceedings and the issues joined between the parties.

Recorder.—A person whom the mayor and other magistrates of a city or corporation appoint for their better direction in matters of justice and proceedings in law, on which account this person is generally a barrister of some standing, well skilled in the law. The Recorder of London is chosen by the Lord Mayor and Aldermen, and as he is held to be the mouth of the City, he delivers the judgment of the Courts, and records and certifies the City customs, &c. (See 5 & 6 Wm IV. c. 76, s. 103; 6 & 7 Wm. IV. c. 105, s. 3; and 6 & 7 Vict. c. 89, s. 8.)

Recorder (Musical Instrument).—An ancient variety of the flute, resembling in tone the English *flute-à-bec*. Recorders were of two or three sizes, the "bass recorder" being the most useful species. The *flauto-traverso* (our present horizontal or "German" flute), the *flute-à-bec*, the cornet, and the recorder, are all varieties of the flute family, and have often been confused one with the other.

Recovery.—1. The obtaining of anything of the value thereof by judgment or trial. 2. A common recovery was one of the modes of tranferring real estate from one party to another, and is said to have been introduced by the ecclesiastics in order to avoid the Statutes of Mortmain, by which they were prohibited from purchasing or receiving, under pretence of a free gift, any lands or tenements whatever. To effect this purpose the religious houses used to set up a fictitious title to the lands intended to be given or sold, and bring an action against the tenant to recover them. The tenant, by collusion, made no defence, whereby judgment was given for the religious house, which then recovered the lands by sentence of law upon a supposed prior title. The notoriety which attended these feigned recoveries was such that they were soon adopted by lay persons in general (one instance thereof being Taltarum's case in 12 Edw. IV.) as a usual or common mode of transferring lands, and ever afterwards they continued in use for that purpose, until they were abolished by the Act 3 & 4 Wm. IV. c. 74, by which Act a disentailing deed was substituted for them.

Recreation.—The importance of relaxation from study or business is now universally recognised, as conducive to health of mind and body, personal comfort, social happiness, and the efficient discharge of daily duties. Recreation may consist either in actual amusements (*which see*), or in simple withdrawal from ordinary tasks and scenes, either in order to obtain mere rest for the system, or to apply the faculties to new classes of objects such as can be brought under observation by touring or travel. Some say they require no recreation beyond change of work; but they must be few indeed of whom this is true. The majority of people require from time to time not only one, but various forms of recreation.

Recruiting.—The obtaining of volunteers for the army and navy. As every soldier is supposed to be such by his own free will, it is evident that if volunteers do not come in in sufficient numbers, they must be sought for. Recruiting districts have been formed covering the whole of the kingdom, and non-commissioned officers, especially sergeants, are

appointed at the head of small parties to go out and solicit men to enlist. (*See* ENLISTMENT.) Recruiting for seamen to serve on board ships of war is called manning the navy, and seamen are encouraged to enlist for a certain number of years by the offer of sundry advantages, including a permanent pension after the expiration of their time.

Rectified Spirits.—The crude spirit produced by the fermentation and distillation of malt, cane or fruit sugars, potato, beet, or any other alcohol-yielding articles, is always contaminated with a certain quantity of an acrid, oily substance, which will give it a peculiar flavour. The business of the rectifier is to remove this disagreeable ingredient, and so produce an article fit for use in making whisky, gin, brandy, or any other spirituous liquor. Caustic potash, known in the trade as grey salts, and pearlash, or white salts, are the principal articles used in the rectifying process. These combine with the oily body and with a part of the water in the crude spirit, and form a kind of soap, which remains behind in the still while the spirit distils over. The process is repeated two or three times with a smaller addition of salts each time, until all the oily matter is removed, and the spirit is raised to the strength required. That known as rectified spirit of wine is 53 per cent. over proof. A little sulphuric acid is sometimes added, as it combines with a portion of the alcohol and forms an ether, thus imparting to the spirit a pleasant fragrance.

Rector.—The rector of a parish is the clergyman who has the charge and care of it, and who possesses the tithes and other advantages. He might be called an incumbent, but that is a term which includes almost any clergyman who holds a benefice, though with no right to tithes, &c. The word rector is sometimes used of the heads of certain universities and colleges. (*See* VICAR.)

Rectum.—This is the last portion of the large intestines (*see* INTESTINES), which terminates in the anus. The rectum is the seat of many diseases, as fistula, stricture, piles, scirrhus (cancer), and prolapsus, all of which, except the last, are referred to under their respective headings. Prolapsus is a protrusion of the bowel which occurs very frequently to delicate children. It should be returned by gently grasping (the fingers being previously oiled) and pushing back the protrusion, which in ordinary circumstances is easily accomplished. Children subject to this condition should be prevented from straining at stool, by placing them on their backs and allowing the bowels to act in that position. When it is very troublesome a pad and bandage, made for the purpose, should be worn. As prolapsus is usually attended with great debility, steel, wine, cod-liver oil, with pure air and good food, are essential. When prolapsus occurs to adults it is generally due to weakness of the part, such as may occur after some operation, and may be benefited by frequent ablutions and injections of cold water, and by attending to the general health.

Recumbent Chairs. (*See* RECLINING CHAIRS.)

Red Aniline (sometimes written rosaniline).—An artificial base prepared by the action of bichloride of tin, mercurial salts, arsenic acid, and various other oxidising agents, upon aniline. The aniline reps of commerce, largely used at present for dyeing, are saline compounds, more or less pure, of rosaniline, with one equivalent of acid. These compounds are known under the names of magenta, fuchsine, roseine, azaleine, &c. Splendid crystals of considerable dimensions of the acetate of rosaniline is the aniline red usually employed in England. In France the hydrochlorate of rosaniline is mostly in use. The free base presents itself in colourless crystalline plates; but its compounds, with one equivalent of acid, have when dry a beautiful green colour, with a golden lustre, and with the addition of water supply a solution of an intensely red colour. (*See* ANILINE DYES.)

Red Beet. (*See* BEETROOT.)

Red Brass.—A name commonly given to those alloys which do not contain more than 18 to 20 per cent. of zinc. In the deeper-coloured foreign varieties of this compound-metal (red tombac) the per-centage of copper occasionally amounts to 88, 90, or even 92 per cent.

Red Cabbage. (*See* CABBAGES.)

Red Chrome.—Dichromate of lead. This pigment has a crystalline texture, and its red colour is so beautiful that it vies with native cinnabar. There are three modes of preparing it:—1. Boil pure carbonate of lead with chromate of potassa until it assume the desired colour. Wash with pure water, and dry in the shade. 2. Boil neutral chromate of lead with a little water of ammonia or lime-water. 3. Fuse saltpetre at a low red heat in a Hessian crucible, throw in chromate of lead (pure chrome yellow) in small portions at a time, as long as a strong ebullition shall follow on each addition of the pigment, stirring the compound frequently with a glass rod. After allowing it to stand undisturbed for a few minutes, pour off the fluid portion, and, as soon as the solid risiduum is cold, wash it with water, and dry by a gentle heat. In the course of the last-given process, much care should be taken not to employ too great heat, nor to permit the saline matter to remain long over the newly-formed chrome red, as by this means the colour is apt to change into orange or brown. The liquid which is poured from the crucible is employed for the manufacture of chrome yellow.

Red Colouring for Tiles.— Enamel colours for painting tiles red are oxides of iron and chrome. For colouring the common tiles employed for paving the lower and out-door offices and yard of a house, red ochre is used, or a soft red brick rubbed upon them will answer the purpose of restoring the colour.

Red Cross Society.—This was established immediately after the outbreak of the Franco-German War, in the year 1870, for the

purpose of rendering active succour to the sick and wounded. Surgeons, nurses, ambulances, together with all the necessary appliances, were sent to the field, and aid was impartially afforded to both French and German sufferers. This society was called the "British National Society for Aid to the Sick and Wounded in War." The neutrality of its members was acknowledged by the leading European nations; its rules were framed upon those laid down by the International Congress held at Geneva in 1864, and the badge and flag which it adopted—those of the Red Cross—were the same that had been recognised by that Convention. The symbol of the red cross is worn on the dress of the acting members, and the red cross flag is flown over the ambulances and hospitals, as a protection against attack during active service. Owing to this, the society is now familiarly spoken of as that of the Red Cross. In the year 1877, when the war between Turkey and Russia commenced, the society immediately re-commenced its charitable efforts, and despatched a staff of surgeons and hospital necessaries of all kinds. Three field ambulances were provided, which accompanied the three principal divisions of the armies, and hospitals were established in districts where medical aid was more especially needed. It is worthy of record that this society has been voluntarily supported with ample funds, and has had no occasion to make any appeal for pecuniary aid.

Red Gum.—This is an affection of the skin, closely resembling eczema, which is common in infancy, and is for the most part due to the irritation of teething—hence its name. It is best relieved by some saline aperient, as, for example, fluid magnesia, by the daily use of tepid baths, and in obstinate cases, by the application of zinc ointment.

Red Hand of Ulster.—When James I. instituted the dignity of baronet "for the settlement of the province of Ulster in Ireland," he ordained that the said baronets and their descendants should bear the arms of Ulster—namely, "in a field argent a hand gules," that is, a red hand, or, as it was commonly styled, a "bloody hand." This hand is still introduced in the arms of baronets so created.



BADGE OF ULSTER.

Red, Indian.—A native production brought from Ormus. A spurious article resembling it is prepared by calcining a mixture of colcothar and red ochre.

Red Ink. (*See* INK, COLOURED.)

Red, Lake.—A colour prepared from pearlash, scarlet cloth, and water, these ingredients being boiled till the colour is discharged from the cloth. The decoction is then filtered, and the colour precipitated with a solution of alum. The relative proportions of the above-named ingredients are, pearlash one pound, shreds of scarlet cloth three and a half pounds, and water five gallons.

Red Lavender is a popular stimulant, cordial, and stomachic, taken in cases of faintness, low spirits, flatulence, hysteria, &c. The dose varies from one to three tea-spoonfuls. There are six preparations of this tincture. The substances of which it is composed are English oil of lavender, English oil of rosemary, cinnamon, nutmeg, red sandal-wood, and rectified spirit. Cloves, cochineal, and oil of cassia enter into some of the preparations above-named.

Red-lead. (*See* LEAD, RED.)

Red-letter Days.—In former times the more important days in the calender were always printed in red ink, and were called red-letter days. Such were Sundays and the chief saints' days, festivals, and commemorations. As red-letter days were often holidays or cheerful occasions, the expression came to be used of any fortunate or memorable days in a person's experience, but not of such as were of a sad or gloomy character.

Red Mullet. (*See* MULLET, RED.)

Red Ochre. (*See* OCHRES.)

Red Root.—The name of a genus of North American plants, some of which are very beautiful. The common red root, or *Ceanothus Americanus*, is sometimes called New Jersey tea, because an infusion of the dried leaves is sometimes used for tea. It dyes wool of a fine cinnamon colour, and a strong infusion of the leaves is said to be good for the sore throat of scarlet fever, and for dysentery. Some of the species will flourish in this country, but some require protection in winter.

Red Sand.—This is a sediment which under certain conditions of health is deposited from the urine on cooling. It is generally due to catarrh or indigestion, especially that form of the latter which occurs in gouty subjects. The treatment consists in promoting the free action of the skin by the warm or Turkish bath, in relieving the liver and bowels by taking for three or four mornings a full dose of one of the mineral waters, in the administration twice a day of scruple doses of bicarbonate of potash in an ounce of pure water or some bitter infusion, as gentian or calumba. When red sand passes with the urine and deposits immediately, and before cooling, it indicates a more serious condition than that just described, for which advice should be immediately obtained. (*See* GRAVEL.)

Red Snow.—The red appearance of snow is sometimes caused by rays of light falling obliquely upon it in morning or evening in mountain districts. Sometimes, however, the snow is really red, and is occasionally observed in Alpine and northern regions. In this case the colour is due to a minute vegetable growth, or plant, for the most part, though some think red animalculæ may also have been detected.

Red Spider.—A minute insect which attacks gooseberries, strawberries, melons, cucumbers, vines, and many other plants, flowers, &c. The common red spider is a sort of mite, and owes its name to its general resemblance to a spider. It domiciles itself on the under side of the leaves, the juices of which it sucks so that they perish, and in time the plant itself

often dies. Moisture in the atmosphere checks it, and therefore watering and the evaporation of water are employed to destroy it, as also are the fumes of sulphur where practicable, and the smoke of tobacco. The pest is one which is most injurious, and no means likely to extinguish it should be left untried. All the remedies suggested, or nearly all, consist in making the atmosphere as destructive to the insect as possible without doing harm to the plants, &c., affected.

Red Stain.—Archil, a sort of lichen, used cold, one coat applied over another, and afterwards brushed over with a solution of pearlash in water made hot, gives wood an excellent red colour. The wood requires no previous preparation.

Red, Turkish or Turkey.—A fine twilled calico cloth, dyed a durable blood-red colour, and originally imported from Turkey. In India the chaya-root is employed as the dyeing matter, instead of the madder used in its colouring elsewhere. The art of dyeing Turkey red was practised in the Middle Ages, in both Greece and Turkey, as well as in India, where it seems to have had its origin. Even as late as the end of the last century the manufacture of Turkey red was carried on extensively at Ambelakia and other places in the neighbourhood of Larissa. About the middle of that century it was introduced into France by dyers brought over from Greece, and the first establishment in England was founded and conducted by Frenchmen. It is now carried on in Lancashire and Glasgow, also at Elberfeld, in Germany, and in various parts of France and Holland. The essential difference between this process of dyeing and others consists in the application to the cloth of a peculiar preparation of fatty matter combined with other substances previous to the dyeing. Without the use of oil or fat it would be impossible to produce it. What part the fat-acid plays is quite unknown; but the formation of a triple compound of colouring matter, fat-acid, and alumina appears, at all events, to be the final result attained. Olive or Gallipoli oil is generally used, mixed with a solution of carbonate of potash and sheep or cow dung. After being oiled the goods are steeped in a weak tepid solution of carbonate of potash, to remove the excess of fatty acid; then follow the galling and mordanting, washing, and passing through a solution of tannin, &c. The art has now attained such a degree of perfection that the interior of each thread of Turkey-red cotton is perfectly white. This description of calico is much employed for the trimming of ladies' dresses, for children's wear, and for linings; and it will bear any amount of washing without fading the colour.

Red, Venetian.—A species of ochre brought from Italy.

Red Wines.—Among the wines peculiar to each country the division of "red wine" and "white wine" in nearly every case exists, and serves to supply a kind of explanatory distinction between the two varieties. It cannot be laid down as a rule that the quality of any wine depends upon the colour, and that dark red wines are richer and more nourishing, as is commonly imagined, than light coloured wines. The colour of good bottled wine is greatly affected by age. In the first instance the colouring matter is obtained by allowing the skins, which contain tannic acid, to ferment with the juice, and thus a red colour is imparted. Grape stones also which are left with the skins yield tannic acid freely during fermentation. With age, however, some wines become paler, while others grow darker. Port wine, which is rich in tannic acid, deposits a sediment and becomes lighter in colour, while liqueur wines and red wines containing only a small amount of tannic acid become darker with time. The condition of good port that has been coloured without the acid of any foreign ingredient may be proved merely by its appearance. When it has become tawny it is a comparatively old wine, and has consequently lost much of its astringency. Imitations of port and other red wines that are artificially coloured cannot, of course, be judged in the same way. Good wine should be judged by its taste, not by its colour.

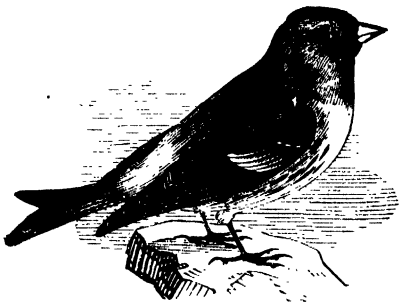
Red-wood (sometimes known as iron-wood).—A small tree measuring five or six inches in diameter, and growing to the height of sixteen or eighteen feet. It is useful in flooring and furniture.

Reddle, or Ruddle.—A species of red earth or chalk, coloured by sesquioxide of iron; red ochre. The word is derived from the Anglo Saxon *rud*, *reod*, *read*, or *red*. The term "ruddy" is still in common use, as applied to the complexion, or to the colour of fruit. The verb to ruddle signifies to make red, also to twist or interweave.

Redowa.—This is a round dance, similar in character to the polka and the mazurka. The music is slower than that to which the former is danced, and as the movements are not so rapid the redowa is often placed in the programme after a quick dance, such as a galop or valse *à deux temps*. The partners take their positions as for a valse; the gentlemen commences with his left foot, and makes a glissade with the right foot, bringing it to the fourth position; the left foot is brought behind to the third position; the right foot then makes the *pas de basque*, which should be executed in three equal beats of the music. The movements of the lady correspond to those made by her partner, she commencing with her right foot. The correct pronunciation of redowa is *re-do-va*.

Redpole.—This bird is called by naturalists *Linota linaria*, and belongs to the family *Fringillidæ*. It is the smallest of our British linnets, and a great favourite as a cage-bird, on account of the sweetness of its song. It is a visitor to England, but makes its home in Scotland, where in the north it is called the rose linnet. It builds in furze-bushes or in dwarf spruce firs; the eggs, four or five in number, being a pale green with square spots and streaks of red. Redpoles should be fed on summer rape-seed, moistened with water to let it shell the more easily; the food should be

varied with melon or plantain seeds, barberries, or radish or cabbage seeds, but hempseed must be given but sparingly, as it fattens the bird and takes away its voice. Occasionally a little salt may be mixed with the food:



REDPOLE.

this will prevent disease. The bird should have a bit of chalk placed between the bars of its cage, and be supplied with a bath of fresh water daily, and a saucerful of fine sand, which latter is to be changed about once a week.

Reed.—An aquatic grass which differs from ordinary grasses, owing to its largeness of growth and firmness of stem. In South America reeds grow to the height of sixty feet; those of shorter growth are used by some of the native tribes as blowpipes, through which they project poisoned arrows. In this country reeds are sometimes used for thatching purposes. In olden days, musical pipes were made of reeds; shepherds are represented as playing them, and they are spoken of as "Arcadian pipes" and "pastoral reeds." In the present day the mouthpiece of clarionet, bassoon, and hautboy are called reeds. The reed stop in organ and harmonium is so called because the sound it produces is an imitation of reed music. It is occasioned in these instances by a piece of metal having a brass tongue attached to it. This latter, when arranged for the organ, strikes the metal when vibrating with the admission of air; when arranged for the harmonium, the sound is caused by the tongue beating the air. This mode of producing smooth and mellow sounds is said to be of French invention. There is yet another form of reed; this is connected with a weaver's loom. In this there are two parallel slips of wood or metal set a few inches apart. These are called reeds or dents, and through these warp threads are passed. As these reeds are always of a given length, judgment is required to decide whether the yarn selected is adapted for this given measure, for upon the firmness of the yarn depends the general good appearance of the cloth as well as its durability.

Reed Pens.—In ancient days, pens made of a kind of reed, known as calamus, were used by the Romans and Egyptians. The reed was split at the point like our pens, and when blunted it was sharpened with a knife. The ink then used was thicker and of a more gummy nature than that used now. The best sorts of this reed were obtained from Egypt.

Reel.—A lively movement, which is danced by two or more couples either separately or in conjunction to a quick measure, the music of which is composed of six quavers or of four crochets in a bar. There are many varieties of this dance, some of which are very picturesque, more particularly those danced by four or eight couples. The movements of the dancers should be executed in a brisk and lively manner, and with sprightly grace. Reels are of Scotch origin, and have been danced in that country during the last four centuries.

Reels for Cotton, &c., are ordinarily made of wood, but ornamental ones of ivory and mother-of-pearl can be obtained for the purpose of winding on skeins of silk which are intended to be kept in ornamental work-boxes or cases. In the north of England reels are called bobbins (*which see*).

Re-entry.—The re-taking of possession of that which had been previously granted. In leases it is usual to have a clause, or, as it is termed in law, a proviso, of re-entry under which the lessor is empowered to resume possession on default by the lessee in performance of the covenants and conditions contained in the lease. (*See* LEASES.)

Referee, Reference.—A referee is one to whom any question is referred; an arbitrator. Reference was the sending of any matter of inquiry by the Court of Chancery to a chief clerk, a taxing-master, or a conveyancing counsel, in order that he might examine into it and certify the result to the Court. References in matters of account were also frequently made to the Masters of the Courts of Common Law under the Common Law Procedure Acts. The Judicature Acts and Rules do not repeal the powers of reference to masters under the Common Law Procedure Acts. Various new provisions have, however, been made, relating to the reference of actions, &c., to official or special referees. (See the Judicature Act, 1873.)

Reflection.—This word has several meanings, of which we only mention the following:—1. An operation of the mind in which matters previously observed are reverted to, dwelt upon, and carefully considered. 2. Certain phenomena in connection with light, heat, sound, &c. Thus light is reflected by a mirror or other polished surface; heat is reflected when it is thrown back by the surface upon which it strikes; sound is reflected when it is reverberated and reproduced, as in an echo. In all these cases the result, as well as the process, may be described as a reflection; for instance, the image produced by the incidence of light upon water, a mirror, &c., is called a reflection.

Reflectors.—These articles, variously made of glass and metal, are used in different ways for concentrating by reflection the light of a lamp, or that of the sun, and directing it in any given direction. By their aid rooms shut off from direct light may be lighted, by placing outside the window large reflectors, which, receiving light from the sky above, reflect it at a right angle into the room, the position of

the reflector governing the direction in which the light falls. Similar reflectors are used for concentrating and directing heat.

Reform Acts.—Certain Acts of Parliament passed for improving the representation of the people in Parliament. The principal one is the 2 & 3 Wm. IV. c. 45 (1832); but the 30 & 31 Vict. c. 102, carried out very important changes, the chief of them being the admission to the borough franchise of all inhabitant householders and ratepayers of full age, and of lodgers at the clear annual rent of £10 or upward; to the county franchise of owners of freehold or of leaseholds of sixty years' term at least at commencement, of the clear annual value of £5; and inhabitant householders and ratepayers to the value of £12 or upwards.

Reformatories. (*See* REFUGES AND REFORMATORIES.)

Refraction.—The refraction of light is the deviation of the ray from its original path on entering a medium of a different density. The study of the laws of refraction, and their practical application, form a distinct branch of physical science, called dioptrics. A familiar instance of refraction is when an oar or straight stick is dipped obliquely under water; it will be seen to appear bent upwards just at the point where it passes under the surface of the liquid. In the same way any object under water will appear to our eye to be in a different position from what it really is; and even the bottom of a river will appear higher, thus making it seem shallower than it is actually. This circumstance has often deceived people, and it is a matter which bathers should always bear in mind. There is a considerable difference in the refractive power possessed by different transparent bodies, though all, whether gases, liquids, or solids, exercise it. The refraction of nearly all the elements has now been ascertained, so that the chemical constitution and the density being known, the effect of any body on the rays of light can be calculated. The optical effects of the prism and of the various kinds of lenses are dependent in great measure on the laws of refraction. Mirage is an optical illusion caused by the unequal refraction of different layers of the atmosphere. The overheated air in desert plains will produce inverted images of any prominent object at a level below that of the surface of the ground; while at sea the water cooling the lowest stratum of air will produce the contrary effect of exhibiting distant vessels as if they were above the horizon. The refraction due to the whole mass of our atmosphere affects the observations of all the heavenly bodies that are not actually in the zenith, and must be allowed for in all astronomical calculations; and it increases the nearer the sun, moon, or star is to the horizon. It makes them appear higher up in the sky than they really are; and thus the real sunset takes place while the orb is still visible above the horizon. Double refraction is peculiar to crystals which do not belong to the regular system, and to some other substances. The mineral which shows forth this property to the greatest advantage is Iceland spar, which can be obtained in large clear crystals. If the crystal be laid with one of its faces upon a sheet of paper on which there is a black spot, on looking through the crystal the spot will appear double, both spots being apparently in a different place from the real one. The one spot will remain stationary however much the crystal may be turned round upon the same face, while the other will describe a curve round it; the fixed one indicates the ordinary ray, and the moveable one the extraordinary ray.

Refresher.—After briefs in a cause have been delivered to counsel (*see* BRIEF), it often happens that for some reason the hearing has to be put off, or is allowed to stand over from one term or sittings to another. Counsel are then supposed to be under the necessity of re-perusing their briefs, in order to refresh their memory upon the facts of the case; it is then usual for the solicitor to give what is termed a refresher to counsel, marked with a small additional fee.

Refreshments at Parties, &c.—A room should be set apart for this purpose; the table should be covered with a white cloth, and on it should be placed tea and coffee, together with biscuits of different kinds, sponge-cakes, and plates of thin bread and butter, the pieces of which should be rolled so that they can be taken without danger of soiling the gloves. As the guests arrive they are taken to this room, and after having had tea or coffee are ushered into the reception room where the host and hostess are. When all the guests have assembled, the tea and coffee service are taken away, and the other refreshments are brought in. If the season is summer, cups of various kinds—claret, cider, and champagne—are relished; the last-named is an expensive beverage if genuine, and as that which is spurious is injurious, this cup should not be introduced unless the entertainer can afford to give his guests that which is good. Lemonade, sherry, iced water, soda water, seltzer water, and negus in the winter season—any of these are offered. Ices are always acceptable when obtainable. Fruits, either fresh or candied, according to the season, sponge and Madeira cakes, ice wafers, jelly in glasses, oranges (peeled, divided, and placed in syrup), blanc-mange or lemon sponge, small sandwiches, made of thin bread buttered, and a thin slice of ham or potted beef laid between, stand on the list of viands. The nature of the refreshments partly depends whether a supper is to follow, or whether they stand in the place of one. If the former is to be the case, sandwiches, blanc-mange, &c., would not appear, but only the lightest kinds of viands. The table is not set formally as for a meal; spoons and small forks, dessert knives and forks, china plates, and glasses of all kinds should be placed in groups here and there: when any of these have been used the servant should at once take them away and replace them with others ready for use. The appearance of the table should be made attractive and pretty, flowers being placed at intervals, and the dishes being ornamented.

Refrigerants. (*See* FREEZING MIXTURES.)

Refrigerators. (*See* FREEZING MACHINES.)

Refuges and Reformatories.—Of these there are many varieties, based on dif-

ferent principles. Some refuges are simply for the destitute, who are supplied with what they urgently need; other refuges are for demoralised women, with a view to their recovery and restoration to proper courses. Reformatories are instituted either by voluntary agency or by judicial authority, and their aim is principally the protection, preservation, and reformation of children who are either criminals, or likely to prove such. The reformatory movement dates back to 1788, but it was not till 1834 that it became properly recognised by the establishment of the Victoria Asylum at Chiswick. The Legislature first took it up in 1854, and sundry Acts have since been passed; and juvenile offenders can now be detained in certain institutions for specified periods, during which they are educated and trained. The Reformatory and Refuge Union, founded in 1856, acts as the centre of the reformatory movement, and in 1877 reported its work in 486 refuges, &c., containing 39,172 inmates. The Refuge for the Destitute was founded in 1805, and seeks to reform female criminals and train them for domestic service.

Regalia.—The royal rights or prerogatives of a Sovereign. They are reckoned by civilians to be six in number, viz.—(1) Power of judicature; (2) power of life and death; (3) power of war and peace; (4) masterless goods, as waifs, estrays, &c.; (5) assessments; (6) minting of money. Also the several parts of the apparatus of a coronation, as the sceptre with the cross, sceptre with the dove, St. Edward's staff, four several swords, the globe and the orb, with the cross, &c., used at the coronation of our kings and queens. (*See* PREROGATIVE, ROYAL.)

Regattas.—A thick, strong, cotton fabric, distinguished more particularly from its fellows by being narrowly striped with white and dark blue; it is used chiefly for shirting purposes, but regattas are thicker than galateas, which are an introduction of later date. Both these materials have been extensively used for skirts and dresses in the place of cotton prints and cambrics. When summer costumes are required for boating, yachting, or sea-side wear, these fabrics should be chosen on account of their thickness and durability, for on these occasions cottons, linens, and hollands soon look soiled and untidy.

Regimen.—This term is derived from the Latin, and signifies, when applied to diet (*which see*), living by some fixed rule or special management.

Register.—In stoves and grates the article known as the register is a sliding plate so fixed that it may either close or open an aperture for the passage of air. A stove differs from the open fireplace in having the fuel closed in, and the register or draught-regulating plate of a stove is sometimes connected with a pivoted plate in the chimney, so as to be self-operating. The lid made to close the chimney in many of the modern open fireplaces, and called the register, may be kept open or shut as required. In closing the aperture, however, it should be remembered that a certain amount of fresh air is at the same time excluded. The closed register may ensure greater cleanliness of appearance in the way of freedom from particles of soot that escape from the chimney, but the atmosphere of the apartment will not be as pure and fresh as when the lid is left open.

Register Offices for Servants.—These are now made use of by most mistresses and servants, for application to an office of this kind saves much trouble to all parties. The fee demanded differs, but the general rule is for the lady to pay a shilling when she enters her name and requirements, and to pay the remainder of half-a-crown or five shillings when she has engaged a servant. An entrance fee should not be objected to, because it often happens that a lady puts her name down at several offices, and therefore some of the managers would have had trouble without payment if no fee had been paid. The duties of the manager are to ascertain what service is required by the lady, what wages she proposes to pay, and then to judge which servants on her list are likely to be suitable, who are then put into communication with the lady. The manager is not responsible for the characters of those she names; it devolves upon the lady to obtain the character from the mistress with whom the servant has lived last. Should the character prove to be particularly bad, the lady should communicate it to the manager of the office, who then crosses the name out of her book. When mistresses and servants have engaged with each other, they should state the fact at once to the offices at which they have applied, as a want of promptness in this respect generally leads to much annoyance and disappointment to other applicants. The scale of fees charged to servants is frequently ruled by the amount of wages they ask or obtain.

Registered Letters, &c.—The General Post Office undertakes, for a small sum, to register letters, newspapers, book-packets, and patterns, for delivery either at home or abroad. Letters, &c., addressed to initials and pseudonyms are not allowed to be registered; such as are allowed must be prepaid, registration fee inclusive, the latter being received only at the post-office counter, or in return for the registration envelopes which have been provided, and can be had of postmasters. The purchaser of a register has a receipt for it, and the receiver of it has to acknowledge it to the letter-carrier by signing his book. Letters supposed to contain coin, jewellery, watches, &c., must be registered, or, if posted without, will be registered by the authorities, and a double registration fee charged on delivery: this applies to inland and colonial post. The post-office is not responsible for letters lost, but registration facilitates the tracing of them, and shows whether lost in the post-office or in transit. Post-office servants must not take to the offices the letters of other persons for registration.

Registration of Documents.—As this is usually best effected by legal gentlemen, it is undesirable to do more than mention some of the documents which may or must be registered in the public interest. In Scotland the registration of deeds and writs is of old standing.

In England, in the reigns of Anne and George II., Acts were passed providing for the public registration of conveyances, deeds, and wills in Yorkshire and Middlesex. The general registration of wills has long been an affair of national interest. Considerable changes were effected in 1862 by the new Transfer of Lands Act, which establishes a registry for the registration of titles to various descriptions of property. So far as property in land or buildings is concerned, the whole question of registration is in a most unsatisfactory condition, and probably a uniform and better system will eventually be established over the country. The registration of certain forms of possession, such as annuities, stock, and other money transactions of sufficient importance, is a matter of course, and need not be gone into. The law requires the registration of bills of sale in certain cases within twenty-one days of the date of the deed; and the deed must be accompanied by an affidavit testifying to its genuineness, its date, and the residence and occupation of the giver of the bill of sale. The bill or copy, with schedule or other document referred to therein, is to be deposited with the official acting for the time being as Clerk of Dockets and Judgments in the Court of Queen's Bench. It is necessary to add that ingenuity has contrived means to evade the legal provisions for registering titles to property, bills of sale, &c.; but this is not so much a reason for abandoning or neglecting the practice as for caution, and for efforts to improve it by new legislation.

Registry of Births, Marriages, and Deaths. (*See* Births, Marriages, and Deaths, Registry of.)

Regium Donum.—A royal gift, which commenced in 1672, when Charles II. gave £600 of secret service money for annual distribution among Irish Presbyterian ministers. It was discontinued, and then restored by William III., who doubled the amount. Eventually it reached about £40,000 per annum, and was distributed among not only Presbyterian, but Baptist and Independent ministers. The share which came to the Dissenters was abandoned by them in 1857, in deference to the wishes of the English Nonconformists.

Reindeer Moss.—This is a species of lichen, called by naturalists *Cladonia rangiferina*, and growing on moors, heaths, or mountains in our own country, but it is also found throughout a wide range of latitude—from the Arctic regions, indeed, to the equator. In the pine forests of Lapland it is especially abundant, and the reindeer are there pastured on it, which has given this lichen its name.

Reindeer Tongues. — When in good condition the flesh of the reindeer is considered by some to be equal to the finest venison, and to the inhabitants of Lapland and the Arctic regions it is an important article of food. In England the tongue of the reindeer is often served as a separate dish for breakfast or luncheon; being smaller in size than an ox tongue, it is sometimes preferred on that account. The plan adopted for curing and cooking the tongue of the ox applies also to that of the reindeer.

Reinette. (*See* Apples, To Choose.)

Rejoinder.—A law term, signifying a defendant's answer to a plaintiff's reply. By an order under the Judicature Act, 1875, no pleading subsequent to reply in an action in the High Court of Justice other than a joinder of issue shall be pleaded without leave of the Court or a judge, and then upon such terms as the Court or judge shall think fit; and subject to that rule, every pleading subsequent to reply shall be delivered within four days after the delivery of the previous pleading, unless the time shall be extended by the Court or a judge.

Relapsing Fever.—This is a contagious fever, differing materially from typhus and typhoid, which is occasionally epidemic in this country and on the Continent. It does not appear to occur in tropical countries. Relapsing fever is frequently called famine fever. In Germany it receives the name of hunger-pest, from its proneness to attack by preference the ill-fed and destitute, and from the fact that it appears to follow upon the wake of famine and hardship, as, for example, the Irish famine of 1848 and the privations of the Crimea in 1854 and 1855, on both of which occasions the disease was epidemic to a very serious and fatal extent. The symptoms of relapsing fever are as follows:—There is, in the first instance, a fit of shivering more or less marked, usually coming on suddenly, and accompanied by frontal headache and giddiness. These symptoms are soon followed by a high state of fever, with a very rapid pulse, a white furred tongue, hot skin (the temperature ranging from 102 to 107), some jaundice, occasional sweatings, and sometimes violent delirium. Vomiting, pains in the bowels and back, muscular pains, sleeplessness, and great anxiety, are also prominent symptoms in certain epidemics of this disease. The fever usually lasts from five to eight days, increasing in intensity until the eighth day, when just when matters appear to have reached their worst, and life is almost despaired of, a sudden change takes place, which is ushered in by a most profuse perspiration, and occasionally by bleeding from the nose as well; and in a few hours the fever subsides, and the sufferer feels almost well again. This is called the crisis. For a few days after this crisis has occurred, convalescence appears to go on satisfactorily; but about the fourteenth day from the first commencement of the fever another change takes place. All or most of the symptoms previously described return quite suddenly with more or less violence, and it is this tendency to relapse once and again which is the special characteristic of relapsing fever, and to which it owes its name. The treatment of relapsing fever consists, in the first instance, in thoroughly relieving the bowels, and in strict attention to diet, with the administration of cooling drinks. In the relapses, when there are indications of great exhaustion, stimulants

must be given freely; and as the tendency in this fever is to death from syncope or fainting, especially during the critical sweats, this must be guarded against in every possible way, by permitting no exertion on the part of the patient, and having the ordinary restoratives always at hand in case of need. Tonics, as iron and quinine, may be given during the period of convalescence, and change of air will be of great service. It should always be remembered that many weeks may elapse before the effects of this fever pass away.

Release.—A release, in law, is an instrument in writing by which estates, rights, titles, entries, actions, and other things are extinguished and discharged, and sometimes transferred, abridged, or enlarged; and, in general, the term signifies one person's giving up or discharging the right or action he has, or claims to have, against another or his lands, &c. A release may be either in fact or in law. A release in fact is where it is expressly declared by the very words as the act and deed of the party; and a release in law is that which acquits by way of consequence, as where a *feme* creditor takes the debtor to be her husband.

Relievo, or Rilievo. (*See* Rilievo.)

Relishes.—A relish, like a ragout, is an accompaniment to another dish, served either alone or made into the form of sauce. The proper English word for what the French understand by a ragout is a relish; and the savoury accompaniment of any stew is in France known as the relish. The name relish is in England given to *hors d'œuvres*, or small dishes which are handed round after the soup and fish. (*See* Courses at Table.)

Remainder.—This, in law, is an estate limited to take effect and be enjoyed after another estate is determined. For example, if a man possessed of lands in fee-simple grants them to A for twenty years, and after the determination of that term to B and his heirs for ever, in such a case the estate of A (that is, the interest which A has in the lands for the twenty years) is termed an estate for years; and the estate of B (that is, the interest which B has in the lands after the end of the twenty years) is termed a remainder. It is a doctrine of law that to constitute a remainder there must be some particular estate (as it is termed) to support it at the time of its creation and preceding it. In the above instance, this particular estate is limited to A. (*See* Reversion.)

Remittent Fever. (*See* Malarious Fever.)

Remnants.—A purpose can be found for remnants of every kind. Those of black silk are useful for many purposes, and amongst others that of making aprons and for repairing black silk dresses. Remnants of all cotton and woollen materials can be utilised for garments for children. In like manner, out of remnants of cloth suits for little boys can be made. Besides these purposes, patchwork finds a use for all silk, satin, velvet, cotton, and cloth remnants, of which curtains, cushions, and counterpanes can be made. Cloth is also used in appliqué work; and soldiers as a class are very clever in converting remnants of this material into bright and picturesque quilts and covers. Shopkeepers are always glad to sell remnants at a cheaper rate, because there is always the chance that their customers may not wish for, or be able to make use of, the particular length of remnant on hand.

Remoulade.—A superior kind of dressing for salad, made in several ways, the most usual being with the yolks of boiled eggs, mustard, flour, olive oil, pepper, and vinegar. There is also a sort of pickle called remoulade of cucumbers. A remoulade sauce is sometimes made and used with cold poultry, &c. Remoulade is occasionally made hot, and used as a sauce. Here is the recipe:—Toss in butter a couple of shallots finely minced; add a dessert-spoonful of flour and half a pint of common stock; then take tarragon, chervil, capers, and parsley, all finely minced, and add them, with a little French mustard, pepper, salt to taste, and a little grated nutmeg; lastly, add a little salad oil, and after boiling the sauce for a minute or two it is ready. (See also "Cassell's Dictionary of Cookery.")

Removal of Paupers.—No person is to be removed from any parish or workhouse till twenty-one days after notice of his being chargeable has been sent to the parish to which the order of removal is directed, with a copy of the examination and order, but such person may be removed directly if the order be submitted to. In case of appeal, no removal to take place till after the determination of the appeal; notice of appeal to be given fourteen days before first day of sessions. The parish losing appeal is to pay costs. Charge of relief from time to time to be paid by the parish adjudged the place of settlement, but relief under suspended order is not recoverable unless notice has been sent of such order. Grounds of appeal to be stated in notice of appeal, and those stated can alone be gone into. Appellants to have access to the pauper for the purpose of inquiry concerning his settlement. Either party making frivolous or vexatious statements to pay costs. (*See* Parish Settlement; Poor Laws.)

Removes.—In some books on cookery a remove is a dish which follows soup and fish, and precedes entrées. Removes, in this sense, are prepared dishes of beef, mutton, ham, tongue, fowls, or calf's head, all of which can be set aside in favour of what comes in the regular course. Another application of the word is to such dishes as are placed on the table after the removal of others. Thus, for the roast, the remove, according to season, may be game, ducks and green peas, or guinea fowl and asparagus; for the poultry, the remove may be macaroni; for ham and tongue the remove may be puddings; and for made dishes it may be tarts, jellies, blanc-mange, &c. The word is conveniently used in a general way to denote any dish which succeeds to the place of any other; thus, soup is followed by fish as its remove, fish is followed by game as its remove, and so on to the dessert, where the ice cream can be removed (as some express it) by preserved pine-apple.

Renaissance.—This term, which literally means "new birth," has been applied by architects to a revived style of decoration which associates classical design with the French Gothic. Raphael, the great Italian painter, was the first to adopt this modification, soon after, and in consequence of, the discovery of the Thermæ of Titus, and paintings in the then newly-exhumed Septizonia. Its more common adoption is usually regarded as corresponding in point of date with the English, Elizabethan, and Jacobean styles.

Renewal of Bills.—When a bill has matured, by an agreement between the parties concerned, a new bill may be substituted in place of the old one. By this arrangement the original bill is suspended until the new bill falls due; and should the new bill be not then paid, the old one revives, and action may be taken upon it, if desired. (*See* BILL OF EXCHANGE.)

Rennet.—In the manufacture of cheese the substance called rennet is extensively employed to curdle the milk, and though other methods of curdling are sometimes adopted, rennet is used for the purpose more than anything else. It consists of the inner lining of the stomach of the sucking calf, and depends for its use upon the acid gastric juice contained in it. It is prepared by removing the stomach from the calf as soon as killed; the outer skin and all superfluous fatty matter are then scraped off, after which the membrane is salted for some hours and stretched out to dry. In a dried state it will keep for a long time. When wanted for use, a small piece of the rennet is cut off and soaked for four hours in boiling water, and the liquor thus obtained is stirred into the milk. It is difficult to fix upon the exact quantity that will be required, as the liquid varies very much in strength. Some prepare only a quart of rennet from one stomach, and others a gallon, but of course the stronger the rennet, the less will be required for curdling. Ordinarily a table-spoonful of the liquor in which the dried rennet has been soaked will turn two quarts of milk.

Rent is defined to be a certain profit issuing yearly out of lands and tenements corporeal, and may be regarded as of a twofold nature—first, as something issuing out of the land as a compensation for the possession during the term; and secondly, as an acknowledgment made by the tenant to the lord of his fealty or tenure. Rent must always be a profit, but there is no occasion for it to be, as it usually is, a sum of money. The profit must also be certain, or that which may be reduced to a certainty by either party; it must also issue yearly, though there is no occasion for it to issue every successive year; it may be reserved every second, third, or fourth year, yet, as it is to be produced out of the profits of lands and tenements as a recompense for being permitted to hold and enjoy them, it ought to be reserved yearly, because those profits annually arise and are annually renewed; it must issue out of the thing granted, and not be part of the land or thing itself, wherein it differs from an exception in the grant, which is always of part of the thing granted. There are three principal kinds of rent—rent service, rent-charge, and rent seck. Rent service consisted of fealty and a certain rent, and this was the only kind of rent originally known to the common law. It was called rent service because it was given as a compensation for the services to which the land was originally liable. A rent-charge is where land is charged with a rent by deed or will, with power to distrain for the same, but the owner of such rent has no reversion in the land (*see* REVERSION); as when a person conveys to another land in fee-simple, reserving a certain rent payable thereout, with a clause of distress; in such case the land is liable to the distress, not of common right, but by virtue of the clause in the deed, therefore it is called a rent-charge. Rent seck, or barren rent, is nothing more than a rent for the recovery of which no power of distress is given either by the rules of the common law or the agreement of the parties. By Statute 4 Geo. II. c. 28, a power of distress has been made incident both to rent-charges and to rents seck. There are also several minor varieties of rent, as quit rents, ground rents (*which see*), fee-farm rents, and rents of assize. The most ancient and effectual remedy for recovery of rent is by distress (*see next paragraph*), but an action at law lies for the recovery of rent as well. Rent is due on the morning of the day appointed for payment, but it is not in arrear until after midnight. Just before and at sunset is the time appointed by law to make a proper demand of it to take advantage of a condition of re-entry; the demand should be made such time before sunset as to allow sufficient light to count the money, and the person making the demand or tender must remain on the land till the sun has set, and the demand must be actually or constructively continued till that time. Where rent is reserved generally, and no mention is made, as is usual, of half-yearly or quarterly payments, nothing is due till the end of the year. Rent is considered as of a higher nature than even a debt due on an instrument under seal as between the parties themselves; but in the case of the death of the tenant, rent in arrear, whether it be by deed or parol, is held to be of equal degree with specialty debts, and therefore, in the distribution of the deceased's estate, it is to be paid with debts of equal degree. (See 32 & 33 Vict. c. 46.) As to apportionment of rents, see 33 & 34 Vict. c. 35, by which rents and other periodical payments are thenceforth to accrue from day to day, and be apportionable in respect of time.

Rent, Distress for.—The taking of personal chattels out of the possession of a defaulting tenant. A distress may be made for any kind of rent in arrear, the detaining of which beyond the day of payment is an injury to the landlord. The right may belong to the latter either by virtue of express words conferring it, or in virtue of the general law. This is the most ordinary and best remedy for recovery of rent in arrear, and the effect of it is to compel the party to replevy the distress and to contest the taking in an action against the distrainer, or, which is more usual, to com-

pound or pay the rent for which he was distrained. The landlord cannot sell the goods distrained before the expiration of five days, allowed by the Statute 2 Wm. and Mary, s. 1, c. 5, which five days are inclusive of the day of sale, but exclusive of the time of the sale; therefore the distress may be removed on the sixth day. Before sale an appraisement must be made before two sworn appraisers, and the sheriff's office should be searched to see if the goods have been replevied. If there be any surplus from the sale it must be handed over to the tenant; but where the value of the goods distrained is not sufficient to cover the rent, &c., a second distress will be allowed. The expenses of distress for less than £20 are regulated by the Statute 57 Geo. III. c. 93.

Rep, or Repp.—A particularly strong and thick material made of silk and of wool. It is very similar to poplin in appearance; its cord is, however, thicker and more defined. Silk rep is made chiefly at Lyons. The best quality, which is manufactured of the purest silk, is used for altar-cloths and frontals; its width is twenty-seven inches, and its price per yard is nearly that number of shillings; it is considered for that purpose to rank next to velvet for beauty and richness of appearance. Dresses and waistcoats are also made of reps. Woollen reps are very serviceable for furniture purposes; curtains of this material, whether of silk or wool, look handsome, and their folds hang gracefully. For the coverings of chairs, seats, and couches, reps are very suitable, and have the reputation of wearing well.

Repairing Clothes. (*See* CLOTHES, REPAIRING.)

Repairing Leases.—By this term is understood a lease in which the lessee covenants to keep the premises in repair—usually in good tenantable repair, damage by fire, tempest, and fair wear and tear excepted. It is the usual form of lease for house property. (*See* LEASES.)

Repairs, Importance of, &c.—Very little need be said on this subject, though the title will doubtless be profitable as a reminder. The repairing of articles of wearing apparel always has two advantages, and sometimes three: it prolongs their durability, for "a stitch in time saves nine;" it improves their appearance, for "a mend is better than a rend;" and sometimes it is good for the health as well as the comfort of the wearer, especially where boots are in question. Neglect in such matters is wasteful, expensive, unbecoming, and inconvenient. These remarks apply to everything used in a house, from the attic to the basement, and also to the house itself, from the ridge to the foundation, inside and out. To enumerate all the discomforts arising from oversight in these matters is impossible; we should have to speak of locks, bolts, hinges, bells, windows, of chairs, tables, kitchen utensils, of upholstery and table-linen, and a host of other things in daily if not hourly requisition. A wise housekeeper will keep herself well informed on all such points, and will lose no time in applying the proper remedy. As to legal obligations in regard to the repairs of a house, it may be stated here that in all cases of tenancy, in the absence of special stipulation to the contrary, the landlord is bound to repair; but in leases it is usual for the tenant to covenant to do repairs. Sometimes the landlord covenants to do external repairs, and the lessee internal repairs. (*See* LANDLORD AND TENANT.)

Replevin (from *replegiare*, to deliver to the owner upon pledges) is a remedy for the owner of goods or cattle which have been wrongfully taken under a distress for rent, or for some other cause, whereby he is enabled to obtain them back in a summary manner, through the Registrar of the County Court of the district within which the goods or cattle were taken, upon giving security to try the validity of the distress, or taking in an action of replevin, to be forthwith commenced by him against the distrainer, and prosecuted with effect and without delay either in the county court or in a superior court, and to return the goods or cattle, if such return shall be awarded. The proceeding consists of two distinct parts—viz., (1) the replevy, whereby the goods or cattle are obtained back; (2) the subsequent action of replevin to try the legality of the distress or taking, and which is a personal action. It is not confined strictly to distresses, but extends to all wrongful takings of goods or cattle. An unlawful detention for an unfounded claim of lien is not sufficient; there must be an unlawful taking. The remedy is inapplicable also to an unlawful taking of fixtures annexed to the freehold, or any other things not subject or liable to a distress; *e.g.*, deeds and charters, money, animals *feræ naturæ*. Replevin lies for goods protected from distress for the benefit of trade; tools and implements of trade, where there is another sufficient distress on the premises; beasts that gain a man's land or sheep, where there is another sufficient distress on the premises; goods or chattels distrained for rent before sunrise or after sunset; goods or cattle taken after the outer door has been unlawfully broken to distrain; and in all other cases where the taking of the particular articles was wholly illegal and not merely irregular or excessive. Replevin is in effect no remedy where the distress was originally lawful, unless it has become illegal by a sufficient tender of the rent or damage done, with expenses, being made before the impounding, and a subsequent wrongful detention, which in effect and construction of law amounts to a new wrongful taking. If a man having a right to distrain for £5 distrains for £500, a replevin (without making a sufficient tender before the impounding) is not the proper remedy, but an action for an excessive distress is. With respect to distresses for rent, before the Statute which authorised the sale of the goods, and distresses for other than rent, at the present day, there is no particular time within which the replevin must be made; for as the distress could not be disposed of, it could be only kept as a pledge. Even with respect to distresses for rent subsequent to the Statute, neither the removal of the distress from the demised premises after five days, nor an appraisement of the distress, takes away the

tenant's right to replevy; for so long as the goods remain unsold, the tenant may replevy, although after the five days allowed by the Statute. (*See* RENT, DISTRESS FOR.)

Representation in Parliament.—The theory of representation is that one person or a small number of persons may be made the vehicle of expressing the opinions of a large number—at least, the majority of those by whom they are elected. This theory was unknown to the ancient political systems of the world, and it is still most perfectly carried out under a constitutional government and a limited monarchy like our own. It is based on the principle that the people have a right to a voice in the government of the country in all matters of taxation and many others.

Representatives.—1. Members of Parliament who represent their constituencies. 2. Those among whom is distributed the personal estate of one who dies without a will. 3. Those who represent or lineally descend from the parties indicated under the preceding head, and can legally claim in virtue of such a relationship. 4. An executor or administrator. 5. An heir is sometimes called the real representative of his ancestor. 6. Generally, any one who is agent, deputy, or substitute for another, whether in a court of law or elsewhere. Sometimes the word has other meanings, as when it denotes an example or specimen, or some one who is qualified to represent a party or a cause.

Reprieve, in law, is the withdrawal or suspension for a time of a sentence of execution against a prisoner.

Republic.—A form of government in which the sovereign power is vested, not in a king, elect or hereditary, but in certain members of the community, or in the community at large. A republic includes, therefore, many varieties of constitution, from an oligarchy to a democracy. (*See* DEMOCRACY; OLIGARCHY.)

Request, Courts of, or Courts of Conscience, were courts constituted by Act of Parliament, in the City of London and other commercial districts, for the recovery of small debts. They are now almost entirely superseded by the County Courts. (*See* COUNTY COURTS.)

Reredos.—The wall or screen behind the altar, which is frequently enriched with pinnacles, niches, statues, panels, and other kinds of ornamental work, and sometimes with gilding and painting. The term is also used to indicate the screen in front of the choir upon which the rood is placed, and was formerly employed to designate the open hearth, immediately under the louver in ancient halls.

Reremouse.—An old name for the bat, but seldom used. It is sometimes written rearmouse.

Rescue of a Prisoner.—If the defendant, after he is arrested on mesne (*i.e.*, intermediate) process, and before he is carried to prison, be rescued from the sheriff or his officer, the sheriff will be excused from having his body in court at the return of the writ, and may make his return to the writ accordingly. But a rescue after the defendant has been carried to prison, even when the sheriff is bringing him from the prison to the court by *habeas corpus*, will not excuse the sheriff, and he is answerable for it as escape. And an escape owing to the negligence of the officer will not justify the return of a rescue. If the sheriff return the rescue, the offenders may be punished by attachment or by indictment, and a special action on the case lies against them by the plaintiff for damages, whether the rescue be returned or not. The Court has permitted a defendant to show by affidavit, in mitigation of punishment, that in fact there had been no legal arrest. The sheriff cannot excuse himself by returning a rescue on final process, as he may in the case of mesne process, unless the rescue was by the Sovereign's enemies. If the defendant be rescued, therefore, the plaintiff may either have an action against the sheriff or gaoler in whose custody he was, or he may sue out a fresh writ of *ca. sa.*, or an execution against the defendant's goods, &c., at his option. A rescue of one apprehended for felony is felony; for treason, treason; and for a misdemeanour, a misdemeanour.

Residence, in law, is a person's place of dwelling or abode; also the continuance of a parson or vicar on his benefice. It is on the presumption of residence that the law styles every parochial minister an incumbent. By 1 & 2 Vict. c. 106, repealing the former Acts, every spiritual person holding a benefice which comprises all parochial churches, perpetual curacies, chapels, and church or chapel districts, if with care of souls, shall reside on his benefice in the house of residence; and if he absent himself for more than three months in any year, he shall forfeit, unless resident at some other of his benefices, a certain portion of the value of his benefice. There are, however, many exceptions in this Act.

Residuary Legatee.—The person to whom the surplus, *i.e.*, the remaining portion or residue of a testator's personal estate and effects, after payment of debts and legacies, is given by the testator's will.

Resins.—The liquids which exude from certain trees. They are inflammable, burning with a bright flame with much smoke; viscid when warm, brittle and hard when cold, more or less of a yellowish-brown colour, soluble in alcohol when pure, and insoluble in water. They are procured either as spontaneous exudations, or by extraction through heat. Assisted by heat, they combine readily with oils and alkalies, forming in the latter case soaps, and in the former, or when dissolved in alcohol and essence of turpentine, varnishes. The soft resins which contain a portion of essential oil are called balsams. The hard resins are amber, anime, benzoin, colophony (common resin), copal, dammara, dragon's blood, elemi, guaiacum, lac, resin of jalap, laudanum, mastic, sandarach, storax, and tacamahac.

Respiration.—The act of breathing—which includes both inspiration and expiration—is one of the vital functions, the cessation of which, even for a few seconds, except in cases

of suspended animation, as drowning, &c., causes death. This function is sustained by the lungs, with the bronchia and windpipe, the diaphragm, certain muscles of the chest and back, and by the expansion of the ribs with their cartilages. It has been calculated that after an ordinary inspiration there are about 230 cubic inches of air in the lungs, including about seventy-five cubic inches which are, so to speak, permanently present in the air-cells. Now, as at each expiration about thirty inches of this air pass off more or less charged with carbonic acid, and consequently impure, it follows that in a confined space, where there is no ventilation, one must soon begin to breathe back into the lungs the air which has already done duty there, and which is no longer capable of imparting oxygen to the blood for its purification. The result of this is that the imperfectly aërated blood also fails in its duty to the rest of the body, and consequences of a more or less serious character, and detrimental to health, ensue. To ensure healthy respiration, therefore, in bed or sitting-room, it is absolutely necessary that there should be a space of at least 800 cubic feet, and this well ventilated, for each person. Respiration, like the pulse, is very much affected by a variety of circumstances even in a state of health, as exercise, posture, sleep, excitement, &c.; but as a rule it will be found that for each respiration there are about four beats of the pulse, and that the former will generally average from sixteen to twenty in the minute. Of course, these are very much increased, sometimes even doubled, in severe illness, and under the influence of excitement and other causes, but the average just mentioned will be found pretty correct. It may here be observed that it is only under very exceptional circumstances that one can measure his own respiration, owing to the part the emotions play in the discharge of this function. For the same reason, it is most difficult to get a fair estimate of another's respiration if he is conscious of the attempt to do so. If the person is asleep it can be done easily enough, either by watching each rise and fall of the chest, or by gently placing the hand upon the abdomen and carefully counting its rise and fall. If the person is awake, a pretence may be made to examine the pulse by bringing his hand into the position just indicated over the abdomen and registering his respiration, whilst he imagines you are only feeling his pulse. The number of respirations, especially when taken in connection with the state of the pulse, is often an important feature in disease, and by its frequency or infrequency a fatal or favourable issue may be foretold.

Respirators.—These are little instruments which are worn by delicate people over the mouth, and are so constructed as to warm the cold air before it is breathed into the lungs, and to prevent the passage of irritating particles from the atmosphere. Respirators are usually made by laying three small plates of perforated aluminium one upon the other, but in such a way that the perforations are not opposite to each other. The outer layer is covered with a piece of silk made specially for the purpose, and the inner is bordered with soft velvet for comfort of wear. The whole is adapted to the shape of the mouth, and is retained in place by two elastic cords, which are suspended one from each ear.

Restaurant.—This is a modern French name for an eating-house. In France it is not the custom to have much cooking performed in private houses. In that country many persons go to restaurants to partake of their meals, and many families send to places of this description for their food, more particularly for dinners. In our metropolis restaurants have been introduced, to which foreigners and other persons resort who prefer the French method of cooking.

Restitution of Stolen Goods.—By the common law there was no restitution of goods upon an indictment, because it is at the suit of the Crown only, therefore the party was enforced to bring an appeal of robbery in order to have his goods again; but latterly it has been the practice of the Court, upon the conviction of a felon, to order immediate restitution of such goods as are brought into court to be made to the several prosecutors. A writ or order of restitution may be issued by virtue of the Larceny Act (24 & 25 Vict. c. 96, s. 100), which enacts that if any person guilty of any felony or misdemeanour under that Act (with an exemption as to convictions of trustees, bankers, and other agents for misdemeanours under the Act in respect of goods or documents of title entrusted to them) in stealing, taking, obtaining, extorting, embezzling, converting, or disposing of, or in knowingly receiving any chattel, money, valuable security, or other property, shall be indicted for the same by or in behalf of the owner, his executor, or administrator, and be convicted thereof, the property shall in such case be restored to the owner or his representative, and the Court shall have power to award from time to time writs of restitution for such property, or to order the restitution thereof in a summary manner. This is subject to a proviso as to valuable securities, that if before the award of restitution it shall appear that they have been *bonâ fide* paid or discharged by some person liable to the payment thereof, or being negotiable instruments shall have been *bonâ fide* taken by transfer or delivery by some person for a just and valuable consideration, without any notice or reasonable cause to suspect that they had been stolen, taken, obtained, extorted, embezzled, converted, or disposed of by means of any felony or misdemeanour, in such case no restitution shall be awarded.

Restoratives.—This is the popular term for all those remedial agents which are usually employed in restoring suspended or impaired animation, as in drowning, fainting, &c. Under this head are comprised galvanism, hot and cold baths, smelling salts, and the internal administration of sal volatile, brandy, wine, &c.

Restoring Pictures.—This consists in re-touching an old painting in order to supply something destroyed or to hide a defect. It requires skill and great judgment, and should

never be attempted by amateurs. Opinions differ as to whether it should ever be done; and Mr. Daryl says, "Never, under any pretext, have a really valuable picture touched up." He adds that, while cleaning may be useful, and re-lining needful, "restoration so called, especially if practised by an indifferent hand, is almost always sacrilege." The restoration of pictures, like that of many other works of art, in too many cases does far more harm than good to them, and lessens their value by pretending to hide the results of the accidents of time.

Restoring Rusty Silks.—A decoction of fig-leaves may be employed for this purpose, the silk being well sponged with it, and then ironed on the wrong side. Ox-gall is likewise of use in the restoration of rusty silk, one of these being sufficient in two gallons of water, the material being sponged with it. Another plan is to boil nearly a cupful of green tea in three quarts of water in an iron pot, sponging the silk, and in every case ironing while damp.

Restoring Scorched Linen.—Scorched linen must be continually damped with cold water, and kept in the air to bleach. Another plan is to make a composition of two ounces of fuller's earth, half an ounce of curd soap, and the juice of two onions, in half a pint of vinegar. Spread it over the damaged part and let it dry on; then give the linen one or two washings, and if the scorching be not sufficiently severe to injure the threads, the burnt part will then appear white and perfect.

Retainer, Retaining Fees.—A retainer is (1) an instruction or direction from any one to a solicitor to prosecute an action or do any other legal business for him; (2) an instruction or notice given by a solicitor to counsel to secure his services as advocate in behalf of a party to an action. This is accompanied with a fee called a retaining fee.

Retching.—This is the name given to that painful effort to vomit which fails to bring up anything save a little saliva and mucus. It may be relieved by iced soda-water, to which a little brandy may be added if necessary, and in severe cases three or four drops of prussic (hydrocyanic) acid. The latter should not, however, be taken except by direction of a medical adviser.

Reticule.—1. A little bag of net-work for a lady's work, or hand-bag. But although, correctly speaking, the word signifies a bag of the above-named description, it has been indifferently applied to ladies' hand-bags of every kind of material, chiefly those of leather and of velvet, having a steel, gold, silver, or other metal clasp extending the whole length of the opening on each side, and fastened with a spring or lock. These were sometimes very handsomely embossed or chased, and the bags were often suspended by chains of the same metal from the waist-belt; the bags being employed to carry the purse, card-case, handkerchief, and appliances for needlework. This fashion of wearing reticules has again come into fashion of late years, and the original ancient clasps of bags long since worn out are to be seen in curiosity shops in considerable numbers. 2. A system of wires or lines in the focus of a telescope or other instrument; a reticle.

Retina.—This is the internal covering or tissue of the eye. It is a delicate, semi-transparent membrane, composed of the expansion of the optic nerve, and its function is to receive the impression of objects from without. (*See* EYE.)

Retorts are vessels used in distilling. The simplest form is the glass retort used by chemists, which is in the form of a glass bulb with a long neck bent downwards. The liquid to be distilled is poured into the bulb, which is placed on a stand over a gas-burner; the vapour rising from the contents cools as it escapes by the neck, and the liquid on condensing flows down into a vessel placed at the mouth to receive it. A better form has an opening in the bulb, closed with a glass stopper, for introducing the article to be distilled; these are called tubulated retorts. In large distilleries and other works where commercial operations are carried on upon an extensive scale, the retorts are often much more elaborate in their arrangements, in order to obtain the greatest possible results with the smallest expenditure of time and fuel; but in all cases the principle upon which they are made is the same. Retorts are made of various metals, earthenware, fire-clay, and other materials, according to the nature of the substance to be distilled. In making common gas, iron or fire-clay retorts of a large size are used for holding the coal to be distilled, and they are so arranged that they can be kept up constantly at a very high temperature, the fires not being allowed to go down even while fresh charges are being introduced. (*See* DISTILLATION.)

Retriever.—This well-known and useful breed of dog is largely used by the sportsman for the purpose of bringing to bag the birds that have been shot. Retrievers are in colour black or red, and occasionally pure white. They are either flat or smooth in coat, or curly; but the shape of the animal should be the same in either. The following are the show points:—Head long, with capacious mouth and good teeth; eye large, bright, and beaming with intelligence; ears not too large, rather low set, and not rolled, with the feather short on the upper part and bare towards the tips; nose ought to be large, showing great development of the nasal sinuses; shoulders deep and obliquely placed; loins and back wide and strong; thighs strong and muscular; legs strong and straight; feet round and compact, with well-arched toes. The head should appear almost human in its expression of sagacity; colour a raven black; coat, if smooth, should be thick and warm, straight and glossy—satiny, in fact; the stern well feathered and carried straight. The curly-coated should have no feather on the legs below the hock, and no "flag" on the tail; and all over the body, except the face, the curls should be short and small, close and crisp, even to the tail-tip. In size they should average twenty-five inches at the shoulder. Although mild in disposition, the retriever is a very courageous dog.

Revels.—Carousals or merry-makings, in which the utmost freedom is allowed and restraint is thrown off. The word is often used of the boisterous and noisy holiday-makings which were common in old times, even in high society, at such seasons as Christmas, and on special occasions. There was anciently an officer called the Master of the Revels, or Lord of Misrule, who was employed by royalty and nobility to preside over the amusements. Henry VIII. made the office a permanent one at court, and, with some modifications, it existed till the reign of George III., when it was discontinued.

Revenue. — Income; annual profits received from lands or other funds; also the portion of the general income of a state which is appropriated to the payment of national expenses. Revenue causes are peculiarly within the province of the Court of Exchequer (now the Exchequer Division of the High Court of Justice). The practice is regulated by the Statutes 22 & 23 Vict. c. 21, s. 9, *et seq.*, and the 28 & 29 Vict. c. 104.

Reverend.—As an honorary title this term is applied to ministers of religion, and by Roman Catholics also to ladies of a certain rank in convents, as the "reverend mother." Formerly it was given to judges. As a title of simple courtesy its use is not legally restricted. An archbishop is Most Reverend; a bishop is Right Reverend; a dean is Very Reverend; an archdeacon is Venerable; and the other clergy are Reverend. The Irish bishops of Meath and Kildare have always been styled Most Reverend, because Meath was once an archbishopric.

Reversion is the returning of lands, &c., into the possession of the donor or his heirs. Reversion, in the law of England, has two significations—one of which is an estate left, which continues during a particular estate in being, and the other is the returning of the land, &c., after the particular estate is determined. And it is further said to be an interest in land when the possession of it fails, or where the estate which was for a time parted with returns to the grantor or his heirs. But according to the usual definition of a reversion, it is "the residue of an estate left in the grantor." The interest which a man has in lands in reversion is commonly called a reversionary interest. The difference between a remainder (*which see*) and a reversion consists in this, that the remainder may belong to any man except the grantor, whereas the reversion returns to him who conveyed the land, &c.; and again, reversion arises by construction of law, a remainder by the act of the parties.

Review.—A periodical publication, consisting entirely of critical essays—literary, historical, biographical, &c.

Revivers for Cloth, &c.—Sundry preparations are sold under the name of revivers, and in ordinary cases it is better to purchase than to make them. For reviving black cloth, Gray gives this:—Bruised nut-galls, 1 lb., logwood 1 lb., water 5 quarts; boil to 4 quarts; add sulphate of iron 4 oz.; dissolve and strain; when cold, add 8 oz. of ox-gall. For blue cloth, Cooley gives this:—Soluble Prussian blue 1 oz., dissolved in distilled water 1 quart. It will do for black or blue cloth. Gilding can be revived in several ways; one is:—Mix in 1 gill of water 2 oz. of purified nitre, 1 oz. of alum, and 1 oz. of common salt; to be applied to gilt articles with a brush. Gilt frames should be made as clean as possible before any application, and then they may be much improved by the careful use of a little olive or linseed oil, which may be gently and carefully put on by means of soft wool. This will give freshness and permanence to gilding which will not bear water.

Rhabdomancy.—A mode of divination by means of a stick or staff. Under the name of a divining-rod it is still to some extent and in certain cases believed in. The diviner, or "dowser," usually takes a forked hazel stick, which he holds by the prongs, and it is alleged that the presence of water or minerals under a particular spot is indicated by the decided inclination of the stick. The stick is held between the thumbs, and is only efficacious in the hands of certain persons. Modern scientific men properly regard it as a delusion.

Rhatany. (*See* RATANY.)

Rhea.—This is a bird of the ostrich kind, usually called the American ostrich, and belonging to the natural family *Struthionidæ*. According to Mr. Darwin, it abounds principally on the plains of La Plata, where it feeds on grass, roots, &c., and where the Indians hunt it on horseback armed with the "bolas," a long thong having a heavy bullet at each end. The horsemen appear from different directions at one time; the bird, swift and wary as it is, then loses its presence of mind, and falls an easy prey to its pursuers. Like other ostriches, the female rhea lays her eggs in the sand, and the male does duty assiduously as incubator.

Rheum. (*See* RHUBARB AS FOOD; RHUBARB AS MEDICINE.)

Rheumatic Fever, or, as it is more correctly called, acute rheumatism, is a non-contagious and non-infectious disease which is very common in this country. The origin of rheumatism is not known, but there is every reason to believe that it is not due to any specific poison conveyed into the system from without, though weather, temperature, exposure to wet, privation, &c., may doubtless predispose it and favour its continuance; but that it is, on the contrary, the result of some morbid condition of the blood generated within the body, which shows a characteristic tendency to excite inflammation in certain localities, and especially about joints. The symptoms of rheumatic fever are, as a rule, in the first instance, very much those which usually usher in an ordinary attack of fever, viz., shivering, hot skin, headache, &c.; but these are within a few hours succeeded by the two characteristic features of the disease, viz., profuse acid perspiration bathing the whole body, and a more or less severe inflammation of the several structures about the joints, especially the hips, knees, ankles,

shoulders, elbows, and wrists. This inflammation is so severe and so painful, owing to the parts affected rendering the slightest movement a torture, that a person suffering from this affection presents the most piteous and helpless spectacle it is possible to conceive. Sleep is often a rare visitor, and it is so liable to be disturbed by some movement that it is almost dreaded. The perspiration, at the same time, appears literally to steam off the sufferer, and for a time at least does not seem to afford much relief, although there is no doubt that it is in this way nature tries to eliminate the disease. The temperature throughout is high, sometimes excessively so, and a favourable issue of the case may be considered very doubtful if this should at any time exceed 104°. But the greatest danger of all to be apprehended in a severe attack is the liability of the serous membrane of the heart—the pericardium and endocardium—to become implicated. This complication is usually indicated by pain over the region of the heart, though this is always very well marked, by a hurried breathing which did not previously exist, by an anxious expression of the face, and by some cough. Of course the stethoscope reveals other signs which need not be entered upon here. The worst part of the heart complication is that, although the patient may, and in a large majority of cases does, get over the attack, it unfortunately leaves in too many instances a legacy of disease behind it which saps the life and ultimately brings on a premature death. The duration of an attack of acute rheumatism is usually from about two to three weeks, and in a month there is generally complete convalescence. The treatment must be regulated very much by the condition of the sufferer and his surroundings. In some cases bleeding may be necessary, but it is seldom resorted to. A thorough clearing of the bowels at the outset, by relieving the system of certain morbid matter, will greatly facilitate the tendency to a speedy recovery; but it is manifest that a continuation of purgatives in the painful, helpless condition of the body would be torture and without benefit. Calomel is the best purgative in these cases, followed by a black draught or some saline or mineral water. With regard to medicines, there is no doubt that the most popular and successful are the alkalies, and of these the bicarbonate of potash or the salicyllate of soda is probably the best, either of which may be given in scruple doses every four or six hours in water, and continued until the acute symptoms have subsided. They must not, however, be pushed too far, lest the system be lowered by their administration. Some medical men prefer the nitrate of potash (saltpetre), and this may be given in even larger doses than those just mentioned for the bicarbonate. When there are restlessness and great pain, opium may be given with advantage in the form of extract, one grain night and morning for an adult; or, if preferred, ten to twelve minims of Battley's solution, or from ten to fifteen grains of Dover's powder. The local treatment of acute rheumatism almost equals in importance the internal. Wrapping the affected joints in cotton-wool and oil-silk, blisters, and the application of what is called the alkaline lotion, have all their advocates. Alkaline lotion is prepared by dissolving one ounce of carbonate of potash or soda, or nitrate of potash (saltpetre), in a pint of boiling water, and applying it on flannel or spongio-piline to the inflamed joints. Some recommend the dry powder to be thickly sprinkled and well rubbed on spongio-piline which has been previously saturated with hot water. The advantage of the latter plan is that it does not require a renewal of the alkali for some time, but can be re-applied again and again by a fresh saturation or sprinkling with hot water. If heart symptoms show themselves, leeches and blisters, with the administration of calomel and opium, are usually resorted to. The diet should be light and farinaceous, and should contain a large proportion of milk; lemonade, lime-water, and other cooling drinks are beneficial; and, lastly, as the perspirations are a source of much trouble, and may by their accumulation on the night-dress and bed-clothes prove a source of danger to the patient, from damp and consequent chill, every precaution must be taken against such a contingency. Flannel vest and drawers, so made as to slip off without moving the patient, should be worn next to the skin, and changed at least every second day; a blanket should also be placed underneath the sheet if the latter is used at all. It is sometimes the custom to wrap the patient in blankets without sheets; and this plan, though not always well tolerated, is often highly beneficial. The blankets must, however, be frequently changed.

Rheumatic Gout.—This is a hybrid affection, partaking partly of the character of rheumatism and partly also of that of gout. The disease attacks for the most part the hands and feet, where it is apt to localise itself, and from which it is most difficult, and in some cases impossible, to eradicate it. When the attack is more of a rheumatic nature than gouty, then the treatment recommended for rheumatism (*see next paragraph*) will be necessary. If, on the other hand, it is more gouty than rheumatic, then the remedies prescribed under the heading of gout (*which see*) will be found serviceable.

Rheumatism.—This is, perhaps, the most common of all the maladies which prevail in moist climates like our own; so common is it, that there are but few people indeed who have passed the meridian of life who have not proved the existence of rheumatism or rheumatic pains by personal experience. Chronic rheumatism doubtless originates from the same cause as acute rheumatism or rheumatic fever, of which it is indeed frequently the sequel, viz., to some change which the blood undergoes in certain peculiar states of health, probably induced and promoted by surrounding circumstances. This is proved by the tendency the affection shows to what is called metastasis, viz., a flitting about one part of the body to another, and sometimes quite suddenly. Though chronic rheumatism may follow an acute attack, it for the most part assumes the chronic or non-inflammatory character from the outset, and is distinguished from the acute form by the absence of fever and the characteristic perspiration. There is also, as a rule, very little

swelling, and the pain, which is sometimes of a severe character, is often really the only symptom present. This form of rheumatism appears to attack by preference the fibrous sheaths of muscles, hence it is frequently called muscular rheumatism. When the muscles of the back are affected, it receives the name of lumbago. The muscles of the chest are also frequently the seat of the disorder, and the pain may so simulate pleurisy as to give rise to serious alarm. The scalp may also be affected, and the pain is then sometimes of a very severe and chronic character. The structures of joints, including those of the fingers and toes, the covering membranes of bones (periosteum), the sclerotic coat of the eye, and, indeed, any part of the body where fibrous tissue exists, there rheumatism may be expected to localise itself if previously present in the circulation. The treatment of chronic rheumatism consists in the administration of such remedies as relieve the liver and digestion generally of all morbid products, in producing a free action of the skin, as well as some counter-irritation at the part affected, and in keeping the body, as far as possible at a comfortable and uniform temperature. The first indication may be fulfilled by a full dose of blue pill or calomel and colocynth, followed by what is called the mistura alba, or white mixture of the hospitals, and which consists usually of ten grains of carbonate of magnesia and from half a drachm to a drachm of sulphate of magnesia in an ounce of peppermint or pure water. This should be taken two or three times a day for a few days. Many persons prefer to this the Chelsea pensioner, which is composed of guaiacum, rhubarb, cream of tartar, sulphur, and nutmegs; and for what is called the cold form of rheumatism it is perhaps more suitable, and has often proved highly beneficial. To promote the action of the skin, the use of the warm or Turkish bath is invaluable, and should always be resorted to. Hot salt water and certain mineral baths are also most serviceable. (*See* BATHS AND BATHING). The affected parts may be advantageously rubbed with the soap, camphor, and opium liniment night and morning. To keep the body at a proper temperature, flannel of a texture suitable to the time of year should be worn next to the skin. Lastly, rheumatic people should avoid wet and exposure.

Rhinoceros.—This is the name applied by naturalists to a genus of pachydermatous animals, found in India, Africa, and some other places. The genus has the feet divided into three toes, and either one horn or two on the snout. The rhinoceros is very large and clumsy-looking, with a rough, half-naked skin hanging in folds, and the upper lip overhanging the lower. In a wild state the animal lives in swamps and jungles, and in forests near to streams, its food consisting of roots and branches of trees and shrubs, and it is usually very inoffensive unless roused. It is remarkable for the acuteness of its hearing and sense of smell. The Indian rhinoceros has but one horn; the African has two. The Java rhinoceros has one horn, and is smaller than the Indian. Another species exists in the interior of South Africa which is celebrated for the great length of the horn. It is called the kobaoba, and from its horn the natives make a weapon of offence or defence to use in war; this weapon is called a knob-kerry. The rhinoceros is a gregarious animal, though not so much so as the elephant. The females produce the young only one at a birth.

Rhododendron.—This is the name given by botanists to a genus of shrubby plants belonging to the natural family *Ericaceæ*. The name is compounded of two Greek words signifying "rose" and "tree." The true rhododendron is a very lovely tree, but is only found in tropical India, our climate being too cold for it. There are as many as thirty-two different species of rhododendron, some being



RHODODENDRON.

shrubs, others very tall trees. Most of the varieties that adorn our gardens belong to the *Rhododendron ponticum*, which was originally a native of Asia Minor, Spain, and the Caucasus. In gardens they ought to be planted in damp shady places, and the soil is best mixed with sand. They are best propagated by young shoots or cuttings, which may be planted in June or July and placed out in spring.

Rhubarb as Food.—Although common rhubarb (*Rheum rhaponticum*) is one of the most useful of our garden productions, its introduction into England is of comparatively recent date. It belongs to the buckwheat order of plants; and although it cannot be eaten in its raw state, it is when cooked used by us as a fruit. It comes into season in spring, when apples have disappeared and before gooseberries are fit for gathering, so that it is a most useful production, and it is valued on account of its purifying effect upon the blood. Early forced rhubarb, which is prized for its beautiful colour, may be cultivated in any fruit garden by placing an empty sugar-cask over the plant at the beginning of winter. The quality rhubarb possesses of imbibing the flavour of anything with which it is cooked renders it very useful for mixing with richly-flavoured fruits in making pies and puddings, as it increases the quantity of fruit without

imparting its own flavour. Rhubarb which is used officinally is imported to this country from abroad. (*See next paragraph*; *also* RHUBARB WINE.)

Rhubarb as Medicine.—This is the dried root, from which the bark has been removed, of the *Rheum officinale* imported into this country from Thibet and China, and appearing as rounded or flattened cylindrical pieces of a yellow colour, peculiar odour, and bitter taste. These pieces are frequently bored with one hole. It is a curious fact that, although rhubarb has been known and used medicinally from the very earliest times, the exact species of the plant which yields the officinal rhubarb is still a mystery, so jealously do the Chinese authorities and those who are interested in the culture of the plant guard the secret. There are several varieties of rhubarb known in common, the best of which are the Russian, popularly known as Turkey, East Indian, and Dutch-trimmed or Batavian. Russian or Turkey rhubarb, which is the best of all in quality, receives its name simply from the fact that the Russians trade largely in the drug with the Chinese, and that it must necessarily pass through their country as well as Asiatic Turkey on its way to Europe. In Russia itself it is called Chinese rhubarb. East Indian rhubarb is so called because it is exported dried from Canton and Shanghai, and indirectly from Singapore. It is generally untrimmed, or only half peeled, and is frequently worm-eaten, and of inferior quality. Dutch-trimmed or Batavian rhubarb has most of the characteristics of the preceding, except that it has been trimmed up to make it look as much like Russian rhubarb as possible. English rhubarb is also cultivated to some extent, and may be readily recognised by its colour, lightness, sponginess, and less pleasant smell. Rhubarb is deservedly classed as one of the most useful remedies of the Pharmacopœia. In small doses it is an excellent stomach tonic, and is a most useful medicine in indigestion, biliousness, &c. In larger doses it acts as a mild but efficient aperient, without in any way exciting irritation of the mucous membrane of the bowels, as most aperients do. It must be remembered, however, that rhubarb, from its astringent qualities, has a tendency subsequently to produce constipation, and is for this reason given in diarrhœa. It is therefore necessary, when it is desired to obviate this tendency, to combine it with other drugs, as magnesia, grey powder, jalap, &c. (*See* GREGORY'S POWDER.) The preparations of rhubarb are:—1. *Extract of rhubarb*, the dose of which is from five to fifteen grains. 2. *Infusion of rhubarb.* This is prepared by pouring half an imperial pint of boiling water on a quarter of an ounce of sliced rhubarb, and allowing it to infuse. The dose is from one to two ounces. 3. *Compound rhubarb powder.* This is identical in composition with Gregory's powder (*which see*). The dose is from five to ten grains for children; for an adult from twenty to sixty grains. 4. *Compound rhubarb pill.* This is composed of powdered rhubarb, aloes, myrrh, hard soap, oil of peppermint, and treacle. The dose is from five to ten grains. 5. *Tincture of rhubarb.* This consists of rhubarb, cardamoms, coriander, saffron, and proof spirit. The dose is from one to two drachms and upwards. 6. *Rhubarb wine.* This is composed of rhubarb, *Canella alba*, bark, and sherry. The dose is from one to two drachms. 7. *Syrup of rhubarb.* This consists of rhubarb, coriander fruit, refined sugar, rectified spirit, and distilled water. The dose is from one to two drachms. The dose of simple powdered rhubarb is from one to five grains as a stomachic, and from ten to thirty grains as an aperient.

Rhubarb Wine.—The proper time for making rhubarb wine is the middle of May, as the rhubarb is then plentiful and is also full of sap. The juice is first extracted from the rhubarb by bruising it and allowing it to stand some time in cold water; after that it is strained, sweetened, and sometimes flavoured with lemon. A little brandy is occasionally added, but it is not necessary. After it is put into the cask it is better to remain unstopped for a month; at the end of that time it should be bunged up, and will be ready for use in a few months. Currant juice is sometimes added to improve the colour of rhubarb wine.

Rhyme.—In poetry, the correspondence of sounds in the terminating words or syllables of verses. To produce rhyme the syllables corresponding in sound must both be accented, as *slow*, *blow*; *blow-ing* and *burn-ing* give no rhyme, although they terminate similarly, because the accent in each case is on the penultimate syllable. Rhymes in which the final syllables only agree, as *head*, *dread*, are known as single or masculine rhymes; those in which the two final syllables agree, the last being short, as *rightly*, *nightly*, are termed double or feminine rhymes. Triple rhymes are sometimes though rarely used, as *wearily*, *drearily*. Imperfect rhymes in English poetry are those which are to some extent similar in sound, there being either a slight difference in the vowel sounds or in the consonants, as is instanced by such words as *prove*, *love*; *gone*, *alone*; *noises*, *voices*. (*See* METRE.)

Rhypophagon (also written rypophagon and ropophagon).—A composition formerly in popular use as a paste instead of soap for shaving. The following is a recipe for it:—Take sliced yellow soap 1 oz., fine soft soap 3 oz. Melt these by the heat of hot water; then allow them to cool a little, and then stir in oil of cloves half a drachm and essence of ambergris 10 drops. It should be kept a month before using.

Rhythm.—The undulation of sound in verse produced by the regular succession of long and short, or accented and unaccented, syllables. In English measures the rhythm depends entirely upon accent. (*See* METRE.)

Riband. (*See next paragraph.*)

Ribbon.—These useful and ornamental silken webs are woven chiefly at Lyons and at Coventry. There is a fixed rule as to their several widths, and this in a measure regulates the price. Pieces of satin ribbon contain

thirty-six yards; those of sarcenet eighteen yards. French ribbons find the greater favour in this country, because they are the most serviceable; they have more substance, more lustre, and preserve their good looks longer than English ribbons are found to do. The best ribbons in this country are made of Italian silk; the commoner kinds of silk from Bengal and China. Ribbons of various kinds were in use as early as the fourteenth century. At that time the term included all woven bands, whether the threads were of gold, silver, linen, worsted, or silk. When speaking of ribbons in the present day, allusion is made only to those fabricated with silken threads. Of these there are a great diversity, many of which kinds appear and disappear with the fashion. Sarcenet is pre-eminently the most useful in the list. Of this there are several qualities; the best, being made of the purest silk, is always the most satisfactory, and should be chosen, especially when black ribbon is bought. Corded ribbons look the most suitable on thick materials; gauze ribbons accord best with thin fabrics or for evening attire: these are made of marabout silk, which is very fine and tightly twisted. Satin, like gauze, cannot be termed very serviceable ribbon; it especially requires to be thick and of a good quality, otherwise it is very soon shabby. Its smooth and shining surface is made by most of the warp threads being brought on the surface. The pearl edges sometimes made on the above-mentioned ribbons is formed by placing horse-hairs outside of, and parallel to, the warp; these, being afterwards withdrawn, leave a series of little loops. Narrow, thick, strong ribbons are known as galloons (*which see*). Narrow ribbons of silk and cotton used for binding purposes are called ferrets.

Ribbon Velvet.—There are three classes: that made entirely of silk; that which has silk face and cotton back, known by the name of patent velvet; and that which is called cotton velvet. Of all these there are various qualities, the best of which are distinguished by the fineness and thickness of their pile, and the fastness of their edges. There are a great number of uses to which black ribbon velvet can be put, therefore it is always advisable to buy that which is made of silk and is of a fine quality, for if it remains black, and the pile is not smooth or worn, it can render service in another position when no longer required in its original one. It is wise to ascertain whether the edge of the velvet is fast before buying it, because it is not possible to turn the edge underneath; when it is loose it roves and looks untidy, and the only plan then is to go to the further expense and trouble of putting on a narrow trimming over the edge to conceal the defect. The appearance of patent velvet is very similar to that of silk, and for some purposes, such as skirt trimmings, it is very often chosen, as it is much less per yard than silk velvet, and will wear better than a common quality of silk.

Ribbon Wire.—This is made of three or more fine wires, which run parallel to each other at some little distance, and are covered and united to each other by a cotton web of black or of white thread. Thus a broad flat band is obtained, which can be turned into any shape. Ribbon wire is used for the framework of women's caps and head-dresses, and for any millinery or other purpose where a stiff yet bendable band is required. In order to sever this wire it should be evenly doubled and then pressed between the finger and thumb; if the wires do not then snap, double them the reverse way, and again press them, when they will be sure to break; after this the web can be cut through. Attempts are often made to cut the wire with scissors, which injures the blades and, if successful, is always a slow process.

Ribs, Injuries to. (*See* Broken Bones.)

Ribston Pippin. (*See* Apples, To Choose.)

Rice.—The common rice plant (*Oryza sativa*) seems to have been originally a native of the East Indies, but is now cultivated in every country the climate of which is suitable to its growth. Heat is not so indispensable to the rearing of the rice plant as moisture; without an abundant supply of water it is impossible for the rice plant to be reared. Sub-tropical climates, with a supply of water regulated according to the season, and also to the growth of the plant, are found to produce the finest qualities of rice. Several attempts have been made to cultivate rice in England, but without



Rice.

success; our climate is evidently unsuitable, and the quantity imported to us is so great that hitherto its cultivation by us has been deemed unnecessary. The varieties known in the market are very numerous; each is distinguished by the name of the country which produces it. That known as Carolina rice is the best, though its introduction into that country is only of comparatively recent date. The other varieties are grown in India, China, and other southern parts of Asia, in Egypt, Japan, Georgia, in Valencia, in Spain, and in the plains of Lombardy. In India, rice is known by the name of "paddy." One variety, known by the name of Patna rice, is better than any other for making curries, as each grain when cooked

retains its original form, and this appearance for some purposes is preferred. As an article of diet, rice is too poor in nitrogenous matter, in salts, and in fatty matter, to yield alone what is required as food; but associated with other articles which compensate for its deficiency, it is of great value. Although in many parts of the world rice forms one of the principal articles of food, it does not appear so well adapted for the European constitution as the potato. Some years ago, when rice was substituted for potatoes in some of our union workhouses, the result was very unsatisfactory. Several deaths occurred from scurvy and similar diseases, and the abundant use of the rice was supposed to have been the cause of the sickness. Rice is best cooked by steaming. When boiled in water it loses a portion of the small quantity of nitrogenous and saline matter it contains. Rice wine is made by the Chinese, some of which is very intoxicating; and a beer is made from rice by the Japanese called saki, which is drunk hot. In Britain, also, rice is employed to a very great extent by distillers.

Rice Bread.—Although in this country rice by itself is not often made into bread, it forms, when mixed with some other grain, a very pleasant, wholesome article of food. Owing to the small quantity of gluten which it contains, it is capable by itself only of an imperfect fermentation, so that it must necessarily for bread be mixed with flour. Bread thus made is very delicious; it is of a fine yellow colour, as if it had eggs in it, and is very agreeable to the taste; but it must be eaten while fresh, as it loses much of its flavour on becoming stale. At one time, when flour was very dear, rice flour was frequently mixed with wheaten flour in the manufacture of bread. It tended materially to increase the weight of the bread; it made it "lighter," and also prevented the crust from becoming hard. Sometimes a few potatoes are added, and are by some considered an improvement. The very white bread which is so much in request in Paris is made by mixing wheat flour with rice flour.

Rice Flour.—After rice has been prepared and cleaned for the market, the refuse (which consists of the husks, broken grains, and dust) is collected, and made into a kind of meal, or, as it is sometimes called, rice dust, and is very valuable as food for cattle. Ground rice, which consists of the grains of rice ground to a powder, is frequently called rice flour, and is more useful in this form for some purposes than the whole rice. It should be remembered, however, that in the ground state rice may easily be adulterated.

Rice Flour Cement.—A beautifully white and almost transparent cement is made from rice flour. It is first mixed with a little cold water, after which boiling water is gradually poured in until it becomes a proper thickness. This cement is well adapted for fancy paper work, as it is strong but colourless. It is known by the name of rice glue.

Rice Paper.—A beautiful semi-transparent material known by this name is made by the Chinese, and used by them for drawings of birds, butterflies, and other objects of natural history. Only within the last few years has the true nature of rice paper been ascertained. For some time the popular notion was prevalent that it was manufactured from rice; hence the name rice paper was given to it. It is now known to be formed of the pith of a plant somewhat resembling our common ivy, though very different in appearance, and called by the Chinese *tung tsan*, or hollow plant. In the island of Formosa it grows wild and in great abundance, and after being gathered by the natives is exchanged for Chinese produce. In making the paper, the pith of the stem is forced out, and then placed in hollow bamboos, where it remains until dry. It is then cleverly cut into continuous scrolls about four feet long. As the sheets are cut, they are placed one on the other, then pressed and cut into squares the required size, and dyed different colours. Artificial flowers are made from this material, which the Chinese ladies wear in their hair; and the rice paper imported to us is used for fancy work of various kinds.

Rice Starch.—The starch obtained in England from rice is very considerable. It is sold under the name of patent starch, and is extensively used in large laundries and muslin manufactories. It does not require boiling, and is less apt than wheat starch to attract moisture from the atmosphere. Many of the so-called wheat starches that are now sold are prepared from rice.

Rice Water.—A very pleasant drink for invalids is frequently made by straining the water in which rice has been boiled, so as to obtain the glutinous part of the grain without the substance. When the liquor is cold it is ready for use. Sometimes raisins are boiled with the rice, which imparts a little flavour, as the taste of the rice alone is by some considered rather insipid.

Rice Work. (*See* RICE PAPER.)

Rickets, or Rachitis. — This is essentially a disease of childhood, and is due to a deficiency in the earthy or solid constituents of the bones, by reason of which they are unable to sustain the necessary weight of the body, and consequently become bent, and frequently painfully distorted. Strumous children are especially subject to this condition. The best treatment for rickets is, when practicable, to place the affected children under the most favourable conditions of pure air (especially sea air) and a wholesome diet. To correct the deficiency of earthy matter in the bones, lime water and milk should be given freely in equal parts. Steel wine and cod-liver oil are also valuable remedies. Padded splints in suitable cases are necessary, but in most cases it is better to do without them if the surrounding conditions are healthy and restorative. A rickety child should not be allowed to walk too soon.

Riddle. (*See* CONUNDRUM.)

Riddle.—A coarse, open sieve, used by agriculturists for cleaning grain. The same kind of article is also utilised in households for sifting cinders and other similar purposes.

Riding. (*See* EQUESTRIANISM.)

Riding Exercise. (*See* EXERCISE; HEALTH, CARE OF.)

Riding Habit. — This is made by a tailor, and the materials used are respectively cloth, serge, and alpaca. The length of the skirt has been considerably curtailed of late years. The tall silk hat is invariably worn in the London parks, but for the country and for hunting a felt hat can be worn. The trousers are of chamois-leather, and may be long or short; if the latter, high boots (Wellingtons) are worn with them.

Riding Schools. —The art of riding is best acquired through the teachings of a riding master, but expense may be saved and greater proficiency generally secured by entering a riding-school, such as may be found in great towns and cities. The course of instruction is of the most practical and comprehensive character, and its real advantages are the reason for this allusion to the subject.

Riding Whips. (*See* WHIPS.)

Right of Voting. (*See* ELECTORAL FRANCHISE.)

Right of Way.—A private right of way is a mere easement over the soil of another (*see* EASEMENT), and not an interest in the land itself. The presumption that the soil of a road belongs to the owners of the adjoining lands applies to a private as to a public road. A private way may be either a footway, a horseway, or a cart-way. It is susceptible of almost infinite variety, according to the extent of the grant, and other circumstances. Thus it may exist for agricultural purposes only, or for the carriage of coals only, or for the carriage of all articles except coals. A right of way for carts and carriages does not necessarily include a right of way for horned cattle; but the extent of the right is a question for the jury upon the evidence of usage, &c. Where premises are demised or conveyed with a right of way thereto, it is a question for a jury what is a reasonable use of such right. It is sufficient *primâ facie* presumptive proof of a right of way for all purposes to show the actual exercise of the right for more than twenty years for all the purposes to which the use or enjoyment of the premises at different times required its exercise, although for some of these purposes it appear that it was first used within that period.

Right to Light and Air.—A dwelling-house or other building has this right absolutely if it has enjoyed it during twenty years without agreement or interruption. If the owner alters or enlarges his lights, or adds new ones, the owner of adjacent property may entirely obstruct them till they are restored to their original form and number, but no longer. If the owner closes his ancient lights he forfeits his right. When a light has been allowed to remain obstructed for six years, the owner will find it hard to establish his claim. The building of lofty houses in narrow streets can be restrained by injunction if the party aggrieved applies in time. There is no right to light and air over open land; and the right to a passage of air is one which could not well be sustained, though it is really involved or included in the right to air. The cases in law come under the head of easements.

Rights, Personal.—These are too numerous to be specified, but we may mention that in general the term denotes all the legal rights which a free citizen possesses and can maintain in a court of law. Such is the right of voting, which all do not possess; the right to liberty, which all, not criminals, do possess; the right to compensation for loss through another's fault; the right to wife, children, property, &c. If a man is accidentally killed, his personal right is represented by the power now given to the widow, &c., to sue for damages. Personal rights are by law guaranteed to wife, child, servant, foreigner, and, generally speaking, to every member of the community, however helpless, miserable, poor, or even lawless.

Rilievo, or Relievo.—An Italian term, used in architecture to denote the projection of ornaments or figures beyond the plane on which they are sculptured. (*See* ALTO-RILIEVO; BAS-RELIEF; MEZZO-RILIEVO.)

Rime, or hoar frost, is simply dew which has been deposited on any substance cooled down below the freezing point, so that it has taken the form of crystalline ice.

Ring Cases. — A jewel case includes a receptacle for finger-rings; but special cases are also provided. Some are intended for one ring only, and others for any other number. They are usually covered with morocco, lined with velvet and silk, and furnished with grooves into which the rings are inserted. To those who possess many rings they are very convenient, but it is desirable that the grooves should be of different sizes, and not all alike, in order to accommodate as great a variety as possible. The only way to prevent annoyance is to have the ring cases made to order, or perhaps ten out of twenty rings cannot be placed.

Ring, Fairy. (*See* CHAMPIGNON.)

Ring-dove.—This is a species of pigeon, called by the naturalists *Columba palumbas*, belonging to the family *Columbidæ*, of which it may be taken as the type. It is also called the queest, or cushat, and in Wales the ysgathan. (*See* PIGEONS.)

Ringlets.—Literally, small rings; but in common parlance, locks of hair which hang loose in curls.

Rings.—The wearing of rings as personal ornaments is one of the oldest and most widely-diffused of customs among men. Rings have been devised for the arms and wrists, for the legs and ankles, for the ears and nose, for the fingers and thumbs. They have been made of gold, silver, brass, and other metals, of ivory and bone, of sundry precious stones, and of almost every material possible. In antiquity, rings were often made so that they formed a spiral; sometimes so that the gold, &c., were merely bent into a circular form, and left with

ends unjoined, the object being to make them fit any finger. These last are known as torques. Special rings have been appropriated to particular offices, such as kings, viceroys, popes, cardinals, bishops, &c. Rings are provided for particular occasions, as betrothal, marriage, and mourning, and the persons wearing them are indicated by these symbols. Rings have been used as tokens of love and friendship, of authority and office, as charms and remedies, as personal decorations, and in many other capacities. The Egyptians were particularly fond of rings, which they used in great variety for signets as well as for ornament; and mummies have been found with rings on the thumb and all the fingers, or nine and ten upon a single hand. The Greeks followed suit, and not a few of the gems they engraved for rings are among the most precious of ancient relics. Of the Etruscans much the same may be said, and of the Romans even more, because the rage for wearing rings went further with them than with almost any other nation. The poet Martial tells of a fop who daily wore sixty rings, or six on each finger, and loved to sleep in them. A reference to other nations is impossible in a brief notice like this; but we may observe that the custom of wearing them is not wholly to be blamed, because a ring or two serve well as a finish to a costume. Probably few object to the plain gold wedding ring or the emphatic mourning ring; but, speaking generally, here as elsewhere, good taste will avoid excess.

Rings for Curtains. (*See* CURTAIN RINGS, &c.)

Rings, To Remove from Fingers.—That one should save a finger, even at the expense of a ring, is a very good rule, but one not often needful in practice. In ordinary cases if a ring which has been slipped over a joint cannot be passed back again, two things may be done: first, the hand may be immersed in cold water, and then the finger lubricated with soap, grease, gelatine, or any such thing that happens to be within reach. If the finger is held out straight, and the ring is turned with a circular motion and decided pressure in the right direction, it can generally be taken off. Some who wear a ring night and day for years, perhaps, as ladies often do their wedding rings, suddenly discover that the finger has naturally enlarged, either at the joint or generally, to such an extent that the ring cannot be either endured or taken off. In this case the only safe plan is to divide it; and, although a file may be necessary, a jeweller will speedily perform the task with slight inconvenience to the wearer. The recipes which profess to make the gold so brittle that a smart tap with a hammer will break it, are of uncertain efficacy.

Ringworm.—This is a well-known skin affection, which attacks, for the most part, the hairy scalp, but may occur in the beard or any other part of the body. The disease is highly contagious, and is often epidemic in schools, children being especially prone to it. Ringworm is caused by a fungus which, when it attacks the head, finds its way into the interior of the roots of the hair, causing the latter to become brittle and to drop off short, giving the skin underneath what is called the goose-skin appearance. Before, however, this change in the hair is visible, one or more circular patches of reddened skin appear, which are more or less covered with a bran-like powder. As the fungi grow and the nutrition of the hair becomes impaired, these patches become elevated and discoloured, presenting in some cases a bluish, slaty appearance, in others a greyish-red or yellow hue, according to the complexion of the patient, and covered with short hairs, which have broken off and produced the condition just mentioned as gooso-skin. For this form of scalp-ringworm, called *Tinea tonsurans*, which is perhaps the most common, and is certainly the most troublesome, there are many modes of cure. In all cases the hair must be cut close, and kept so for at least a quarter of an inch around the affected spot. The diseased hairs which are in the spot should also, as far as possible, be pulled out. After this has been accomplished, the local remedies, which are very numerous but have all a common object, viz., the destruction of the fungi, may be applied. Sponging the spots with a solution of bichloride of mercury (about two grains to the ounce of water) is often very effective. The application of a mixture of oil of tar, into which as much iodine has been introduced as will dissolve, has been found most serviceable. It should be applied by means of a little bit of sponge fastened to the end of a piece of wood, and the spot well rubbed with it. One application is generally sufficient, but if in a week or ten days, when the crust or scab comes off, there is any suspicion that the cure is not complete, it may be applied again; no pain or inconvenience is experienced. Sulphurous acid, to which a little water may be added, is also a powerful agent in destroying this parasitic affection. It may be applied with a brush two or three times, usually with complete success. Ointments of either the red oxide or the ammoniochloride of mercury, in the proportion of half-a-drachm to the ounce of lard, are also favourite applications, and in recent cases will probably effect a cure. A scruple of sulphur may advantageously be added when the ammonio-chloride ointment is used. These ointments are, however, more serviceable in that form of ringworm which attacks the body, and is called *Herpes circinatus*. The rings in this form of the disease are prone to spread over a considerable surface, and sometimes present a broken or segmentary appearance. If the ointments just mentioned fail in curing the affection, then the bichloride of mercury or the sulphurous acid lotion, to which reference has been previously made, may be resorted to. In ringworm of the beard, commonly called *sycocis*, the hairs must be pulled out and a similar treatment adopted. In all cases of ringworm the general health should be attended to, and tonics, with cod-liver oil, be given. *Porrigo scutulata* is the name commonly given by medical writers to ringworm.

Rink.—This is a Canadian term for a skating ground which has been prepared by sweeping away the snow from the ice on some sheet

of water. The name is now applied to those artificial skating-ponds of all kinds which have, within the last half-dozen years, been formed in many of the large towns in this country. A large space is enclosed for the purpose; when required for winter use this is covered in, when for summer it is generally open. A substance which closely resembles ice in its various peculiarities is laid down, and on this skaters can at all times indulge in the pastime. Various inventions have been introduced from time to time, the chief object being to obtain the spring and rebound possessed by natural ice. The absence of this is the cause of the serious accidents which have occurred on rinks. Falls on the ice are not often attended with serious consequences, but those on rinks have frequently caused injury to the spine, the breakage and dislocation of bones, with other minor evils, owing in most cases to the excessive hardness and deadness of the imitation ice. It is hoped that such a defect when it exists will be remedied, and that this healthful exercise may be taken without risks so great. Roller skates (*which see*) are used. The charge usually made for admission to rinks varies. If skates are provided a small additional sum is asked for.

Rinman's Green. (*See* COBALT.)

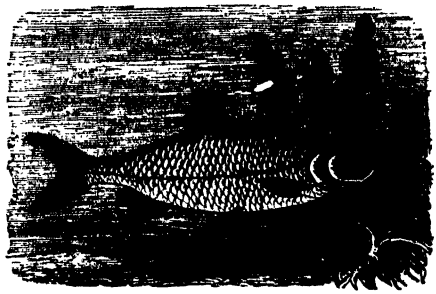
Rinsing.—This is the last process to which clothes are subjected when washed. The object of it is to take away all the soap which remains in the linen. The articles are put into clear water, either quite cold or tepid, they are then pressed, raised, and pressed again. When the water becomes soapy it is poured away, and fresh water used until the linen is freed from soap, which may be known by the water remaining quite clear. The word is an Anglo-Saxon one, formerly spelt rinscan.

Rising Early. (*See* EARLY RISING.)

Rissoles.—In making rissoles which are composed of savoury mince of any kind, the instructions to be followed are very similar to those given for making croquettes and kromeskies. All these entrées are very useful in furnishing convenient and elegant modes of converting the remains of cold dressed meat, game, or fish into tempting, tasty dishes. For rissoles the meat is minced, seasoned, mixed with bread-crumbs, and bound together with egg, after which the whole is divided into little balls. Each ball is then covered with pastry and fried. The difference between a rissole and a croquette is, that a rissole is enclosed in pastry, a croquette is dipped in egg and bread-crumbs, and in this condition both are fried.

Rivets.—Bolts or pins clenched at both ends, used to fasten together various pieces of metal, &c.

Roach.—A well-known fish, to be seen in shoals in our rivers and lakes, usually preferring deepish water and feeding on worms, &c. It is called *Leuciscus rutilus*, and belongs to the natural family *Cyprinidæ*. It measures from twelve to fifteen inches in length; the back is a dusky green colour, and the belly silvery white, and the body is covered with large scales. It spawns about the latter end of May, and the best time for roach fishing is from autumn to spring, when they may be taken with worms, gentles,



ROACH.

or paste, the rod used being a light, long one, but stiffish at top.

Road, Rule of the.—1. For riding and driving: on meeting any vehicle or animal, let it pass you on your off side or right hand; but if you wish to pass any vehicle or animal, keep it on your near side or left hand. See more specifically in the articles on DRIVING and DRIVING REGULATIONS. 2. For foot-passengers, the one general principle is to keep to the right side of the pavement or footway. It may be expedient or polite on many occasions to give way, as when a lady is coming in the opposite direction on the wrong side of the track, and it may be inconvenient in a crowded thoroughfare to conform in all cases to the rule, but the rule is a good and useful one, and it would be well if it were more constantly observed.

Roan (Colour).—A grey-yellow as descriptive of a horse, having a bay, sorrel, or dark colour, with spots of grey or white thickly interspersed on the coat.

Roan (Leather).—A common kind of leather made from sheep-skin in imitation of morocco leather, and much employed in bookbinding and for making shoes and slippers. It is comparatively inexpensive, and does not wear well. It is tanned with sumach.

Roan Tree. (*See* ROWAN TREE.)

Roasting.—The principal object to be attained in the roasting of meat is to preserve, as far as possible, the nutritive juices, without which a joint is rendered comparatively worthless. Whether cooked in the oven or before the fire, the meat should for the first few minutes be exposed to a sharp heat, by which means the albumen and colouring matters are coagulated without the fibrine being corrugated and hardened. The coating thus formed upon the surface prevents the escape of the fluid matter within, and the goodness of the meat is secured. After a short exposure to a sharp heat, the meat should be removed to a greater distance from the fire and cooked more slowly: the time allowed being regulated by the size of the joint. The weight of meat is generally considered the best guide for the length of time required for cooking; but in every instance the weight alone does not apply:

the thickness as well as the weight should be considered together. Meats vary also in the amount of cooking they require according to the nature of the meat. A leg of mutton is closer meat than a shoulder, and consequently needs to be roasted longer. Veal and pork, too, can scarcely be too much cooked; no white meat half cooked is either palatable or wholesome. The basting of roasted meat is also a great secret of success, though all joints do not require the same amount of basting. A dry, lean joint needs more basting than a fat one, and very often in the same joint one side is more lean than another, so that attention in this particular must be regulated according to circumstances. Game and poultry are rendered dry and tasteless unless well basted.

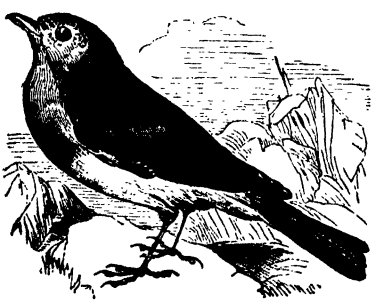
Roasting Jack and Screen. (*See* COOKING-SCREEN; JACKS.)

Rob (Cookery).—This term is derived from the Arabic, and is applied to the inspissated juice of ripe fruit mixed with honey or sugar to the consistence of syrup. The method adopted in its preparation is to thicken the juices by evaporating most of the water in a vessel over the fire, by which means fermentation is prevented. In order to obtain the juices, the fruits are squeezed in bags. Rob of elderberries, or roob sambuci, is sometimes used medicinally. Juniper rob, or roob juniperi, mulberry rob, or roob diamorum, walnut rob, or roob dyacaryon, and a few others, are still found in some of the foreign Pharmacopœias.

Robbery.—The act of feloniously and forcibly taking from the possession of another goods or money to any value by violence or by putting him in fear.

Robes.—A robe is in general an outer garment for man or woman, especially one that is long, flowing, and elegant; the word is, therefore, often used of a state dress, or one which indicates rank or office. In the royal household a master of the robes has the duty of ordering the robes of the sovereign; and a mistress of the robes has the special care of the robes of the queen. A robe de chambre is a dressing-gown or a morning-gown.

Robin.—This bird belongs to the genus *Erythacæ* and the natural order *Sylviadæ*. The



ROBIN.

Sylvia rubecula is our own much admired robin redbreast, sometimes also called the robinet or ruddock. The song of the robin is very sweet and plaintive, and it is heard all the year round. Robins build in hedgerows or at the foot of old trees, and lay four or five eggs. They are very easily domesticated, and are natives not only of our own country, but of nearly every part of Europe.

Rocambole.—This is the *Allium scorodoprasum* of the botanist, natural family *Liliaceæ*. It is commonly called the Spanish shallot, but it is a native generally of most parts of Southern Europe. It is very little different from the common garlic, but is larger all over.

Roche Alum, or Rock Alum, is an alum from which a part of the water of crystallisation has been driven off by the action of heat.

Rochelle Salt is a double tartrate, containing both potash and soda. In pharmacy it is called the potassio-tartrate of soda, and is used as a purgative.

Rock Alum. (*See* ROCHE ALUM.)

Rock Cod. (*See* COD-FISH.)

Rock Crystal. (*See* QUARTZ.)

Rock Fish.—This is the common name for the goby or gobins, natural family *Gobioidæ*. They are very small fishes, the biggest being only about six inches long. There are five British species in all, obtaining the name of rock-fish from the fact that the two ventral fins unite to form a disc, by which they attach themselves to the rocks. They are, like the blennies, very tenacious of life. They do not, on catching their prey, swallow it at once, but carry it off alive to be devoured at leisure in their homes among the rocks. Another curious thing about these fishes is that they build a nest, in which the females deposit the eggs, which the males carefully watch until the young are hatched. Many species of gobins inhabit the Mediterranean, some frequenting water forty and even fifty fathoms deep.

Rock Oil. (*See* PETROLEUM.)

Rock Salt.—Chloride of sodium or common salt, consisting of about three parts of chlorine to two of sodium. It is found in crystals and in large masses, in the sea-water, in brine springs, and in fossil beds. The principal deposits of rock-salt in England are in Cheshire and Worcestershire.

Rock (Sweetmeat.)—A popular sweetmeat is known by the name of rock, which is made by boiling sugar to a candy, and then pouring it upon an oiled slab and working it up into a rough mass, when it is left to cool. It may be flavoured according to choice, and the names of the different varieties of rock are derived from the names of the flavouring ingredients. The name of rock is also given to another kind of sweetmeat in which the sugar, whilst hot and soft, is repeatedly pulled over a smooth iron hook until it becomes white and porous.

Rock-work consists of stones fixed in mortar in imitation of the asperities of rocks, and is used for the ornamentation of gardens. It frequently consists of a quantity of stones

indiscriminately thrown together with an idea of thus producing a picturesque effect; but this object is not properly attained by any such process. To rob such a combination of its artificial appearance, the decorator should procure such masses of real, or apparently real, rock as might be seen associated in nature, and combine them with such a model in view. In the absence, however, of the genuine material, broken fire-clay, which may be obtained from gas or glass works, broken up into irregular fractions, or the rock-like masses of partially fused clay, often discovered after burning in large stacks of bricks, can be used. The latter are known amongst brick-makers as "burrs," and can be procured at almost any brickfield. In the erection of rock-work where a great quantity of cement is wanted for coarse uses, coal-ash mortar is the cheapest and best, and will hold extremely well, not only where it is constantly kept wet or dry, but even where it is sometimes wet and at others dry; but where it is liable to be exposed to wet and frost, this cement should, at its being laid on, be suffered to dry thoroughly before any moisture has access to it, and in that case it will likewise be a great improvement to temper it with the blood of any beast. The mortar must be formed of one part lime and two parts of well-sifted coal-ashes, and they must be thoroughly mixed by being beaten together, for on the perfect commixture of the ingredients the goodness of the composition depends. Where the rock-work to be erected is on a large scale it is necessary to lay a foundation of concrete, but where it is of small dimensions the earth should be removed to the depth of a few inches and rough gravel laid in its place, which should be beaten down as closely as possible. It is hardly practicable to give any instructions as to the design of rock-work, for its great charm consists in presenting an appearance that has about it an utter absence of design, and its construction must entirely be regulated by the place where it is erected and the purpose it is intended to serve, of course with due regard to a natural effect. (*See next paragraph.*)

Rockery.—An arrangement of stones, flints, badly burnt brick, and refuse of potters' furnaces in imitation of rocky surfaces, which is described in the preceding article, openings being left in which flowers or ferns can be planted. The list of plants used for this purpose is too long to enumerate, consisting as it does of a large variety of annuals, biennials, bulbs, perennials, and shrubs, both deciduous and evergreen. One side of a rockery should not be above an angle of forty-five degrees, and the other part may be the same or else perpendicular, which, if towards the north, will be an excellent place for moss, fern, and lichen. If large, wells may be introduced for mountain, bog, and aquatic plants.

Rockets.—Fireworks which rise to a great height in the air when exploded. They consist of a tube filled very tightly with some explosive composition, fastened on one end of a long stick. Various charges are used for rockets, according to the result desired.

Rocking-chairs are reclining chairs furnished with rockers, enabling the occupant to sway to and fro, and mostly used in this country by mothers when nursing. They should be provided with a footstool or heavy cushion in front, so that the chair can be tilted and kept stationary in any desired position. Drawing-room rocking-chairs are best of mahogany and black satin hair, no other covering keeping clean so long and being so cool in summer. Those that are covered with cloth, worsted damask, or cut velvet, will be found uncomfortably rough, and also too warm. For other rooms, rocking-chairs of curled maple and cane network are very good, being light, cool, and cheap. In winter, or for invalids, they may be improved in comfort by furnishing them with cushions for the bottom, the back, and the two arms. The cushions should be made of coarse linen, stuffed with feathers or hair, covered with chintz, and tied on with strings. An improvement in these articles consists of a patent rocking-chair fanning apparatus—a simple piece of mechanism, easily adapted to any common rocking-chair, and producing the motion of a fan by the rocking of the chair without any extra effort on the part of the occupant.

Rocking-horse.—This is a wooden horse mounted on rockers, and provided with saddle, bridle, and stirrups, upon which children find amusement and a species of exercise not without its advantages from a calisthenic point of view.

Rococo.—A style of ornamentation once very popular for buildings, furniture, &c. It is florid and eccentric, and delights in curves and angles and fanciful combinations. The word sometimes means simply what is extravagant and capricious in style; and it has been extended so as to include the Chinese and Japanese modes of decoration.

Rod.—A measure of length, otherwise known as a *pole* or *perch*, and equal to 5½ yards, or the fortieth part of a furlong. In square measure, a square rod, pole, or perch is equal to 30¼ square yards. (*See* WEIGHTS AND MEASURES.)

Rodomontade.—An epithet derived from the name of Rodomont, King of Algiers, a brave but boastful character who figures in "Orlando Inamorato" and in "Orlando Furioso." The word is applied to vain boasting, empty bluster, and bombast; mere idle ranting.

Roe.—At certain seasons fish contain what is called the roe. That of the spawner, or female, is the hard roe; and that of the milter, or male fish, is the soft roe. Judges of fish are aware that soft-roed fish are the best for flavour and delicacy. Roe is also a name given to a species of deer (*see next paragraph*), as well as to the female of the hart or of any kind of deer.

Roebuck.—The roebuck, or roe deer, is one of the smaller kinds of deer, having cylindrical branched horns forked at the summit. It is an elegant and agile animal, but seldom seen in this country except in the mountainous parts

of Scotland, where it couches among the heather. The back is of a reddish-brown, the



ROE DEER.

belly and chest are yellowish, and the rump is white. The roebuck congregates in families, and not in large herds, but it cannot be effectually tamed.

Rogation Days.—In the ecclesiastical calendar, the Monday, Tuesday, and Wednesday before Ascension Day. The term is derived from the Latin *rogatio*, a request, and was so applied from the fact that these days were especially set apart as days of supplication.

Rolled Meat.—One way of preparing meat for cooking is that of rolling it, and the joint most commonly chosen for this purpose is the thin end of the flank of beef. The bones are first cut away entirely, the meat is then salted or pickled, and tied up in the form of a bolster and boiled. While hot it is generally pressed with a weight upon it, and served cold. The advantage to be gained by rolling meat is that an equal distribution of the fat and lean is effected; also that a piece of meat that would otherwise present an unshapely appearance is made to look as well as one of the principal joints. A breast of veal may be rolled, and when dished and garnished constitutes a pleasant variety for breakfast or luncheon.

Roller Blinds. (*See* Blind Cords and Fittings; Blinds.)

Roller Cloths.—These are of narrow towelling which is made for the purpose; they are used in kitchens and lavatories. A small wooden roller is put up behind a door or on some convenient place, and a length (about a couple of yards) of roller towelling is taken, the ends are joined together, the roller is placed inside and put on its brackets, and thus the towel can be pulled round at will. This plan is adopted because the cloth is by this means kept in one place, and not liable to be thrown down when used hurriedly. Russian crash is often chosen for this purpose, because it is required to dry the hands merely.

Roller Skates. (*See* Skates.)

Rolls.—Hot rolls are by many considered indispensable for breakfast, but although tempting to the appetite they cannot be said to be either wholesome or digestible. They are made according to the same principle as bread, and may be rich or plain as desired. The richer rolls have a greater quantity of milk and eggs than the plainer ones.

Rolls Court.—Formerly a distinct Court of Equity or Chancery, the judge of it being termed the Master of the Rolls, so called because he has the custody of the rolls of all patents and grants which pass the Great Seal, and also of the records of chancery. The title "Master of the Rolls" was first given in 11 Hen. VII. c. 18; but this office is as ancient as the court itself. Under the Judicature Acts, this court has been constituted a branch of the High Court of Justice, Chancery Division. (*See* Court and Courts of Justice.)

Roly-poly Pudding.—The pudding known by the name of roly-poly is usually very attractive to children. It is made by spreading jam, marmalade, apples, or any fruit or sweet, upon pastry that has been rolled to a proper thickness, and then making the whole into a long roll, which may be either boiled or baked.

Roman Candles.—Fireworks which, on being discharged, throw out burning balls of different colours, stars, suns, &c. They consist of long tubes filled with a number of different compositions to produce varied effects.

Roman Cement consists of pozzolana, lime, and sand, mixed with soft water. The pozzolana is simply pounded and sifted, but the ingredients are sometimes mixed up with bullock's blood and fat of animals to give the cement more tenacity. There is also a preparation known as Roman cement which often does duty in this country for the real substance, as it is particularly adapted to the climate of England. This cement is made by mixing one bushel of lime, slaked, with three and a half pounds of green copperas, fifteen gallons of water, and half a bushel of fine gravel sand. The copperas should be dissolved in hot water; it must be stirred with a stick, and kept stirring continually while in use. A sufficient quantity should be mixed at one time to cover the entire front of the work, as great difficulty will be experienced in matching the colour, and the composition should be mixed the same day that it is required for use.

Roman Numerals. (*See* Numerals.)

Romances. (*See* Novels.)

Romanesque.—The architecture belonging to the later Roman Empire, altered and debased from the architecture of Greece, which flourished in Europe up to the time of the introduction of Gothic architecture, has received this name. It is neither Greek nor Roman, although it is far more closely allied to the latter in style than to the former. The arches are round and supported on pillars, and the pilasters, cornices, and entablature are similar to those of classic architecture. Dr. Whewell says of this style:—"There is a prevalence of rectangular faces and square-angled projections; the openings in walls are small and subordinate

to the surfaces in which they occur; the members of the architecture are massive and heavy, very limited in kind and repetition, the enrichments being introduced rather by sculpturing surfaces than by multiplying and extending the component parts. There is in this style a prevalence of horizontal lines; the pillars are not prolonged in corresponding mouldings along the arches; the walls have no prominent buttresses, and are generally terminated by a strong horizontal tablet or cornice." In architectural decoration the term Romanesque has also been applied to painted decoration of a florid character, blending artificial with natural ornament, and embodying fantastically imaginative representations of figures, animals, and real foliage.

Rondeau.—A little poem of peculiar formation in the matter of rhyme, originated in the French language, and since introduced into English verse. It consists of thirteen lines or verses, usually of eight or ten syllables—four or five Iambic feet. (*See* METRE.) These thirteen lines are divided into three stanzas of five, five, and three lines respectively, and throughout there are but two rhymes. The first two or three words—usually the first two feet—of the first line recur as a burden or rhymeless refrain at the end of the eight and thirteenth lines of the rondeau.

Rood.—A measure of surface, the fourth part of an acre. (*See* WEIGHTS AND MEASURES.)

Roofs.—The top external covering of a building, usually of wood, overlaid with slates or tiles, lead, stone, &c., is called the roof. Its form varies with the style and kind of building to which it belongs. The objects served by it are the exclusion of rain, snow, &c., and the binding together as ties between the walls at their highest and least stable points. A roof mainly consists of two parts, viz., the framing and the trussing, the former being necessary, as the width of most buildings is too great to be spanned without support from beneath, and the latter to afford support by distributing the weight so that one part supports another. A roof should be as light as is consistent with the proper fulfilment of these purposes, it being very important to avoid unnecessarily loading the walls. The parts are so disposed that the weight falls upon the walls vertically, and does not thrust them out. They are formed either to make a level or a ridged roof, the latter being the better form for throwing off rain. In flat roofs, which are usually of stone cemented together in flat slabs, the timber consists of main beams crossing from wall to wall and rafters laid transversely. Ridged roofs are of wood or iron, cast or malleable.

Rook.—The rook (*Corvus frugilegus*) is very similar in shape to the carrion-crow, being, in fact, of the same species, though upon observation there are many points of difference between the two birds. The rook is in colour of a glossy deep blue-black, which in certain aspects is of a greyish tint. The common crow is merely black. The greatest difference that exists, however, between them is in their habits, the crow preferring lonely situations and feeding on carrion, while the rook prefers neighbourhoods where people dwell, and lives on animal and vegetable food. Few cities or large towns in Britain are without rookeries, and the birds have been known to make their nests in steeples and vanes. Although very often the farmers have to complain of the injury done to their turnips, potatoes, young corn, and other produce by the rooks, they are, on the other hand, of much use in eating up wire-worms, grubs, slugs,



ROOK.

and other insect larvæ, and very frequently the grass pulled by them is that of which larvæ have already devoured the roots. In moderate numbers rooks are very useful, but in multitudes they become a nuisance. As an article of food the rook affords a dry, coarse meat, and this requires long stewing, or it will not be tender. The breasts are the only parts of the bird which are worth using, though the fillets and thigh-bones are generally cooked as well. The spine and the flesh near it, to the width of three-quarters of an inch, must always be cut away, or a bitter taste will be imparted to the whole. In some districts rook pie is considered a great dainty.

Ropes.—The larger kinds of cord, commonly composed of hemp, but sometimes made with Indian jute, coir, and other vegetable fibres. Wire and caoutchouc are also sometimes used in the manufacture of rope.

Ropophagon. (*See* RHYPOPHAGON.)

Ropy.—A term applied to wine in that state in which a glutinous or tenacious substance appears in it, and one which takes away its proper fluidity. The disease—for such it is—is sometimes called greasiness. It attacks wines which have not completed their fermentation, and white wines rather than red. When in a cask the wine should be cleared and well stirred, and racked off several days after. Some add to the finings a little brandy, and put a couple of ounces of crushed alum into a cask of about twelve dozen bottles, after which it must rest. When wine in the bottle is ropy, the bottles may be exposed to sun and air, well shaken, and uncorked; or it may be carefully decanted, allowed to stand quiet for a month, and then decanted again. Common wines may be recovered by putting them in a cask with freshless or with other wines.

Roquefort Cheese. (*See* CHEESE.)

Roquelaure.—A short cloak named after the Duc de Roquelaure, who lived in the reign of Louis XIV., and introduced it. It was formed to button from the throat to the knee in front, and became very fashionable. It is also written *roquelo*.

Rosaniline. (*See* RED ANILINE.)

Rose-colour.—Although the genus rose-tree shows many varieties in the colour of the blossoms produced, and these still are further diversified by the skill of the florist, the hue termed "rose-colour" denotes a reddish or warm-toned pink, much resembling the colour or blush of the human cheek in youth; a tint also shown on the inside of some shells, notably that of the conch-shell, from which the finest cameos are cut.

Rose Diamond.—A diamond cut with a pointed top and flat at the back. Whatever the number of facets, they always culminate in a point at the top, and not in a flat surface like the brilliant, which is more fashionable. (*See* BRILLIOLETTE.)

Rose Leaves and Flowers. — The green leaves of the rose are more or less scented, but not much use can be made of them for perfume. When rose-leaves are mentioned in recipe books the petals of the flowers are commonly meant, and these, or the whole of the flowers, may be utilised in sundry preparations. They form an important ingredient in pot-pourri; from them is extracted the costly attar or otto of roses; they give the perfume to rose oil and other preparations, the chief of which is rose-water, alone or in various combinations. Most of these will be found under their proper headings. Rose-flowers are employed in making sweetmeats in the form of confections and conserves, as well as in honeys, infusions, and syrups, some of which have medical properties, though often used as vehicles for the administration of the real remedies. Other uses are in lip-salve, pomatum, and rose oil. This last may be made by putting the petals in an earthen pipkin, covering them with olive oil, and beating the whole for several hours, when it will have the scent and colour of the flowers. Other preparations might be named, but a perfect list is scarcely possible.

Rose of Jericho.—A small plant, the *Anastatica hierochuntina* of botanists, found in desert places on the south and east of the Mediterranean, and sometimes brought over as a curiosity. In its native state the leaves wither and drop when the seeds ripen, and the branches curl up inwards like a ball, in which condition it gets unrooted and is blown about by the wind. Specimens thus dried up will expand when they are wetted, and then curl up again. This peculiarity continues for years. They call it Mary's flower in Palestine, and the legend is that it expanded when our Saviour was born. It bears no resemblance to a rose, and is really one of the *Cruciferæ*.

Rose Oil.—A spirit strongly impregnated with the essential oil of roses.

Rose Pink.—A red pigment made of whiting, with a strong decoction of Brazil wood, to which a little Roman alum or pearlash has been added. The colour is pretty, but by no means durable. The tint is not always the same. Rose pink is always kept damp.

Rose Powder is to be met with of two kinds. There is the *Poudre de roses commune*, which is a cosmetic or tooth-powder, scented with pale roses; and the *Poudre de roses musquées*, with musk roses. The best powder is made from starch. The adulteration of cosmetic powders with poisonous substances has of late years become a subject of serious inquiry and investigation by the faculty, and the public has been warned of the dangerous character of much that is now sold in commerce.

Rose-rash. (*See* ROSEOLA.)

Rose-water.—A decoction made from rose petals, said to have been first made in Persia. The leaves are gathered when dry, put into a cask in layers, sprinkled with salt, and kept till in sufficient quantity for distillation, when a little water is added to prevent burning. A very slow fire should be employed. The first product will be highly impregnated, and when the slightest empyreumatic odour or burnt smell is perceived the portion contaminated should be thrown away and the distillation stopped. Rose-water should be kept in a dark cool place. The salt is of no use in the distillation further than to preserve the leaves from spoiling.

Rosemary.—A verticillate plant (*Rosmarinus officinalis*) which grows naturally in the south of France, in Spain, Italy, and in Asia Minor and China. It has a fragrant aromatic smell like camphor, of which its oil contains one-fourth. Its name is derived from its beautiful appearance when glittering with drops on the sea-shore. The taste is warm, pungent, and rather bitter; the flowers are of a pale purple colour. Infusions of the leaves are put into some drinks, and the flowers are used to give fragrance to Hungary water, used as a cosmetic. It is also a component part of eau de Cologne and four-thieves-water. It has valuable pro-



ROSEMARY

perties also as applied to the hair, a simple decoction of which can be made at home, which, when used as a wash for the head, will both stop the falling off of the hair and promote its growth. There is a species of the same plant called marsh rosemary (*Statice limonium*) which is found about salt marshes, the root of which is astringent and is used in medicine. From an old opinion that rosemary had the property of strengthening the memory, this plant has been made the emblem of remembrance and constancy. Hence Ophelia's allusion to this herb in *Hamlet:*

"There 's rosemary, that 's for remembrance."

Roseola, or Rose-rash.—There are several varieties of this skin affection. One form, which is common to infants, and receives the name of *Roseola infantilis*, is characterised by circular patches of a deep red colour scattered over the body. This is accompanied by some feverishness, and sometimes some soreness of throat. It is best relieved by small doses of fluid magnesia and the daily use of the warm bath. In another form of the disease, called *Roseola æstiva*, there is more feverishness, more soreness of throat, and the rash is of a deeper red. In a third form the rash comes out in rosy rings, and is hence called *Roseola annulata*. As a rule, no serious consequences result from this eruption, but it is important that it should be distinguished from scarlatina and measles.

Roses are probably the most beautiful of all the flowers that adorn our gardens or trail along our walls. They are propagated in many different ways:—1. *By seed*, which is a very interesting experiment, and well repays the trouble. The rose-berry must be gathered ripe in October before the frost has had time to injure it. The seed is then cleared out and buried in sand in a large pot, beginning with a layer of sand, then a layer of seed, and so on till the pot is full; they will keep thus until April, when they are to be sown in pans of light loam, and placed on a moderately hot bottom. As soon as the young plants are large enough they are to be potted off, and nursed carefully until large enough to be planted out. 2. *By budding*. This is a simple operation, which is best for standard roses, but far more easily described by act than words. 3. *By layers*. Take, in autumn, the young shoots of the preceding summer; by the autumn following they will have taken root and become whole plants. Roses also grow well from the *suckers* that spring upwards from the roots. They need a strong loamy soil, which ought to be enriched with dung and bone manure. The varieties of roses now cultivated are almost endless, of which we may mention a few. Among the *Feroces*, or prickly roses, the hedgehog rose is the commonest. The Macartney rose has leaves bright green, and the roses are solitary and white; it flourishes late in the season. The small-leaved rose is something like it, but smaller. The Scotch rose has small solitary white flowers growing on a compact green dwarf bush. This is the only rose that flourishes in Iceland. The hundred-leaved cabbage rose is well known; it is said to have come originally from France. The moss rose springs from this same division. The French rose, with its small prickles and erect beautiful flower, is a very nice plant. Between this French rose and the hundred-leaved cabbage rose very many beautiful hybrids are produced, combining all the good qualities of each. The damask rose, supposed to have come originally from Damascus, is much cultivated, and has many different varieties. Then we have the large white rose of Piedmont, and the Irish rose. There are many other styles of roses which deserve cultivation, such as the lovely Chinese rose and the tea-scented Chinese rose, the Bourbon rose, the miniature or Lawrence rose, the dog rose, the white dog rose, and the musk rose. From the petals of roses attar or otto is made, as well as many useful requisites for the toilet. The fruit of the dog rose is used in medicine principally in the making of quinine pills, while an infusion and a syrup are made from the petals of the red Gallic rose. (*See* CAMELLIA.)

Roses, Attar or Otto of. (*See* ATTAR OR OTTO OF ROSES.)

Roses, Tincture of.—There are two preparations of this spirit:—1. Spirit of roses one pint, essence of ambergris and oil of rose-geranium of each half a fluid drachm. 2. Attar or otto of roses two drachms, neroli half a drachm, rectified spirit one gallon; and when dissolved add of chloride of calcium (well dried and in powder) one pound and a half; agitate well, and distil seven pints. This latter is a very fine preparation.

Rosettes. — A name given to an ornament made of ribbons set in bows or loops round a centre. Rosettes are often worn as badges at elections and on festive occasions; sometimes as additions to portions of a lady's dress.

Rosewood is generally brought from Brazil in the form of large slabs or halves of trees. The colours vary from light hazel to dark purple and nearly black, with the colours sometimes finely contrasted. It is very heavy, sometimes fine and at others coarse grained, and generally very hard. Next to mahogany it is most used in cabinet-work and upholstery. It is sometimes called *jacaranda* or *palisander* in Europe, from a belief that it is from a species of Mimosa; but it is quite certain that the real tree which produces it is as yet unknown, except to the native residents.

Rosin. (*See* RESINS.)

Rosolio.—The liqueur known by the name of rosolio is made by dissolving essence of vanilla, oil of roses, and essence of amber in alcohol, after which clear syrup of sugar is added, and water. Cochineal is used as a colouring.

Rotten-stone is a soft stone, easily pulverised, and invaluable to housekeepers for polishing and cleaning the brass and metal utensils. It consists principally of alumina, with as near as possible 10 per cent. of carbonaceous matter, and a small proportion of

silica, being formed of decomposed slate clay. It is chiefly found in Derbyshire, is of an ash-brown colour, and is used by lapidaries and other mechanics for grinding, polishing, and sometimes for cutting stones.

Rouge.—There are several kinds of this. Toilet rouge, used for heightening the complexion of ladies, is when really good a somewhat complex preparation, which is best procured from respectable perfumers, and which is usually employed either in the form of a powder or a pomade. Jeweller's rouge is prepared by calcining precipitated sesquioxide of iron, and is used for cleaning gold and silver ornaments. Spanish lady's rouge is made of cotton-wool repeatedly wetted with an ammoniacal solution of carmine, and dried; it is used as a cosmetic. A simple rouge powder for the face may be easily made thus:—Take two ounces of finely-levigated French chalk, and thoroughly incorporate it with a quarter of an ounce of finest carmine. A rouge for plate powder may be thus prepared:—Mix equal parts of precipitated subcarbonate of iron and prepared chalk.

Rouge et Noir.—A game at cards of a purely speculative character, played with six packs of cards on a table covered with green cloth. Into all the particulars of the game it is neither possible nor advisable to enter in such a work as the present.

Rouleau.—A French word introduced into the English language, and signifying "a little roll." Thus, a parcel of bank notes is often termed a roulcau of notes.

Roulette.—A game of chance of an especially speculative character, at one time publicly played at Paris and at several of the German and Italian towns, but now interdicted by law in almost every country in Europe. The game is played on a roulette table of an oblong form, specially fitted and marked out.

Roulette (Cookery).—A name given to a culinary delicacy somewhat resembling a rissole and a croquette. The seasoning of roulettes is a very important item in their manufacture; lemon-juice, and very frequently wine also, enters into their composition. The point in which they resemble croquettes is that they are dipped in egg and bread-crumbs.

Round.—A kind of part-song for two or more voices, who take up the same air at various intervals behind each other, at the same time making good harmony or accord throughout; that is to say, one part of a melody is made to harmonise with another part of the melody when sung together. This kind of composition was a very favourite one with our forefathers of the sixteenth and seventeenth centuries; and Dean Aldrich, in his "Smoking Catch," has given us a very ingenious and witty example of a round for men's voices.

Round Dances.—This term is applied to that class of dances which are performed by separate couples, who make circular movements, and progress round the room while making them. Under this denomination are the waltz, galop, redowa, mazurka, schottische, and polka. Round dances are preferred by the majority of dancers to those which are termed square dances, and accordingly the former occupy most of the number set down in ball programmes. The first two are the chief favourites.

Round Games.—Games at cards which do not admit of partnership, but in which each person plays on his own account. As examples of these may be mentioned brag, commerce, loo, matrimony, Pope Joan, speculation, vingt-un, all of which are referred to under their respective headings.

Round (Joint).—The piece of meat known as the round of beef is one of the boasts of English cookery, and weighs as much sometimes as twenty-five pounds, so that few people cook a whole round at once. A piece cut from the silver or tongue side of the round is a good serviceable joint for a large family. It is usual either to dry salt it or to pickle it in prepared brine before cooking it, and it is more frequently boiled than roasted. An excellent method, however, of cooking a round of beef is to bake it in the oven for five or six hours. It should first be put into a pot of its own size, with a very small quantity of water, not more than a cupful, and surrounded and covered with beef fat, chopped. A round cooked in this way will be found much more tender and juicy than one boiled in water.

Round Robin.—A written petition or remonstrance signed by a number of persons writing their names in a ring. The phrase is derived from the French *rond ruban*, a round ribbon, and is said to have originated in a custom of the French officers, who signed remonstrances to their superiors in a circular form, so that the person first signing—presumably the prime mover in the matter—could not be discovered.

Rounders. (*See* BALLS, GAMES WITH.)

Roup.—1. A Scottish term denoting a sale by auction. 2. The name of a disease to which domestic poultry are liable.

Rousillon.—The wines of Rousillon, a place situated on the borders of the Mediterranean, are among the fullest bodied of all French wines. One of these wines, called Masdeu (the meaning of which is God's field or vineyard), is a bright red rich wine not unlike claret, and yet in character greatly resembling port; indeed, much of the port now used in England is really this variety of Rousillon. During the last century the red wines of Rousillon formed the basis of the famous Bristol ports.

Routs.—At the early part of this century evening parties, to which a large number of guests were invited, were styled by this peculiar designation. The term is now superseded by those of "at home," "soirée," and "receptions," which assemblies are of the same character as routs. The hours for these are usually from nine p.m. to eleven p.m., during which hours the guests are at liberty to arrive and depart when they please without breaking any breach of decorum. Music and conversation are the usual proceedings of the evening. The guests are greeted by the lady of the house on their arrival, but it is not considered necessary for them to take their leave of her on departure.

Roux is a mixture of flour and butter baked together, and used for thickening soups and sauces. There are two varieties, brown roux and white roux. Both are made of the same ingredients and are prepared in the same way, the difference between them being that the white roux is taken from the fire before it has acquired any colour, and the brown roux is left until it is of a russet hue. This preparation is exceedingly useful, is easily made, and will keep for months. A tea-spoonful will thicken a pint of gravy. When it has been used, the sauce should be allowed to simmer for awhile at the side of the fire till the fat has risen to the surface, when it should be carefully skimmed off. A small quantity of roux for immediate use may be made by dissolving an ounce of butter in a saucepan over a slow fire, and shaking into it an ounce and a half of dried flour, and stirring the mixture till it is brightly coloured.

Rovings.—Use can be made of the threads which come from the ends of ribbons or other silken materials, for when put together they form a soft and excellent stuffing for small pincushions. Another use is found for those seemingly useless threads by some persons, who scatter them over white crinoline threads when such are placed in the fire-grate.

Rowan or Roan Tree, or Mountain Ash.—This is one of the most graceful and beautiful trees we possess. It is called by botanists *Pyrus aucuparia*, and belongs to the *Rosaceæ* family. It is a native not only of this country, but is found all over Europe, and in North America and Japan. In high northern regions it is a mere shrub, and probably attains its greatest proportions in Scotland, where for a long time a belief was held that its branches had a power against witchcraft and evil spirits. It is a very graceful tree; its foliage is pretty, so are its white scented flowers and its beautiful red autumnal berries. The bark of this tree is used by tanners, its shoots for making hoops, and in famine times the dried leaves have been used as a substitute for wheat.

Rowing.—This most popular sport, as well as useful art, deservedly holds a very high place among physical exercises. Perhaps no other sport affords such uniform exercise to all the muscles of the body, with an absence of any undue strain on the system. To a good oarsman, too, the risk of being upset is very slight; and when, in addition to careful management of the boat, ability to swim is added, all danger is practically removed. In such circumstances, rowing as a sport merits unqualified approval. In such a work as the present it is, of course, altogether impossible to discuss, however concisely, the theory and practice of rowing; for such information reference must be made to some treatise on the subject.

Royal Assent.—The last form through which a Bill passes previously to becoming an Act of Parliament; it is, in the words of Lord Hale, "the complement and perfection of a law." The Royal Assent is given either by the Queen in person or by Royal Commission. It is rarely given in person, except at the end of the session, when the Queen attends to prorogue Parliament. (*See* ACT OF PARLIAMENT; PARLIAMENT.)

Royal Household.—The Queen's Household is the domestic establishment of her Majesty as provided by the nation. It comprises several departments, with numerous offices under each head. The Lord Chamberlain's department includes the hereditary grand marshal, the lord chamberlain, the vice-chamberlain, black rod, comptroller of accounts, lords in waiting, grooms in waiting, gentlemen-at-arms, aides-de-camp, mistress of the robes, ladies of the bed-chamber, maids of honour, and many others. The Ecclesiastical department belongs to that of the Lord Chamberlain, and includes dean of the chapels royal, clerk of the closet, priests in ordinary, gentlemen of the chapel royal, queen's chaplains, &c. The Medical department includes physicians in ordinary, extraordinary, and honorary, besides surgeons of various classes. The Lord Steward's department consists of lord steward, treasurer, comptroller, master of the household, hereditary grand almoner, lord high almoner, and others. The Master of the Horse department includes master of the horse, clerk marshal, equerries, pages of honour, veterinary surgeons, &c. The royal household, Scotland, is on a less elaborate scale; it includes lord high constable, keeper of great seal, hereditary carver, hereditary cupbearer, physicians in ordinary, lord privy seal, knight marischal, standard-bearer, lord advocate, &c. H.R.H. the Prince of Wales has a separate household, and H.R.H. the Princess of Wales has her special household. The remaining royal households among us are those of H.R.H. the Duke of Edinburgh, and H.R.H. the Duchess of Edinburgh; and of their Royal Highnesses the Duke of Connaught, Prince Leopold, Princess Beatrice, the Duke of Cambridge, Prince and Princess Christian, the Princess Louise, and the Duchess of Cambridge. (*See also* CIVIL SERVICE.)

Royal Marriage Act.—The 12 Geo. III. c. 11, known as the Royal Marriage Act, provides in effect that no descendant of the body of King George the Second (other than the issue of princesses married into foreign families), under the age of twenty-five years, is capable of contracting matrimony without the previous consent of the Sovereign, signified under the Great Seal; and any such marriage is declared to be null and void. As to such descendants over the age of twenty-five years, if they contract and solemnise marriage without the consent of the Sovereign, it shall be good, subject to the following conditions—viz., if twelve months' notice be given to the Sovereign's Privy Council of the intention to contract such marriage, and if the Houses of Parliament shall not during such twelve months expressly declare their disapprobation of such intended marriage. All persons solemnising, assisting, or being present at a prohibited marriage, are liable to the penalties of præmunire (*which see*). The effect of this Statute is to prohibit and to annul marriages contracted or solemnised in violation of its provisions, whether in England or elsewhere.

Rubber (at Cards).—The best of three games, or two games out of three. (*See* WHIST.)

Rubber, India. (*See* INDIA-RUBBER.)

Rubble.—The refuse of building materials is commonly called rubble, but it is also the name given to an inferior kind of masonry, the stones of which are taken hap-hazard, without any attempt at regularity of shape or size. There are several kinds of rubble, the distinctions simply depending upon the amount of dressing that the stones receive, the common rubble being built of stones in their natural state without any dressing whatever. *Coursed rubble* is so termed because the stones are squared and of equal height. *Hammer-dressed rubble* is applied to any rubble the stones of which have been squared with the mason's hammer.

Rubefacients.—These are certain medicinal agents which are largely used to excite irritation and redness of the skin, and thus relieve internal congestion or inflammation. Those most used are mustard, turpentine, ammonia, compound camphor liniment, iodine, and capsicum (cayenne).

Rubellite.—A gem of a red or pink colour, a variety of tourmaline (*which see*).

Rubicelle.—A gem which owes its name to its resemblance to a ruby; it is a variety of spinel or Balas ruby (*which see*).

Rubrics.—In ancient manuscripts, certain portions, such as headings, contents, explanations, and other extraneous or explanatory matters, were often written in red ink, whence the term rubrics, which means the parts in red. The term had no relation to the subject of a book, which might be law, theology, or anything else. As, however, law-books, missals, and books of devotion especially were in most constant use with such additions, the word came to be most often used of them. Eventually it came to be almost confined to books of devotion, and that even when such portions as have been indicated were written or printed in black ink. Hence the rubrics of the Book of Common Prayer are the miscellaneous explanations, instructions, and such-like which are scattered through the volume. Rarely the titles of books placed at the head of a review are called rubrics, but a certain amount of prejudice exists against the use of the word in this sense.

Ruby.—The ruby is a gem of the class which by mineralogists are styled corundums. It is one of the most beautiful, and when of large size, good colour, and free from defects, is the most valuable of precious stones; so that, weight for weight, a ruby may be worth more than a diamond. It and the sapphire are next in hardness to the diamond. The chief sources of it are Siam, Burmah, and Ceylon. The colour varies from the lightest rose tint to the deepest carmine; but Mr. Emanuel notes that those too dark or too light are not esteemed. The most prized are of the shade called "pigeon's blood," which is a pure, deep, rich red, without any admixture of blue or yellow. One variety with a peculiar reflection is called the star ruby. The form in which rubies are mostly cut is called half brilliant, though stones of less value are often cut with a rounded top. Some rubies fetch fancy prices. Real rubies of small size have been produced by artificial means, but not large enough for jewellery.

Ruby (Colour).—A deep cochineal, or rose-red, tinged with violet.

Rudesheimer.—The German wine known by the name of Rudesheimer is so called on account of its being produced from the vintage of Rudesheim, a small district on the banks of the river Rhine. The vineyard producing it is said to have been planted by Charlemagne. Rudesheimer is a white wine, very choice, and soft and delicate in flavour.

Rue.—This is the *Ruta graveolens* of botanists, natural family *Rutaceæ*, usually called common or garden rue, originally a native of Southern Europe. It is a close branching undershrub, with a strong disagreeable smell. It is easily cultivated, and grows well on a poor soil. It may be propagated from cuttings off the young shoots, planted in some shady border during the spring months. Rue is used medicinally, the dose of the oil being from two to six drops in sugar and water. It is useful in the flatulent colic of children and adults, given either by the mouth or as an enema; also in cases of infantile convulsions, and in hysteria and amenorrhœa. One to two ounces is the dose of rue tea, which is made by digesting one ounce of the herb culled fresh in a pint of boiling water.

Ruff.—These are upright frills worn round the neck, made of fine linen, cambric, lawn, muslin, or lace. Strips of the material the depth required are cut across the fabric, joined together, and then plaited more or less full into a band; the parts which come to the throat should be sloped before being inserted in the band, in order to give freedom to the chin. The ruff is a Spanish fashion, which was introduced into England in the reign of Mary Tudor. During that of Queen Elizabeth these portentous fabrications increased in size, until the depth reached a quarter of a yard, rising above the head of the wearer, and containing as many as twelve lengths of material. Various methods were resorted to in order to keep these high erections from falling; they were wired as well as starched. At first the latter process was a matter of difficulty, as that art was not known in this country. A woman was brought over from Holland, where the mystery was understood, and she gave instructions, for which the sum of £5 was charged. The tools used for fluting the frills were setting sticks made of wood or bone, and poking sticks made of iron. Ruffs were single, double, and three piled; at first they, like the veritable Spanish ruff, were unornamented with lace, but in time that adornment was added, together with silver, gold, and precious stones. Ruffs of the above description went out with James I.; those worn by Charles I. were not stiffened, and fell on the shoulders, partaking more of the character of ruffles, which at this period became the fashionable adornment of neck and wrists.

Ruff and Reeve.—The ruff is a bird belonging to the natural family *Scolopacidæ*, and called the *Machates pugnax*. Ruffs arrive in England in spring, the males coming a few days before the females. They frequent marshy places, and feed on worms and the insects they can find in their habitat. The reeves lay four eggs, the nest being built of coarse grass on some stump or height in the most marshy places they can find. Formerly a great many ruffs used to be caught in the fens of Lincolnshire, quite a trade being carried on in them, the flesh being very much relished by many. There is a very great difference in the plumage of the male in winter and summer: in the latter season it is much more gay, and a tippet or ruff extends around the neck and breast. The ruff may be domesticated, and may be fed almost as fowls are.

Ruff or Ruffe, or Pope.—This fish is very plentiful in some of our rivers, notably the Cam, the Thames, and the Isis. It is also found in most of our other rivers, and on Continental Europe as well. The ruffe is called by naturalists *Acerina vulgaris*, and belongs to the genus *Cernua* and the family *Percidæ*. In size and colour it is not unlike the gudgeon, but in shape it is more like the perch, which it also resembles in habits. It is considered very delicious eating, and is best in May and from then until August. It is a gregarious fish, and likes deep pools in quiet rivers, where it may be taken with a small garden worm.

Rugs.—These, when placed on the hearth, should as a rule match the carpet on which they lie, both in style of manufacture and also in pattern; when a divergence from this rule is made, the rug should either be of white or coloured wool, dressed in its skin, or of a decidedly different character, such as the Scinde, Persian, and Moorish rugs. The appearance of these is quite different to any carpet of English manufacture, with which the variety of colours and the general indiscriminateness of pattern do not disagree. Since the introduction of these foreign rugs the fashion has arisen of placing several in a room. Sometimes they are used on a polished floor, and serve in lieu of a carpet; sometimes they are laid down on a plain-coloured drugget, their gay colours showing to advantage on a plain background; or they are placed on an ordinary carpet. Their size is much larger than the English rugs, so that two or three cover a large space. The positions they usually occupy are in front of the fireplace, window, and writing-table; should there be no carpet, one is laid down in the centre of the room. When the edges of rugs laid on floors become loosened, they should be overcast with strong thread, for a loose loop of the rug is very liable to cause accidents by persons catching their feet in it. Carriage rugs are often made of the skins of wild animals, such as the wolf, leopard, and tiger, and of the fur of the raccoon; these are lined with scarlet cloth, which extends beyond the upper covering, its edges being stamped out in a pattern. The less expensive rugs are made of a thick woollen plush, bound round the edge; those plain in colour without pattern look the best. The rugs used for travelling by train or boat are also of this description. There are others in the form of plaids or large broad scarves, such as those used by the Scotch. When these are woven entirely of wool they are very warm and much less cumbersome than the heavier plush rug. The plaids are more expensive.

Rule, Measuring.—The unit of length for mechanical measurement is the inch, which is divided into sections for the obtaining of minuteness. Upon this basis rules are made. The form of measuring rule most commonly in use is that which is composed of a strip of white wood—usually box or lance wood—two feet in length, divided into inches, half-inches, quarters, and eighths, and sometimes the addition of sixteenths. In some forms it is supplied with a circular point in the middle, whereby the workman can double it into half its length and carry it in his pocket. At the back of the rules a brass slider, twelve inches in length, is often placed, marked with inches on the inside and with logarithmic scales on the outer, for the purpose of calculation. Rules exist in a variety of forms far too numerous for mention, but the above is that which is in common use. In purchasing one it is well to remember that when cheap they are very often inaccurate. Rules are made of ivory and metal as well as of wood.

Rule Nisi and Rule Absolute.—A rule *nisi* (unless) is issued by the Common Law Division of the High Court of Justice, commanding any one to show cause why he should not do a certain act, or why the object of the rule should not be enforced. On the hearing of the matter, if a satisfactory case be made out by the party in whose favour the rule *nisi* was granted, it is made absolute; if, on the contrary, good cause is shown against making the rule absolute, it is discharged.

Rule of the Road. (*See* ROAD, RULE OF THE.)

Rules and Regulations.—A phrase often employed to denote the arrangements or laws determined on for the conduct of a society or club. Compliance with them is required of all who wish to become or to continue members, and disobedience is visited with fine, expulsion, or such other penalty as may be provided for. No society can prosper, even if it can exist, without them, or when they are not enforced, or when they are not appropriate to the circumstances.

Rules, Domestic.—Every household will find it convenient and important to have certain fixed rules for its general management. These rules need not be formally drawn up, but should be well understood, and adhered to habitually. They will especially relate to the times when meals shall be taken, the hours of rising and retiring, the order in which the work of the house shall be done, and when it shall be done, with a number of other particulars affecting the good order and comfort of the family. It would be very easy to dilate on the value of regularity in all that concerns or constitutes the domestic machine, and the individuals who form the household, but it is sufficient to invite attention to the subject and to give the briefest

suggestions. The circumstances of families vary so much that no universal set of rules can be given, and experience will point out those which are most suitable in special cases.

Rules of Court are certain orders or regulations made from time to time in the courts of law, which solicitors are bound to observe, in order to avoid confusion. A set of such rules has been appended to the Judicature Act, 1875; and by sec. 17 of that Act it was provided that the Queen might, by Order in Council before the commencement of the Act, upon the recommendation of the judges, make any further or additional rules of court for certain purposes specified in that section. Pursuant to this power, additional rules have since been made. Both the plaintiff and defendant are at their peril also bound to pay obedience to rules made in court relating to the action pending between them.

Rules of Health. (*See* DIET; EXERCISE; FOOD; HEALTH, CARE OF.)

Rules, Personal.—In their individual capacity all persons do well to act in accordance with rules; in other words, to carry out a plan of living. This is true of the moral, intellectual, and religious, as well as of the social or strictly personal aspects of existence. Of course each must find out for himself or herself what is best to do, what is most in harmony with the claims of health, business, rank, and so forth. But it is seldom that any one not guided by fixed principles and not regular in his habits has attained either to eminence, wealth, comfort, reputation, or longevity. A man should make wise laws for himself, and should obey them consistently and systematically. It is well known that in the matter of health and in business the course we recommend is of the greatest moment. More than this need not be said, except, perhaps, that those who have the training of young people cannot begin too early to teach and habituate them to regular modes of action in all things.

Rum.—The variety of spirit known as rum is a West Indian product, and is made from fresh cane-juice and the scum which rises in the manufacture of sugar. These sweets are fermented and distilled, and thus the spirit is obtained. In its original state it is colourless, and is sometimes sold as white rum, forming a very agreeable and delicately-flavoured cordial. For the market it is usual, however, to colour it by the addition of caramel or burnt sugar; and this ingredient, though deprived of its sweetening properties, imparts a flavour to the spirit which is anything but agreeable. Rum is a spirit that improves greatly by keeping, acquiring with age a fine, mellow, soft flavour. New rum is strong and readily produces intoxication, and is said to be injurious to health by inducing a tendency to fever in hot climates, and to disease of the liver in cold countries. The alcoholic strength of rum is about the same as that of brandy. Jamaica rum is considered the best. By the addition of pine-apple in the process of fermentation a new flavour is obtained, and the product is sold as pine-apple rum. The adulterated rum that is offered for sale is a factitious spirit made from malt or molasses spirit. This the spirit-dealer often manufactures from what is called essence of rum, a butyric compound known in chemistry; but the liquid thus made is, of course, of a very common quality. The consumption of rum in England is not nearly so great as formerly, its use being greatly superseded by gin.

Rum Shrub.—A very excellent liquor is made and known by the name of rum shrub. Into a gallon of rum the rinds of oranges and lemons, and lemon-juice, are infused. After digesting two months, syrup and water are added, and then the liquor is strained. The quantity of the peel of the fruit may be large or small, as agreeable to taste.

Rumble.—This is a term applied to a seat for servants behind a carriage.

Rumford Stoves, &c.—Count Rumford, who was born in 1753 and died in 1814, initiated important improvements for the benefit of households. In the endeavour to prevent chimneys from smoking, he discovered the principles on which chimneys and fireplaces have since been generally constructed. He also sought to invent improved methods of producing and economising heat in cooking ranges, stoves, &c., and some of these were called by his name. They are now superseded, but they had a beneficial effect, and formed the basis of many modern improvements.

Rummer.—The name of rummer was formerly given to an old-fashioned kind of drinking-cup. The word is now obsolete.

Running.—This is an expeditious method of joining together pieces of material; it is adopted when the closer stitches of seaming are considered unnecessary. Unlike seaming, it is always done on the wrong side of the garment. Breadths of calico are generally run together when they have no selvage; tucks are run; linings are run to their coverings; the breadths of skirts are run together. Of late years, sewing machines have chiefly done this branch of work, the speed of their accomplishment rendering essential help; but as there are occasions when such aid is not available, it is well to be acquainted with the proper method which the hand should adopt. The needle used should be long and slender; when running it should be put in and out a great many times and with strict evenness before it and the thread are drawn through, for this expedites the work and conduces to evenness of stitches. In cases where one breadth is gored and the other is not, the former must be held next to the sempstress; when run by machine, the gored breadth must be placed on the machine, and the straight one be uppermost.

Running Footman.—A servant who in former times was employed to accompany his master's carriage on foot. By training and practice the running footman often accomplished feats of a remarkable character. He ran on foot, keeping pace with the horses, and was ready to outstrip them if necessary for such purposes as paying tolls and having the gates open when the vehicle arrived, so that no stoppage was necessary. There were other

similar duties, but as the institution is obsolete it is unnecessary to enumerate them.

Rupture. (*See* HERNIA.)

Rural Deans are very ancient officers of the Church, but almost grown out of use, though their deaneries still subsist as ecclesiastical divisions of the diocese or archdeaconry. They seem to have been deputies of the bishop, placed all round his diocese, to inspect the conduct of the parochial clergy, to inquire into and report dilapidations, and to examine candidates for confirmation, armed in minuter affairs with an inferior degree of judicial and coercive authority.

Rushes. — The common rush, which is called by botanists *Juncus*, is considered the type of the rush family *Juncaceæ*. As many as thirteen genera, including two hundred species, are named, and they grow in damp situations, chiefly in the colder parts of the world, although a few are found in the tropics. The common rush is peeled and the pith used in Scotland as a wick to oil-lamps. (*See also* DUTCH RUSHES.)

Rushlights. — Candles made with rush-wicks, or rushlights, as they were termed, are articles of very ancient invention. One writer, named Aubrey, who lived in the seventeenth century, says that at Ockley, in Surrey, "the people draw peeled rushes through melted grease, which yields a sufficient light for ordinary use, and is very cheap and useful, and burns long." Much earlier than that, however, Pliny tells us that the Romans applied different kinds of rushes to a similar purpose, as making them into flambeaux and wax candles for use at funerals. In some places rushlights were in common use towards the close of the last century, though they are seldom seen now. A proper stand was provided for them in the same way as for other candles.

Rusks.—As an article of diet, rusks are very digestible; the thorough cooking they receive in order to make them crisp and hard makes them also very wholesome. Rusks made in the form of puddings are excellently adapted for infants and invalids, or they may be used as much as possible in the place of bread. Perfectly plain rusks may be made by simply cutting loaves of bread into slices, and baking them in a slow oven until brown. The ordinary rusks are made from dough very like that used for tea-cakes; butter, milk, sugar, and flour form the ingredients. After being cut to a proper shape, the rusks are baked so as to produce a little scorching of both surfaces, and are afterwards put into a drying oven for three or four hours in order to expel all the moisture.

Russia Crash. — A coarse linen or hempen fabric, a variety of crash (*which see*), and so called either because derived from Russia, or made of Russian hemp. It is an exceedingly durable article, and useful for jack-towels. The width ranges from sixteen to twenty-two inches. The threads are rough as well as coarse.

Russia Leather.—The scent and other qualities so much esteemed in this leather are produced by a combination of substances employed in its preparation. It is tanned with the cheapest bark produced in that country, having first been steeped in an alkaline lye, when it is fulled and tanned, secondly with the bark of birch, and dyed red, drab-colour, or otherwise, and usually stamped with a small cross-bar pattern. Besides all this it is rubbed over with the empyreumatic oil of the birch. A roughness is produced on the surface by the pressure of an iron tool upon it. Not only is this leather esteemed for its perfume, but for its preservative qualities, not being liable to the mould to which other kinds of leather are subject, and being much avoided by insects and worms. On this latter account, shavings of it are placed amongst furs and other materials to protect them from insect depredations, and to communicate to them its own agreeable perfume.

Russian Bagatelle. — This game is played on a board somewhat similar to that used for bagatelle, but varying very greatly in size, small boards being not more than a foot in length. At each side of the board is a groove, forming a channel, up which the ball is driven by the player, and the rest of the board is fitted with little pegs, arches, and holes, while in the centre is a small bell. The board is slightly inclined towards the player, so that the ball having been propelled up the channel runs back down the board, and points are scored according to its final resting-place, while additional points are allowed should it strike the bell in its progress.

Russian Caviare. (*See* CAVIARE.)

Russian Lace. (*See* LACE.)

Russian Scandal. — An in-door game that may be played by any number of persons. All the players sit round the table in a circle, and one of them whispers a story to his neighbour. The story is passed on in a whisper all round the circle, and then the last player gives his version of it; this is compared with the story as originally told, and the changes it has undergone in transit are found very amusing.

Russian Tallow.—The importation of tallow to England from other countries is very considerable, but that obtained from Russia is considered better than any other. Tallow is used in making candles and also in the manufacture of soap, though the trade of late years has considerably declined. The extension of gas, and the enormous development of the paraffin and petroleum oils, have tended greatly to reduce the demand for candles, so that the chief use of tallow in this country is now in the manufacture of soap.

Russian Tapestry.—A material made of various widths for window curtains. It is woven from hemp, shows an ornamental pattern, is usually bordered with a fringe, and is neat and durable. The hemp is said to be prepared in some way with seal oil, but the odour of the new material is similar to that of several other heavy fabrics, and rapidly passes away on exposure to the air.

Rust, To Prevent and Remove.—The best method that can be adopted to prevent iron and steel goods from becoming

rusty is to keep them free from damp and moisture. The coating of rust that forms on the surface of metals, especially steel, is generally caused by exposure to a moist atmosphere. Boiled oil or cheap varnish is frequently used to rub over the surface of steel that must necessarily remain in a situation that is not perfectly dry. Surgical instruments are sometimes covered with a little mercurial ointment to preserve them in a proper condition. In order to remove rust from any metal, it must be rubbed with very fine emery made into a paste with sweet oil; or a preparation of polishers' putty powder, mixed with a little oxalic acid, may be applied with water. After the use of the latter application the articles should be washed in clean water and dried, then polished with a dry rubber, in order to remove every trace of acid.

Rustic-work.—For garden rustic-work, in which wood is used with the bark on it, the best kind of timber will be that of the Scotch fir or young larch-trees, with oak, birch, or hazel for the lighter portions. Ornamental mouldings may be made with pine cones or sections of stick nailed side by side and arranged in a design according to the different colours of the bark, the bark being removed from some. In architecture, rustic-work is the process of leaving the surfaces of the stones used with a rough surface, as if partially composed of unhewn material, or showing the projecting edges of the stones so that they form grooves or channels in the masonry. Rustic-work is said to have appeared first in buildings erected at Rome during the time of Augustus and Claudius.

Rusty or Reasty Bacon. (*See* REASTY OR RUSTY BACON.)

Rye.—The common rye (*Hordeum Secale*) is very little grown in England. Its native country is doubtful, but it is said to be found wild in the desert regions near the Caspian Sea and on the highest mountains of the Crimea. It is very hardy, and delights in sandy soils, and is usually sown in ground where the soil is too poor for wheat to grow. Although, however, the ripening of rye can be more confidently reckoned upon in cold regions than that of any other grain, it succeeds best and is most productive in a climate where wheat still ripens. In appearance rye is more like wheat than any of the other cereals, but smaller in size and darker in colour. The varieties are numerous, though not so much so as those of other cereals. In commerce rye, like wheat, is deprived of the husk, and in this condition, when roasted, it is sometimes used as a substitute for coffee. It furnishes also an excellent malt for the distillation of spirit, and is much used in the making of Hollands. The straw of rye is very tough, and is much valued for straw plait. The Russians use this grain in the preparation of a liquor called quass (*which see*).

Rye Bread.—Bread made from rye flour was at one time a common article of food in England, and at the present time in some parts of Belgium, Prussia, Holland, and Russia, it is an important article of food. Where wheat can easily be obtained, however, it is not at all probable that rye will ever supersede it. Rye bread is dark in colour, acid in taste, and almost disagreeable to those unaccustomed to it, and its consumption is only resorted to as a matter of necessity. In Yorkshire a mixed product is grown, known by the name of maslin, which is composed of two or three parts of wheat and one of rye, and bread prepared from this mixture is both agreeable and wholesome. A few years ago it was much more used than it is now.

Rye, Ergot of. (*See* ERGOT.)

Rye Flour.—Rye in its ground state approaches nearer to wheaten flour than any other cereal grain in its aptitude for making bread. It is rich in nitrogenous matter, and though not so nutritious as wheat flour, is very good for an occasional substitute. It is dark in colour, and, owing to the grain being so slender, the flour produced by it is not so easily separable.

Rypophagon. (*See* RHYPOPAGON.)

S

Sabbath.—Literally, a day of rest, being derived from a Hebrew word signifying "rest." The seventh day of the week—the day on which they were commanded to abstain from all manner of work—is the Sabbath of the Jews. As is the case with all Jewish festivals, &c., the Sabbath commences at sunset on the previous day and lasts until sunset, *i.e.*, from Friday evening to Saturday evening. From a very early period the Christian Church has set apart the first day of the week—the day of Christ's resurrection—to be observed as the Christian Sabbath. (*See* SUNDAY.)

Sable Fur.—In England the fur of the Siberian or Russian sable and that of the North American marten are both called sable. The two animals bear a resemblance to each other in general features. The size is about eighteen inches in length; the chief distinction is in the darker and handsomer skin of the veritable sable, and the fact that its feet are also encased in fur. Siberian or, as it is more commonly called, Russian sable is very dark and lustrous; it is considered to rank very high amongst furs, that and the black and silver fox being the most valuable and costly. These sables are not numerous, and as they inhabit the mountainous regions of Siberia, and their fur is at its greatest perfection in the winter, the pursuit of these animals in frozen regions is arduous and perilous. Good skins realise from six to twelve sovereigns apiece. The fur of the marten is lighter in colour and not quite of so great a depth; the best is of a rich brown colour. Much of the beauty of colour and depth of fur depends upon the season in which these animals have been trapped. In November they have assumed their winter coats. The usual traps are those which, when touched, fall upon and kill the animal instantly, without

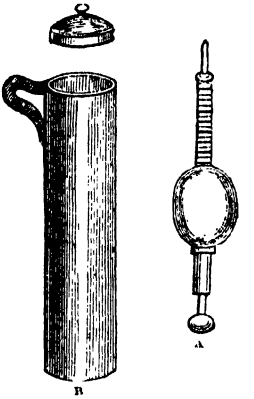
injury to the fur. The skins of martens realise from fifteen to twenty-five shillings apiece when trapped. Three are required for a muff of ordinary size. The fur of the European martens is dyed by French furriers; it is known as French sable.

Sables.—This term is applied comprehensively to a rich and courtly costume. The title thus conferred arose from the fact that Henry VIII. issued an order which forbade any person below the rank of earl to wear sables. At that period these furs were exceedingly costly, and it was the fashion to face robes with sables. Shakespeare says, in *Hamlet*, act iii., scene 2, "Let the devil wear black, for I'll have a suit of sables." The term sable is sometimes applied rhetorically to habiliments of mourning; this has doubtless arisen from the blackness in colour of the veritable sable fur. In heraldry, black is known under this name, and is represented by vertical and horizontal lines crossing each other.

Sabot.—A shoe made of one piece of wood, which is hollowed out to give place for the foot. The wood employed is generally that of the pine. Sabots are worn by the peasantry of France and Belgium, particularly by those who live in mountainous or marshy districts; for use in the latter they are well adapted, for the reason that moisture does not penetrate through wood as readily as through leather. The making of sabots forms an important branch of industry in France, and those made at Limoges are considered to be the best; the majority are made roughly, but the workmanship bestowed on some is of a higher class, and ornamentations are introduced. These shoes are of a heavy and clumsy character, and when worn make a peculiar clattering noise such as that made by the clogs which are in general use among the Yorkshire and Lancashire working people.

Saccharine.—Having the qualities and properties of sugar; hence the saccharine matter in any substance is the sugar which is contained in it.

Saccharometer.—When sugar is present in a liquid, as in brewers' wort, its quantity can be ascertained by means of the saccharometer. One kind is constructed of a hollow brass portion in the form of a globe or of an egg, with a hook and an upright stem placed opposite each other. When placed in liquids it floats with the hook downwards. Weights are attached to the hook, and the degree to which the stem, which is graduated, sinks, shows how much saccharine matter there is in the liquid. The whole result is found by means of tables calculated for the purpose. There are variations in make, one of which is here figured. Instead of a hook at A, there is a metal knob. The upper part is weighted at the top, and the action is the same as above described. The vessel B will contain the sample of the liquid to be tested, and serves as a case for the instrument when not in use. What is called an optical saccharometer is an instrument which determines the amount of cane sugar in a liquid by reference to the phenomena of polarised light. It is constructed on purely scientific



SACCHAROMETER.

principles, and as its use is confined to skilled analysts it need not be described in this work in detail.

Sachets. — Small bags or diminutive cushions into which scent of some description is put; lavender, rosemary, and patchouli being most frequently selected. When powder scent is used, the bag requires to be filled with soft wool, and the powder to be shed over that. Sachets are placed in drawers where pocket-handkerchiefs, linen, writing-paper, &c., are kept, and a pleasant perfume is thus communicated to the contents of the drawer. When filled with camphor they are useful to protect furs and flannels from moths. Sachets are made ornamental in appearance; a pretty device is that of satin or silk with flowers painted on the surface, and a narrow cord or fringe round the edge.

Sack.—1. A large bag commonly made of strong coarse hempen cloth. For corn, flour, &c., sacks usually contain four bushels; but there are sacks for potatoes, &c., of three bushels. A sack of coals contains two hundredweight; a sack of wool 354 lbs., &c. 2. An old name for a kind of wine often mentioned in English literature. It is probably from the Spanish *seco*, or the French *sec*, meaning "dry," and is thought to have been a sort of sherry. In later times the term sack was applied to canary wine.

Sack-posset. — A dish which was long popular in this country. It was made in a variety of ways, and owes its name to the use of sack (wine) in its composition. The following simple recipe is from a book published in 1655:—Take eight eggs, yolks and whites, and beat them well together; strain them into a quart of cream; season them with nutmeg and sugar; put to them a pint of sack; stir them all together, and put them into your basin, and set them in the oven, no hotter than for a custard; let it stand two hours. See other forms in "Cassell's Dictionary of Cookery." In one of her recipes Mrs. Glasse, for "sack," says "canary."

Sackcloth.—Properly, the cloth of which sacks are made. The word is often used of a coarse hair-cloth worn in ancient and more recent times in token of mourning or penitence, or as a sign of mortification and self-denial.

Sacking.—A general name for the various kinds of coarse hempen cloth of which sacks are made. The name is also given to the strong hempen fabric which is stretched within the four sides of a bedstead to lay the bed, &c., upon.

Sacque.—An outer vestment worn by ladies, but not now in fashion. It was fastened round the neck in front, and hung down behind for a considerable distance, almost to the knees.

Sacrilege.—The crime of profaning sacred things, or things devoted to the service of God, or of alienating to laymen or for common purposes that which had been previously dedicated to religious persons and pious uses.

Sacristan.—The sacristan, or sacrist, is the keeper of the sacristy, or vestry, a person into whose charge are given the consecrated vessels, books, and other movables belonging to a church.

Sacristy.—This is a room in a church wherein the consecrated vessels, books, vestments, &c., are kept, which is sometimes within the church and sometimes communicates with it from without. It is occasionally called the secretarium (from the Latin *sacer*), but is more commonly known in this country as the vestry.

Sad Iron.—An implement for smoothing clothes, more frequently termed a "flat iron."

Saddening.—A term used in dyeing, signifying to make dark in colour. Thus, in former times, "sad" or "sorry-coloured" garments signified that they were of a sombre dark shade. The term "sad" is also applied to bread, called by Shakespeare "distressful bread," meaning heavy, dark-coloured bread such as is eaten by the poor. In dyeing blacks in various degrees of depth it is necessary to employ woad, a colouring matter derived from a herbaceous plant of the genus *Isatis*, and which is used with indigo as a ferment in a vat. It is sometimes written "wode," and used to lay the foundation of all "sad colours."

Saddles.—A movable seat, placed upon a horse or other animal, on which a rider sits. A side-saddle is intended for the use of ladies. A saddle of mutton, &c., contains part of the back-bone and the ribs on each side.

Safe-conduct.—Usually an official document which guaranteed the holder a safe and free passage in a country. It was, in fact, a special passport. Occasionally the term is applied to a guard or convoy granted for the protection of some one exposed to risk while travelling.

Safe, Meat. (*See* MEAT-SAFE.)

Safety-lamp. (*See* DAVY-LAMP.)

Safety Matches. (*See* MATCHES.)

Safety, Public.—The security of the public is recognised and protected by many Statutes, and every person who does or wilfully permits what is dangerous to the life, health, or other interests of the public is amenable to law. In special emergencies extraordinary measures can be taken by the authorities in the interests of public safety. As public safety means individual personal security, private parties may figure as plaintiff or defendant in connection therewith.

Safety-valves.—These valves are placed on the boiler in locomotive engines, and act by permitting the escape of steam when its pressure exceeds that which the load on these valves is sufficient to resist. One is called the lock-up valve, because it is secured from being tampered with; and the other is regulated by a spring balance apparatus, and acts at a little lower pressure. The aperture should be sufficient to permit as much escape of the steam as fast as it is generated, allowing for the valve is up. The safety-valve may sometimes restrained from acting by placing upon it a sufficient weight. Sometimes the weight thus used is applied by means of a lever. The safety-valve lever is fixed to one end of a stud, a short distance from which is the valve whereon it rests, the length of the lever indicating accurately the pressure in pounds per square inch on the boiler of the locomotive above the atmosphere.

Safflower.—Called also bastard saffron, the dried flowers of the plant being so like true saffron that it is often used as a species of adulteration for that drug. It is called by botanists *Carthamus tinctorius*, and belongs



SAFFLOWER.

to the natural order *Compositæ*. The flowers, which grow in heads, are of a yellow colour when fresh, and when dried they become red. Some beautiful rose and scarlet colours are obtained from this plant to be used in dyeing. Its actual principle is called carthamite. It grows chiefly in Egypt, from which country large quantities of the dried flowers are annually imported into England. The cosmetic called rouge is also obtained from safflower.

Saffron.—The dried stigmata of a bulbous plant (*Crocus sativus*), much cultivated in this country at one time, and employed for season-

ing dishes in the reign of Richard II. It is still grown near Glazenwood, and at Stapleford, in Cambridgeshire; it has a beautiful yellow colour, an agreeable scent, and yields its active principle—an essential oil—to water and spirit. In medicine it is used as a slight narcotic, and to excite the nerves of the stomach. Sometimes it is adulterated with safflower and marigolds; but the fraud is easily detected, because the petals of these flowers are clearly distinct in form from the stigmata of the crocus. The saffron imported from the Continent of Europe is inferior to that which is English-grown.

Sage.—The common sage (*Salvia officinalis*) that has for so long been cultivated in our gardens is a native of Southern Europe. It is a half-shrubby plant, seldom more than two feet high, with wrinkled leaves, and a very strong aromatic smell somewhat resembling camphor. In cookery its chief use is in stuffings, for subduing the lusciousness of certain kinds of meat, such as goose and duck. For this purpose the common red sage and the green variety are most employed. For medicinal purposes the small-leaved sages are used, and the tea made from the dried leaves is undoubtedly useful as an astringent and a tonic. It is often employed as a



SAGE.

cooling gargle for sore throats. A few years ago it was much more highly valued as a medicine than it is now. In some parts of the country sage cheese is made from the expressed juice of the leaves. For nearly a thousand years the art of mixing herbs and cheese together has been known in England and France. In France this operation is called *persiller*, because a great deal of parsley is mixed with the cheese, as in England we mix sage. In the Middle Ages the herbs were worked into heraldic devices. As a beverage the Chinese are said to prefer tea made from sage to that of their own country. Sage grows best in a dry soil, shaded from the burning sun; it thrives with very little care, and is easily propagated by slips merely dibbled into the ground in spring and autumn. In addition to the common sage there are many other varieties. The meadow sage is a common ornament in the south of England for the borders of fields, and bears a dark blue flower; it is sometimes put into beer to make it more intoxicating. Some of the other sages have very beautiful flowers, and are valued as ornaments for gardens and greenhouses.

Sago.—This well-known article is obtained from the pith of the stems of several species of palm. As soon as the trees are sufficiently mature they are cut down, the stems are cut into lengths, split open, and the pith extracted, which is then well washed to remove the fecula. This process makes the water white and turbid, and it is then run off into another vessel. These washings are repeated until the pith ceases to yield any starch. From the strained liquid the starch is deposited, which forms the sago flour or meal of commerce, large quantities of which are now imported for use as starch, in the manufacture of calico, and other materials. A single tree is said to yield five or six hundred pounds of sago. Granulated sago, which is used for food, is prepared from sago flour by mixing it with water into a paste, and then granulated into pearl sago and brown or common sago. The former of these is in little pearly-white grains, varying in size; the brown sago is much larger. Both kinds are extensively used for making puddings and in the manufacture of soup. The exact method employed by the Malays in pearling and granulating their sago is unknown to Europeans, but it is supposed that heat is employed. In itself sago possesses but little flavour, but mixed with suitable adjuncts it becomes an agreeable food. It is inferior to rice in its nutritive value; consisting as it does almost exclusively of starch, it is inferior to the farinaceous foods grown in our country, but it is very easy of digestion, consequently it is well adapted for children and invalids. Sago bread, which is eaten by the inhabitants of the Moluccas, is made by throwing the dry meal into heated earthenware moulds, where in a few minutes it is caked together into a hard mass. Sago flour, like all other powdered substances, may easily be adulterated by the mixture of inferior articles. The countries from which our supplies of sago are chiefly obtained are Borneo, Singapore, India, and Ceylon.

St. Anthony's Fire. (*See* ANTHONY'S FIRE, ST.)

St. Stephen's Stone. (*See* CHALCEDONY.)

St. Vitus's Dance. (*See* VITUS'S DANCE, ST.)

Saki.—This is a species of monkey belonging to the genus *Pithecia*, and found in South America. The sakis are sometimes known by the name of fox-tailed monkeys, owing to their possessing a long bushy tail. There is the white-headed saki, the fur on the head of which is white, while it is black on the body. This monkey is also called the black yaite. Then there is the bearded saki, or cuxio, and the black-headed saki, called also the cacajou; but the term saki is also employed to

designate generally monkeys whose tails are not prehensile.

Sal Ammoniac. (*See* AMMONIAC, SAL.)

Sal Mirabile.—An old name for Glauber's salts (*which see*).

Sal Prunella.—Nitre which has been fused. (*See* SALTPETRE.)

Sal Volatile is the common name for the neutral carbonate of ammonia. (*See* CARBONATES.)

Salad Oil. (*See* OIL—IN COOKERY.)

Salad Sauces.—Dressings or sauces for salads may be obtained from the grocer ready for use and of excellent quality. Still, most people prefer the salad sauces made at home. The recipes are numerous for the different varieties of dressing, the flavours varying according to taste. Salt, mustard, pepper, vinegar, sugar, and oil are the principal ingredients; and to these, eggs, cream, wine, and other additions are made. By some a strong prejudice is felt against the use of oil in salads, but this feeling is happily subsiding, for without oil it is almost impossible to make a first-rate salad. Not only does the oil impart a mellow taste, but it tends to prevent the fermentation of the raw vegetable, and is also an antidote to flatulency. There are certainly passable substitutes for oil, but they are not the real thing. Alexandre Dumas gives a recipe for a salad of lettuce hearts à l'Espagnole without either oil or vinegar, a preparation with which he was regaled when travelling in Spain. For oil, raw yolks of eggs were substituted, and for vinegar the juice of lemons. This, with the proper proportion of pepper and salt, is the whole secret of his salade à l'Espagnole. Other recipes are provided without oil as well as with it. No dressing should be mixed with the salad until the last moment; the vinegar tends to destroy the crispness of the green leaves, and spoils the appearance as well as the flavour of the dish. Nevertheless, the sauce may be prepared some hours before it is wanted, and placed in a cool airy place. A quantity sufficient for a week's consumption may safely be prepared and bottled off for use.

Salade.—This name is given to a pickle that may be used as soon as made. It consists of onions, cucumbers, and some apples cut into thin slices, and put into a jar with salt, cayenne pepper, white wine, and a sauce called soy. The jar is then filled up with vinegar, and the preparation may be used the same day.

Salads.—Salads are uncooked vegetables, of which with us the lettuce is generally supposed to form the foundation. The other vegetables used in salads are asparagus, artichokes, boiled beetroot, basil, celery, chives, cucumbers, chervil, cauliflowers, dandelion leaves, endive, French beans, garlic, lettuces of all kinds, lentils, mustard and cress, mint, onions, parsley, potatoes, radishes, shallots, sorrel, tarragon, tomatoes, Windsor beans, and watercress. As a rule, vegetables eaten raw are apt to ferment on the stomach; consequently salads are usually dressed with condiments, such as pepper, salt, mustard, oil, and vinegar; and upon the proper mixture of these ingredients much of the success of the salad consists. Sydney Smith, who wrote a well-known poem describing how salad should be prepared, was of opinion that a good salad would glorify any dinner, and make up for the lack of the rarest dainties. For this to be the case, however, the salad must be dressed scientifically, and three or four rules must be observed in its preparation. The vegetables must be young, freshly cut, and in good condition. They must not be allowed to remain long in water, but above all, after being washed, they must be made perfectly dry, first in a cullender and afterwards in a clean napkin. It is better also not to make use of a steel knife for cutting the leaves; they should be either cut with a silver knife or torn into shreds, and the preparation of the dish should take place only a short time before it is wanted. The salad dressing must not be added until the last moment. The appearance of a salad bowl may be made quite attractive by ornamenting with beetroot, cucumber, olives, nasturtium leaves and flowers, or anything else that is suitable; and, if arranged effectively, it will certainly add to the beauty of the table. As an article of food, salad is not only wholesome and agreeable, but it has a stimulating, sedative action upon the nervous system. The leaves of the lettuce abound in a juice which is in effect similar to opium, and the root of the endive, or chicory, is extensively used to mix with coffee, and sometimes even as a substitute. These facts prove that salad is of greater value than as an ordinary article of food; it not only satisfies the appetite, but it revives the spirits and soothes the nerves. The French as a nation have a greater appreciation of salad than we have in England; indeed, both the French and the Italians understand much better than we do how to turn to splendid account a dinner of herbs.

Salamander.—This is a small amphibious animal belonging to the natural family *Salamandridæ*, to which the power of living in the fire was accredited in ancient times. There were



SALAMANDER.

also many other superstitions connected with the creature. The saliva of the salamander, for instance, was said to have a depilatory action, rendering the skin of the head bald if it fell thereon. Some alchemists, moreover, averred that the animal had the power to turn

the baser metals into gold. Salamanders are very like the lizard in shape; in their early state they breathe with gills in the water, but when fully developed breathe like the frog. They are what is called ovoviviparous—that is, though produced from eggs, the eggs are not hatched when formed, but retained until life is perfected in them. They are divided into land salamanders and aquatic, although the former are always found in moist, wet places, and the latter breathe air. The *Salamandra maculosa* or spotted salamander, being black with yellow spots, is the animal which is still looked upon with superstitious dread on some parts of the Continent, although the creature is perfectly harmless. There is in Japan a kind of salamander fully a yard long, and covered with plates of mail.

Salary.—A term derived from the Latin *salarium*, salt money, part of the pay of the Roman soldiers, and denoting a stipulated annual or periodical payment for services. Such payment to a clergyman is generally termed a stipend. In the case of remuneration for services stipulated by the day, week, or month, the payment is called wages and not salary.

Sale, Bill of. (*See* BILL OF SALE.)

Sale, Law of.—Sale is the transmutation of property from one person to another in consideration of a price. If a man, upon the sale of goods, warrants them to be good, the law annexes to this contract a tacit warranty that if they be not so he shall make compensation to the purchaser; such warranty, however, must be on the sale. But if the vendor knew the goods to be unsound, and has used any art to disguise them, or if in any respect they differ from what he represents them to be to the purchaser, he will be answerable for their goodness, though no general warranty will extend to those defects that are patent or obvious to the senses. To constitute a valid sale there must be (1) parties competent to contract; (2) mutual assent; (3) a subject-matter, the absolute or general property in which is transferred from the seller to the buyer; and (4) a price in money paid or promised. As to real estate, all causes and matters for the specific performance of contracts between vendors and purchasers are assigned to the Chancery Division of the High Court of Justice, as also are all causes and matters for the partition or sale of real estates.

Sale on Approval.—This phrase (and the corresponding ones, "sale on trial" and "sale or return") is a sale dependent upon a condition precedent—viz., the condition of the purchaser being satisfied with or approving the goods. The approval may be implied from keeping the goods beyond a reasonable time. (*See preceding paragraph.*)

Saleratus.—A kind of pearlash employed occasionally in cooking.

Sales. (*See* AUCTION; "SELLING OFF.")

Salic or Salique Law.—An ancient and fundamental law of the Kingdom of France, usually supposed to have been made by Pharamond, or at least by Clovis, in virtue of which males only are to inherit. Du Haillan, after a critical examination, declares it to have been an expedient of Philip the Long, in 1316, for the exclusion of the daughter of Lewis Hutin from inheriting the crown. Father Daniel, on the other hand, maintains that it is quoted by authors more ancient than Philip the Long, and that Clovis is the real author of it. This law has not any particular regard to the crown of France: it only imports in general that in salic land no part of the inheritance shall fall to any female, but the whole to the male sex. By salic lands or inheritances were anciently denoted among us all lands, by whatever tenure held, whether noble or base, from the succession to which women were excluded by the salic law, for they were by it admitted to inherit nothing but movables and purchases wherever there were any males.

Salicine.—A crystalline substance derived from the bark of the willow-tree; it is one of the sources from which salicylic acid (*see next paragraph*) is prepared.

Salicylic Acid.—An acid made from salicine by combining it with an alkali, and then separating the latter by the action of hydrochloric acid. It is allied to the phenylic and benzoic acids, and can be readily made from sodium phenol. It is of considerable practical value as an anti-septic and disinfectant. In all cases where fermentative changes occur in the contents of the alimentary canal, this acid acts more efficaciously than other anti-septics, since it can be administered in larger doses. Given in quantities of fifteen grains, it produces no disagreeable effects, but if taken in excess it will produce singing in the ears, and will pass through the system partly unchanged. In the dressing of wounds it is found to act most satisfactorily, both aiding granulation and preventing fever. Owing to the fact that it is easily split up into phenol and carbonic anhydride, it prevents fermentation and decomposition, and may therefore be applied to the preservation of meat and bread. In the case of meat it is preferable to phenol, as it possesses only a slight and sweet taste. Added to new wine, it will prevent after-fermentation; and light beer will remain good and sparkling, if a little of this acid is mixed with it, for months after it would otherwise have turned sour.

Saline Medicines.—These are certain salts, as magnesia, potash, soda, common salt, &c., which are largely used in the treatment of various diseases. Some are especially efficacious as aperients (*see* HYDRAGOGUES), in disorders of the liver, and in inflammatory fevers. Others are beneficial in the several forms of indigestion and its secondary results in the urine. (*See* GRAVEL.) Saline springs, which are found in almost every country, contain a large percentage of these salts, and are much resorted to. (*See* MINERAL WATERS.)

Saline Powders.—This is the name sometimes given to seidlitz powders, pyretic

saline, citrate of magnesia, and other preparations in which some salt, either of magnesia, soda, or potash, is the active ingredient.

Salivation.—This is a condition characterised by an increased flow of saliva from the salivary glands of the mouth, by sponginess and unhealthy ulceration of the gums, and by fetid breath. Salivation is now seldom seen except in certain morbid conditions of the mouth, but in the days when mercury was the panacea for all serious diseases it was generally believed that for the patient to get the full benefit of the drug it was necessary that he should continue taking it until it produced salivation. The consequences of this treatment were sometimes disastrous, as the condition of salivation once established, it was found no easy matter to stop it, and fatal prostration frequently resulted. Mercury is now given with much more caution, and its administration is at once stopped when tenderness of the gums manifests itself. This caution is all the more necessary, as some people exhibit a remarkable susceptibility to the effects of the drug, and can be salivated with very small doses. The treatment of salivation consists in the frequent use of astringent gargles (*see* GARGLES), and in supporting the strength by a nutritious diet, to which wine or brandy must be freely added if the prostration demands it.

Sallow-thorn.—This (the *Hippophaë rhamnoides* of botanists) is a small shrub found in this country on the south-eastern coast, and in many other parts of Europe, from which a colouring matter used for dyeing yellow is obtained. The berries which it bears are sometimes used to form a preserve.

Sally Lunns.—The well-known cakes that bear this name are usually served hot for breakfast or tea, and are universally esteemed. They are called after Sally Lunn, the pastry-cook of Bath, who used to cry them about in a basket at the close of the eighteenth century. Dalmee, the baker, bought her recipe, and made a song about the buns. The ingredients consist of flour, butter, milk, and eggs, mixed and fermented with yeast. After the dough has risen it is divided into thick cakes, and baked in a quick oven. If very rich cakes are required, cream may be substituted for milk. In preparing Sally Lunns for the table, they are made hot, divided into three slices, and well buttered.

Salmagundi.—The dish known in cookery by the name of salmagundi is a kind of vegetable mosaic, made of cold meat, pickled fish, eggs, vegetables, parsley, beetroot, radishes, barberries, and indeed of almost any meat or vegetable that may be in season. The various articles are all arranged so as to contrast in colour as well as flavour, the appearance of the dish being intended to be ornamental. It is a very suitable, convenient dish for a cold collation, and when made effectively adds at once to the beauty of the table. It is served with oil, vinegar, pepper, and salt, or a sauce similar to salad dressing is frequently used. It is supposed that the name originates from Salmagondi, one of the ladies attached to the suite of Mary de Medicis, wife of Henry IV. of France. She either invented the dish, or was so fond of it that it went by her name. More probably, however, the word is a corruption of the Latin *salgamum*, which means meat and salad powdered together.

Salmi.—This dish is simply a superior ragout of game or wild fowl. A salmi differs from a ragout in this respect, that the ragout is made from the remains of roast game, and the salmi from game that has only been half cooked for the purpose. The ordinary salmi admits of many variations, according to the nature of the bird, which is first roasted, then allowed to get cold, then carved, then re-heated in what our ancestors intended by the syllable sal—a salmi sauce. This highly-seasoned sauce is made by chopping up the inside and the trimmings of the roast game, and putting them into a stewpan with a bay-leaf, a sprig of thyme, mace, mushrooms, and other flavourings, all of which are fried in salad oil; afterwards wine is added, and in this the whole is allowed to simmer for a short time. The joints of the game are then heated in this seasoned preparation and served hot. Cold salmi is frequently made by mixing with the same a quantity of stiff aspic jelly. The joints of the birds are covered with this liquid, and it is allowed to get cold and stiff upon them. Salmis are favourite dishes with epicures.

Salmon.—From quite ancient times the salmon (*Salmo salar*) has furnished the different countries of the world with large supplies of food. Commercially it is far superior to any other fresh-water fish, both on account of the abundance with which it is procured in the northern parts of the world, and of its rich and delicious flavour. It is found on the coasts of all the northern parts of the Atlantic, and in the rivers which fall into that ocean, as far south, at least, as the Loire on the European side, and the Hudson on the American. The best salmon known in England is that caught in the Severn and in the Scotch rivers. Salmon is called a river fish because it is generally caught in rivers, and the river is its birth-place, but the sea is its home and its pasture-ground, and unless to the sea it periodically returns to renew its strength, it will die; indeed, it may be said to inhabit fresh and salt water alternately, spending its winter in the sea and its summer in the river. Many rivers and streams are rendered valuable by the salmon which periodically visit them, thus affording sport to anglers, with which nothing of the same kind is deemed worthy of comparison. The flesh of the salmon is considered to be in perfection for the table when cooked as soon as possible after the fish has been killed, whilst the fatty curd, which begins to disappear within twelve hours, remains between the flakes of its flesh. Although, however, in this condition the fish is truly delicious, it is very indigestible, and is without doubt much more wholesome when it has been kept a day or two. When in good condition the nutritive value of the flesh of salmon differs but little from that of the red-blood flesh of other animals, and it approaches meat more closely than any other fish in its sustaining properties. Fatty matter is incor-

porated with the muscular fibres, and there is also a layer of superficial fat beneath the skin. In the cod the oil is all stored up in the liver, consequently the flesh is more indigestible. The kippering or drying of salmon is accomplished by rubbing thoroughly into the flesh of the fish some salt, saltpetre, and sugar; after this it is stretched out and hung, to be either dried or smoked. The preserved salmon which come to London are so well kippered that the flavour and richness of the fish are very little diminished. There are few dainties more delicious than fresh salmon that has been kippered for two or three days only. Pickled salmon is prepared by pouring over fresh boiled salmon a liquid consisting of vinegar and the water in which the fish has been boiled, the proportions being half of water and half of vinegar, added to which are salt, pepper, and seasoning.

Salmon Colour.—A compound colour, produced by the combination of pink and orange, and deriving its name from the tint of the river fish, the flesh of which is of this tint.

Salmon Trout.—This well-known fish is called *Salmo trutta* by naturalists, and belongs to the *Salmonidæ*. It is likewise known by the name of sea trout and Phinnock trout. Salmon trout are inhabitants of most of the streams and lakes of our own country, where they spawn from November to January; their food consists of worms, minnows, and flies. Fishing for trout supplies the enthusiastic angler with a sport that is equal to none other. The rod should be stout and moderately long, and the tackle running and good. In the early spring months any kind of common bait may be used all day, but in summer the fisher will be more successful with fly in the middle portions of the day. To excel in this sport a large amount of experience, as well as study, is required, and the would-be angler should read the best books that treat on it with care, and afterwards try to turn the knowledge thus gained to good account.

Saloop, or Salep.—This is the dried root of a species of orchis, the *Orchis mascula*. It is now little used in this country, but in Turkey is still greatly esteemed for strengthening the bowels or respiratory organs. The root is ground to a fine powder and stirred with water; it is then boiled to a jelly and sweetened with honey. It is said to be highly nutritious.

Salpiçons.—The dish which is known by the name of salpiçons is composed of a mixture of chicken, game, *pâté de fois gras*, ham, tongue, sweetbreads, artichokes, mushrooms, truffles, &c. The remains of meat and vegetables are often used to make salpiçons, and they answer the purpose as well as fresh material, as it is necessary that all the ingredients employed should have been previously cooked separately. The usual method of serving salpiçons is to make them into small patties by enclosing the meat in good puff pastry.

Salsify.—A vegetable belonging to the great natural order *Compositæ*, and called by botanists *Tragopogon porrifolius*. It is cultivated in our kitchen gardens, and greatly esteemed as a vegetable or second course dish. It may be cooked by simply boiling and serving with melted butter. It is the root that



SALSIFY.

is used, which is shaped somewhat like the common carrot.

Salt.—The common salt, which is so necessary for our daily use, is procured in three ways. First, in the solid crystalline state called rock salt (*which see*); second, as a natural brine from wells or springs; and third, by the evaporation of sea-water. For edible purposes it is necessary that rock salt should be dissolved in water in order to dispel the impurities contained in it. After being dissolved, the insoluble matters sink to the bottom, and the brine is drawn off and evaporated by artificial heat in large iron pans. The cost incurred in cleansing rock salt makes it more expensive than that obtained from the springs. By manufacturers salt springs are preferred to sea-water, because they do not contain iodine or other elements which would modify the flavour of the salt. The salt obtained from sea-water is evaporated in brine pits or shallow square pools that are dug for the purpose on the shore. When evaporation has continued long enough, crystallisation succeeds. The salt is then removed to sheds, and piled in heaps, that the chloride of magnesium may be removed. Lastly, the salt is re-dissolved and crystallised. The value of salt as food can scarcely be exaggerated; it is sought after both by man and animals. So necessary, indeed, is it for man, that when there was urgent need for revenue a tax was placed upon salt, since nearly everything would be sacrificed to obtain a portion of that article. Its direct use appears to be to stimulate the sense of taste and to increase the flow of saliva, and we can hardly imagine what our food would be if deprived entirely of the presence of salt. In barbarous times the most horrible of punishments, entailing certain death, was the feeding of culprits without salt; and in the experiments of the French academicians, animals that were fed on flesh deprived of its saline constituents soon died of starvation. The food was rendered useless, although it contained plenty of nutritious matter, simply because there was no

medium for its solution and absorption. The preserving action of salt is due to its power to attract moisture, by which it tends to harden whatever moist substance is brought into contact with it, and when it has obtained moisture it becomes soft and loses its flavour. There is no other compound which could answer the same purpose, or which could in any way supplant common salt.

Salt-box.—The ordinary common salt intended for daily use is much better kept in a wooden box than in a vessel made of pottery or earthenware. By means of the wood the salt is preserved free from moisture, which is not the case when it is kept in pottery or glass. As it is very desirable that salt for table use should be perfectly dry and fine, it will be well to bear in mind the fact above stated. Wooden salt-boxes made expressly for the purpose may be purchased from the furnishers of such articles.

Salt-cellars.—Formerly the family saler, or salt-cellar, was of massive silver, and was placed in the middle of the table. Persons of distinction sat above the saler, between it and the head of the table. Dependants and other inferior guests sat below it. In the present day salt-cellars are quite small in size, and are dispersed as equally as possible over the table. They are made in gold, silver, electro, and glass. A gold salt-cellar is preserved in the museum at Vienna which was executed by the famous Benvenuto Cellini, a goldsmith who won the highest reputation in the sixteenth century, and who was largely employed at Rome by Pope Clement VII. Afterwards Cellini went to France, and was patronised by Francis I. Among the many splendid works of art that were completed by him, the gold salt-cellar is the only one that can be identified.

Salt, Rock. (*See* Rock Salt.)

Saltpetre, or Nitre, is the nitrate of potash, a crystalline body which is found in the native state on the surface of the ground in some hot and dry countries—principally in certain parts of India, whence it is imported in very large quantities. It occurs as an efflorescence on the ground and on the mud walls of the houses of the natives; it is gathered up and dissolved in water, to separate the earthy matter and other impurities, and then crystallised out by evaporation. It then takes the form of white or greyish-coloured crystals. Its principal use is in the manufacture of gunpowder, fully 75 per cent. of which consists of saltpetre; and in making nitric acid. It is also one of the ingredients of flint-glass, its use being to render the glass perfectly colourless. In salting meat it is added to the brine, on account of its faculty of absorbing the water contained in the flesh, and thus aiding its preservation; it is the saltpetre which imparts the red colour to salted meats. It has long been used in India, and subsequently by the Western nations, in making cooling mixtures. The water in which the nitre is dissolved will always be found to be reduced in temperature; and in India the water-bottles, and in Italy the wines, are thus cooled before use. A much greater amount of cold may, however, be produced by dissolving a mixture of saltpetre and other salts: thus, if equal parts of it, together with either sal ammoniac or common salt, be dissolved in three parts by weight of water, the temperature of the water will sink 40° Fahr.; and equal parts of it and sal ammoniac, together with one and a half parts of Glauber's salts, will, on being dissolved in three parts of water, reduce its temperature by 46°.

Salts. (*See* Epsom Salts; Glauber's Salts; Lemon, Salts of; Rochelle Salt; Smelling Salts.)

Salutations.—Greetings—the forms and circumstances of which are numerous and varied. They may consist of words, or of gestures and actions. Good wishes, welcomes, and farewells, shaking hands, kisses, and even embraces are included, and are determined by custom, which settles them in view of the relations, rank, &c., of the parties concerned. Respect, friendship, and affection are indicated by the various kinds of salutation.

Salutes.—A sort of salutation, usually a compliment of a ceremonious character, paid in the army or navy in honour of royal or distinguished persons. Salutes are of many sorts, such as the firing of cannon or of guns, raising or lowering flags or sails, presenting arms, cheering, manning the yards, &c. A royal salute consists of firing twenty-one great guns, while officers lower the points of their swords, and colours are dipped. Large bodies of soldiers salute eminent personages by presenting arms.

Salvage.—The compensation or allowance made to persons by whose exertions or assistance ships or goods have been saved from dangers of shipwreck, pirates, &c. A salvor is one who renders such assistance. The chief statutory enactments bearing on the subject are contained in part 8 of the Merchant Shipping Act, 1854 (the 17 & 18 Vict. c. 104). The services entitling to salvage must be such as are founded upon skill, enterprise, and risk on the part of the salvors; for mere ordinary services, such as towage, no salvage is claimable. Moreover, those services must have been attended with success; for salvage is a reward for services actually conferred, not for services attempted to be conferred. The right to salvage may be forfeited, either totally or partially, by misconduct on the part of the salvors, but the evidence of misconduct must be conclusive. The following persons may become entitled to salvage:—(1) Officers and crews of her Majesty's ships; (2) pilots, but not for mere pilotage services; (3) seamen of the abandoned wreck; (4) ship agents; (5) shipowners; (6) masters of vessels; (7) beachmen, guardsmen, and others, but not passengers on board the wreck. As to the amount of salvage, the Court of Admiralty never allows more than a moiety for salvage, however meritorious the salvage services may have been; the value is to be calculated at the place where the services terminate, and according to all other equities of the case. Ship and cargo must each pay its own share of salvage; and as between different

salvors, the Court is empowered, under the Merchant Shipping Act, 1854, s. 498, to decree an equitable apportionment.

Salver.—The articles known by this name are usually made in gold, silver, and electro, and vary very much in form, value, and design. The use to which they are appropriated is similar to that of our ordinary trays, though from these they differ in being supplied with feet. Those made in solid gold and silver are of great value, and specimens of these have been found at different times from the very earliest periods. It is not possible to say at what date gold and silver were first worked into various articles, but many proofs have at different times been found that gold and silver vessels were extensively manufactured by the ancients. In the South Kensington Museum may be seen a Flemish salver made about 1670, which is not only valuable on account of the association connected with it, but is also very interesting as a work of art. Among the most important specimens of Roman work in silver are the cups and other vessels which form what is called the "Treasure of Hildesheim." They were found in 1868 by Prussian soldiers who were digging a trench for some military practice, and are now preserved in the museum at Berlin. Among them is a tray from Hildesheim, longer in shape than broad, and very elegantly ornamented, though it is unlike anything made now. This tray and all the other pieces have been reproduced in electrotype and publicly exhibited.

Salves.—This is another name for ointments (*which see*). The term is derived from the Latin *salvere*, to be well.

Samlet, or Parr. (*See* PARR.)

Samp.—The species of food known by the name of samp is now very little used. It is an American dish, and was, in the first instance, borrowed from the natives of America. It is composed of maize, broken or bruised, then mixed with milk and boiled.

Samphire.—The plant of this name (*Crithmum maritimum*) is a perennial, a native of



SAMPHIRE.

Europe, and grows chiefly on rocks near the sea. It is common in the south of England, but is rare in Scotland. The stem is about one foot and a half high, and bears a yellow flower. It is gathered chiefly for the sake of the pleasant oil which is contained in the plant, and for its aromatic, piquant taste, all of which render it admirably adapted for use as a pickle. Samphire pickle is one of the best and most wholesome pickles that can be made, and is very pleasant when mixed with salads. The places where the plant generally grows in most abundance are on the sides of steep cliffs, consequently much danger is often incurred in gathering it. The true samphire is not so plentiful as formerly. That which ordinarily passes for it is a glasswort, sometimes sold under the name of marsh samphire, and which is common on low muddy shores not often covered by the tide, but which is much inferior in flavour to the real samphire. In some country places the real plant is supposed to possess healing virtues, and for this reason is boiled and eaten as a vegetable. The samphire has also a poetical interest, and is one of the plants of Shakespeare. The word is said to be a corruption of Saint Pierre.

Sample Post.—*Bonâ fide* trade patterns or samples of merchandise may be sent by pattern or sample post, the rates being the same as for book packets. (*See* BOOK-POST.) Goods sent for sale, or in execution of an order, or from one private individual to another, unless actually patterns or samples, are not admissible. All articles should be so packed as to be readily examined by the Post Office authorities.

Samplers. (*See* CANVAS SAMPLERS.)

Sanatorium.—This is a place, or station, as it is sometimes called, to which people resort for the sake of health. Sanatoria, or hill-stations, are numerous throughout India and other tropical countries, and are, or ought to be, selected for certain advantages of climate, facility for drainage, and pure water, not generally enjoyed by the less-favoured inhabitants of cities and low-lying regions. It is the custom in India to send soldiers and others, when invalided, to some sanatorium; but many persons in comparative health make a practice of resorting annually to one of these places for change of air, just as we in this country go to the sea-side.

Sand.—Stone in the form of powder, and properly such as does not form a solid mass when wetted. The grains of which sand consists vary greatly in their mineralogical character and composition. Its uses in domestic economy are well known, and divers kinds are of great importance in a number of manufactures and artistic processes: thus some sorts are used for making glass, others for moulds in which metal is cast, some in mortar and architectural cements, and others for grinding and polishing.

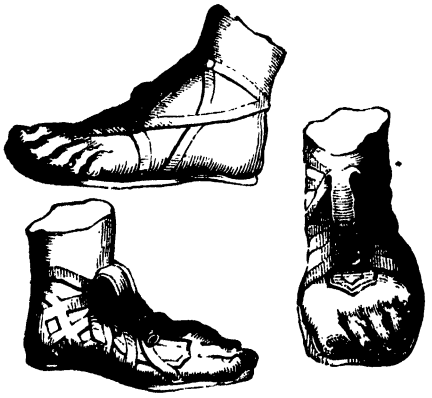
Sand-bath.—This is of two kinds: in some cases hot sand is literally employed as a bath, in which patients are in a manner immersed; but ordinarily, a sand-bath is a vessel of hot sand used in the laboratory, and in which other vessels requiring to be heated are partially immersed.

Sand-paper.—This material is used for cleaning steel goods that have become rusty, and it is generally found effectually to restore a polish to the metal to which it is applied. Fine steel is better rubbed with emery-paper, which is rather smoother on the surface. Sand-paper is made by sifting sand over paper which has been covered with a coating of glue.

Sand, Pictures in.—These are often made of the coloured sands procured from Alum Bay, in the Isle of Wight. The process is not very difficult. Draw upon a piece of cardboard the sketch to be produced in sand, and colour it roughly in the colours which are to be applied in sand. When dry, coat each colour, but only one at a time, with a solution of gum-arabic or thin glue; then take sand of the proper tint and perfectly dry, and sift it through a piece of muslin over the whole of the design; let it remain two or three minutes, and then shake off all the sand that is loose. Repeat the same process with the other colours till all are filled in, and a few hours in a warm place will suffice to dry and fix the picture. The work may be afterwards touched up with colours in powder mixed with thin glue. Sand pictures should be framed and glazed, as, although durable, they require protection from dust, friction, &c.

Sandal-wood.—Of this there are several sorts, all of them fragrant, used for ornamental work, and obnoxious to insects. The white sandal-wood, or *Santalum album*, comes from South India and the East Indian Islands. Yellow sandal-wood mostly comes from the Indian Archipelago and some of the South Sea Islands. It seems to be of more species than one, and is much used in China. Red sandal-wood, or sanders, *Pterocarpus santalinus*, found in South India and Ceylon, is used in dyeing, and as a colouring matter. The same name is given to a different tree with similar properties, and also found in the East Indies.

Sandals.—The simplest and most ancient form of covering for the feet. The Greeks,



SANDALS.

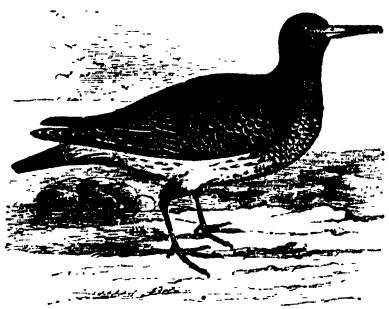
Romans, and the Spanish and Eastern nations wore sandals. In some cases they were of wood, in others of vegetable leaves or fibres, such as those of the palm and willow; these were plaited and interlaced closely together. The Egyptian sandal was made of palm-leaves in that manner, and bound with fibres of papyrus; in addition to the band across the instep, another was passed between the great and the second toe of the wearer. Sandals are worn in the present day by certain religious orders who adopt the dress of austerity. The monks of the Capuchin order wear wooden sandals.

Sandarach.—1. A resin in white transparent drops, procured from a tree growing in Barbary (the *Callitris quadrivalvis*). It is employed in the manufacture of varnish, for incense, and when pulverised as pounce. 2. The protosulphuret of arsenic; realgar. The varnish made from sandarach is used for articles subject to friction, such as furniture, mouldings, fan-sticks, and even metals, to which also it may be applied with success, as it imparts great durability and saves them from rust. The varnish is a compound of gum-sandarach eight ounces, pounded mastic two ounces, clear turpentine four ounces, pounded glass four ounces, alcohol one quart, which, when mixed, should be dissolved with frequent agitation.

Sanderling.—This is a bird belonging to the family *Charadriadæ*, and called by naturalists *Calidris arenaria*, and may be found on most of the shores of the British Islands, where it finds its food—small molluscs of different kinds—by probing the moist sands with its beak; hence the name of sanderling. It does not breed, however, in this country, but goes much farther north, sometimes as distant as Hudson's Bay.

Sanders. (*See* SANDAL-WOOD.)

Sandpiper.—This bird, the *Tringa minuta*, or little sandpiper, of naturalists, belongs to the large family *Scolopacidæ*, to which such birds



SANDPIPER.

as the plover, the curlew, the ruff, and sacred ibis belong. It receives its name from the fact that, like the sanderling, it is frequently found on sandy shores, where it obtains abundance of food.

Sandstones.—A very considerable proportion of the sedimentary rocks consist of sandstones, or beds of sand cemented or agglutinated together so as to form a more or less solid rock. Sandstones occur in geological formations of all ages, but are so predominant

in certain of them as to give their name to the whole series of rocks. Thus there is the new red sandstone (or Triassic) and the old red sandstone (or Devonian) series. Neither of these is of much value as building material, as the stone is generally too friable; but the soil produced by their decomposition is usually very fertile, some of the finest grass lands in the kingdom being in the new red sandstone districts. Of late years some of the more compact and fine-grained varieties have been introduced into ornamental building for the sake of the colour. Some of the sandstones of the carboniferous series, especially the millstone grit, are very durable, and highly suitable for the coarser description of work. Flagstones are micaceous sandstones which split up at the partings where the small flakes of mica especially predominate. They are used for paving.

Sandwiches.—It is said that the Romans were very fond of sandwiches, to which they gave the name of *offula*. At a date much later than that, however, the name was first introduced into England as signifying an article of food. The Earl of Sandwich, who lived in the reign of George III., and who was known otherwise as Jemmy Twitcher, has made himself immortal by his good taste. The earl was accustomed to pass whole days in gambling, and at these times used to bid the waiter bring him for refreshment a piece of meat between two pieces of bread, which he ate without stopping from play. Since then the name has been universally adopted. Although so simply and easily made, the sandwich is capable of great variety. It may be made of fowl, fish, game, eggs, in addition to ham and beef, and may be flavoured with slices of pickle, mustard and cress, lettuce, or anything else that will improve the flavour. Pounded cheese is liked by many people; and sweet sandwiches are made of stewed fruits, jellies, and preserves. Sandwiches should be used as soon as possible after being made, as they soon become dry and hard.

Sangaree.—This favourite West Indian beverage is made of lime-juice syrup, Madeira, and brandy, flavoured with nutmeg. It requires the addition of a little ice to render it perfect.

Sanitarium. (*See* SANATORIUM.)

Sanitary Acts.—Under this head many measures have in modern times been passed in Parliament, but not a few of them have been repealed, either separately or on a large scale, as set forth in schedule 5 of the Public Health Act of 1875. This Act embodies the provisions of other previous measures, and contains many new elements, so that the study of it is very important to all who are interested in sanitary matters. Among the Acts repealed by it several are repealed for the country at large, but not for the metropolis. The following are all more or less sanitary Acts:—The Bakehouse Regulation Act, 1863; the Artisans' and Labourers' Dwellings Act, 1868; the Artisans' and Labourers' Dwellings Improvement Act, 1875. Acts relating to waterworks, nuisances, baths and wash-houses, lodging-houses, the improvement of towns, police regulations, sewage, factories and workshops, mines, ships, and many others, are also more or less sanitary Acts, but are here referred to generally to indicate the very great attention which our legislators have given to the subject, especially since 1848.

Sanitary Authority.—By the Public Health Act of 1875, it is enacted that for the purposes of this Act England, except the metropolis, shall consist of districts, to be called respectively (1) urban sanitary districts, and (2) rural sanitary districts (in the Act referred to as urban and rural districts); and such urban and rural districts shall be respectively subject to the jurisdiction of local authorities, called urban sanitary authorities and rural sanitary authorities. In London the sanitary authorities for single parishes are the vestries, and for united parishes they are the local boards of works. The guardians of the poor have to carry out the provisions of the vaccination laws.

Sanitary Boards.—These are of three classes:—(1) Boards for single parishes; (2) boards for two or more parishes, united so as to form a district; (3) boards for a combination of districts.

Sanitary Officers.—Those appointed by law are in the first place the medical officers of health, and in the next place the inspectors of nuisances. The sanitary authority is also empowered to employ clerks and surveyors. The powers of the medical officer of health and the inspector of nuisances are varied and very considerable; and these officers are, by the Public Health Act, carefully protected in the performance of their duties. Their election is vested in the urban or rural sanitary authority, as the case may be.

Sanitary Precautions, &c. — Under this head it is possible merely to enumerate some of the measures which are recommended, or in certain cases enforced, out of regard to the public health. Where contagious diseases prevail or epidemics are rife, it is especially necessary to adopt these sanitary precautions. Such are, the isolation of patients; the disinfection of clothing, bedding, and rooms (sometimes the destruction of clothing, &c.); the establishment of special hospitals for infectious diseases; the gratuitous distribution of disinfectants; the circulation of useful suggestions by means of hand-bills and the like; house to house visitation; removal of dangerous nuisances; exclusion of sewer gas and foul air; ventilation; and such other similar precautions as experience and skill can recommend. In ordinary life, no doubt, suitable and sufficient food, light, and air; comfortable rooms for living, working, and sleeping in; proper exercise, and above all things cleanliness of person, garments, and home, are the most valuable and efficient sanitary precautions, the adoption of which should never be lost sight of.

Sap.—The sap of vegetables, which has been compared to the chyle of animals, owes its existence to moisture absorbed by the roots and leaves, and thence circulated throughout every part, for the conveyance of the plant's proper

nourishment. The sap when nearest the roots is thin and watery, but acquires consistence as it ascends, and reaching the leaves is assimilated to the nature of the plant.

Sap-green.—This is a pigment derived from the juice of buckthorn berries, the green leaves of the plant, the flower of the iris, &c., chiefly employed in oil by house-painters, and as a water-colour by artists, with whom, however, it enjoys no very great repute. It is prepared by fermentation and mixture with alum, and when good is of a dark colour, has a glossy fracture, and is a clear transparent colour, easy of application. Its defects are the attractiveness it possesses for moisture in the atmosphere, its tendency to mildew, and its want of durability as a water-colour or in oil.

Sapan or Sappan Wood.—A well-known dye-wood, a species of the *Cæsalpinia* genus, to which Brazil wood belongs, so named by the French because they derived it from Japan, which was corruptly pronounced Sapan. It has been in use from a very early period, is mentioned by Chaucer, who died in 1400, and was known ages before he existed. It reaches us largely from America, the East Indies, and Cochin-China. Sapan trees in Japan are exceedingly common, and are there largely used for building houses and ships, in box-making, furniture, &c., the branches being employed for fuel.

Sapphire.—A gem of the same nature and composition as the ruby, but different in colour, and much oftener found of a large size. Though usually blue, its tint varies from white to black. The quality also varies exceedingly. One variety is called the star sapphire, from the peculiar radiation it exhibits. It would be difficult to give hints for the guidance of purchasers, who in this case must rely mainly upon the honour and experience of the dealer. Ordinary sapphires are cut with a flat top more or less resembling that of a brilliant, but star sapphires are rounded at the top. This gem is often imitated, or other and inferior stones are substituted for it.

Sapphirine.—A gem of a pale blue colour, caused by the presence of a small quantity of protoxide of iron. It is an aluminous mineral, a variety of spinel.

Sapucaia Nut.—1. The produce of a tall tree (*Lecythis ollaria*) found in Brazil. The fruit, which is urn-shaped and of large size, is covered by a sort of lid, which drops off when ripe, and the nuts within are set free. The sapucaia nut is oval and pointed at each end, and is considered better than the similar Brazil nut, though less commonly imported. 2. The seeds of *Lecythis zabucajo*. They are rather more than two inches long and one wide, covered with a longitudinally-furrowed, corky shell. They grow in the same manner as those of the *Lecythis ollaria*, but are better flavoured. Most of those sold in the shops come from Para, in Brazil.

Saraband.—A dance which bears a great resemblance to the minuet, but is of a more lively measure. In one form of it the dancers join hands, approach to the centre of their circle, when each couple turn round together; this is repeated, the couples changing partners each time, until the originally chosen are again together. The dance is of Spanish origin; its correct name is *zarabanda*. Spanish dancers often sing and play an accompaniment with castanettes while performing this dance. Old composers of music have introduced the saraband into their compositions, more particularly when such were intended for use on harpischord or clavichord.

Sarcenet.—A fine thin plainly-woven silk which is employed chiefly for linings when a silken material is required for such. It is much softer than ordinary silken fabrics, with the exception of Persian silk (*which see*); to this it is superior in quality. The name was originally that of *saracinetto*, an Italian word, which is supposed to have been adopted from saracenic.

Sarcocolla.—A semi-transparent resinous glue obtained from certain African shrubs of the genus *Penæa*. It is in the form of small oblong globules of a yellowish-red hue, with a scent like anise-seed.

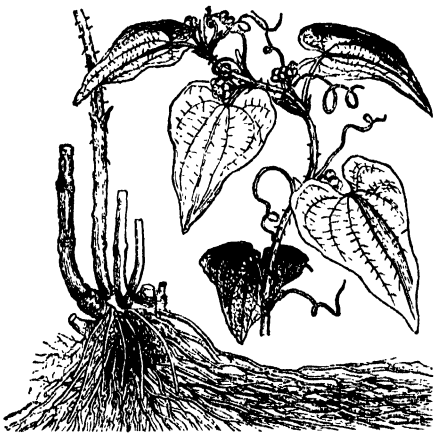
Sard.—A sort of chalcedony resembling the carnelian, but of a brownish-red or liver colour. It makes a very good seal stone, but is little used and of small value.

Sardines.—The sardine (*Engraulus melctta*) is of the same genus as the herring and pilchard, and is highly esteemed for the delicacy of its flesh. It abounds in the Mediterranean, and is found also in parts of the Atlantic. Sardines keep in the deep sea during the winter, but about June they approach the shores of the Mediterranean in shoals, and are easily caught with nets, when they are cured, and preserved in oil in tin boxes, and furnish an important article of commerce. After they are caught they are washed in the sea, then salted, and after a few hours trimmed and washed again, then spread out in the sun and wind to dry. They are then put into boiling oil, and after soaking a time are drained and put into the boxes and covered with oil, when the lid is soldered on the box and it is placed in boiling water, and when taken out is ready for exportation. A good many of the fish sold as sardines are really sprats cured and preserved in the same way, and caught on the coast of Brittany and elsewhere. It is said that the value of the quantity of the two kinds cured amounts to £160,000 sterling annually. Sardines are very wholesome, and furnish an agreeable addition to the breakfast-table. A variety named anchovied sardines are sardines that have been cured in red wine.

Sardonyx.—A stone of the chalcedony family, and consisting of layers of different tints, especially whitish and a brownish-red. Its chief use is for signet-rings, some of which are elaborately and beautifully engraved, either as cameos or as intaglios. The layers are commonly two, but sometimes more. The sardonyx is chiefly distinguished from the onyx by its colours.

Sarsaparilla.—This well-known and highly-esteemed drug is obtained from the dried

root of the *Smilax officinalis*, belonging to the natural order *Smilaceæ*, and growing in Central America. Several varieties of sarsaparilla are met with in commerce, but that which is known as Jamaica or red-bearded sarsaparilla is the best, and is the only one used officinally. This appears in bundles of roots about twelve or eighteen inches in length and four or five in breadth; each root is generally several feet long and about the thickness of a goose-quill; it has a reddish-brown bark. The taste of the root when chewed is bitter and even acid, and slightly colours the saliva. Sarsaparilla is composed of a volatile oil and an essential principle called smilacine; a solution of the latter possesses the characteristic taste of the drug. As a remedy in a great variety of diseases, sarsaparilla has for a very long time enjoyed a considerable reputation. Of late years, however, faith in the efficacy of the drug



SARSAPARILLA.

has considerably diminished, and the opinion of a great proportion of the medical profession probably now is that it is very little more than a useful vehicle for administering other medicines, and that its virtues have been greatly exaggerated. Be this as it may, there is no doubt that in certain broken-down conditions of health sarsaparilla appears to do a great deal of good. In foul ulcers resulting from a depraved state of the blood, as well as in obstinate skin diseases arising from the same cause, much benefit may be experienced by a long course of sarsaparilla. The drug has also this advantage over many special remedies, that if it does no good, neither does it do any harm. The preparations of sarsaparilla are:—1. *Decoction*. This is prepared by digesting for half an hour two ounces and a half of cut Jamaica sarsaparilla in a pint and a half of boiling water, then boiling for ten minutes, and straining. The dose is from a wine-glassful to half a pint. 2. *Compound decoction*. This consists of sarsaparilla, sassafras, guaiacum, liquorice, mezereon, and distilled water. The dose is from a wine-glassful to half a pint. 3. *Liquid extract*. This is obtained by digesting sarsaparilla in distilled water and rectified spirit for a specified time, and evaporating. The dose is from two to four tea-spoonfuls.

Sash.—An ornamental belt or girdle, formed of a wide strip of silk, wool, or cotton, folded together, and worn round the waist, or over one shoulder and tied at the waist, or rather below it, on the other side. It forms part of an officer's uniform, this description of sash being expressly woven for the purpose in silk, and dyed a crimson colour. Sashes are worn in all lands, and in this country chiefly by ladies, and children of both sexes. (*See also* SASH, WINDOW.)

Sash-lines.—These cords should be made of the best material and with good workmanship, as they are otherwise liable to snap and break—an accident which is sometimes attended with serious consequences from the sudden fall of the sash.

Sash, Window.—The sash of a window is the frame which holds the squares of glass, and is so formed as to be raised or lowered by means of lines or cords acting by the aid of inserted pulleys. Ordinary sashes are either single or double hung.

Sassafras.—The sassafras-tree, or *Sassafras parthenoxylon* of the botanist, is a native of the North American woods. It is a small tree, and its roots are used in medicine. Either the oil or an infusion of it is used. Being a stimulating



SASSAFRAS.

sudorific, it is found useful in many cases of rheumatic or cutaneous disease, but it is contra-indicated in inflammatory ailments. It is never given alone, but with either guaiacum or sarsaparilla. It should be prescribed only by a medical man.

Satchel.—A small bag commonly used by those school-children who have to carry books to and fro. The form is usually that of a large pocket with a flap; a long strap is attached, which passes over one shoulder and under the other arm; the satchel rests on the hip, and thus does not incommode or burden the carrier of it. Leather is usually employed, but strong brown canvas and carpet are also used for these receptacles. The German word is *seckel*; this

has doubtless been derived from the Latin word *sacculus*, which is the diminutive of *saccus*, a sack.

Satellites.—The secondary bodies which revolve round the planets as their primaries. Thus the moon is the satellite of our earth. Saturn possesses eight satellites, Jupiter and Uranus four each, Mars two, and Neptune one. Venus and Mercury are without any. The moons of Mars are very small, and have only comparatively recently been discovered. The eclipses of Jupiter's satellites are common occurrences, and are often made use of as data for astronomical calculations; indeed, the three inner satellites pass through the shadow of Jupiter at every revolution, but the outer one only does so occasionally. Longitudes may be calculated by their eclipses, though not so accurately as by the eclipses of our moon. It was from observations of Jupiter's satellites that the time occupied by the transmission of light was first remarked, and then its velocity ascertained. This took place in 1675, by Römer, a Danish astronomer.

Satin.—A smooth and glossy fabric made of fine silk and woven in a particular manner, so that one surface is smooth and shining. The gloss and lustre of satin are gained by the irregular manner in which the warp and weft threads are taken in connection with one another. Ordinarily a web is made by the alternate crossing of these threads, but in the case of satin the greater proportion of warp threads appear on the surface. The material is passed over heated cylinders when it comes out of the weaver's hands. A great many uses are made of satin, but the fabric is not in great demand, because it is not serviceable; it cannot be cleaned or dyed satisfactorily, and it is liable to fray. Satin presents a very handsome, and ranks with velvet in richness of, appearance; where economy has not to be considered it is wisely chosen for dresses and for trimmings. That of superior quality costs about a guinea per yard. Thin satin soon loses its gloss and looks shabby. There are several kinds of satin; brocaded satins are the richest in appearance. Satin de Bruges is made of silk and wool, and is used for furniture purposes. Satin-turk is made at Amiens, and used for shoes and evening waistcoats. Satin de laine is made at Roubaix, and is manufactured of wool. Satin proper was introduced from China; it is now made at Lyons and Florence. The word satin is supposed to have come from the Arabic *sadin*, texture.

Satin-spar.—A mineral which is found in Cumberland and North America. It lies in tabular masses, a few inches in thickness, in beds of shale and slaty clay. It is a fibrous variety of gypsum, and also of carbonate of lime; its fibres are always transverse to the vein in which the spar occurs. Satin-spar is white in colour, and has sometimes a greyish or yellowish shade; it is harder than the common calcareous spar. Satin-spar is sometimes polished for ornamental uses.

Satin-wood. — A hard, lemon-coloured wood, of a fragrant odour, highly esteemed for cabinet-work, and very valuable for veneering purposes. It is obtained from the tree *Chloroxylon Swietenia*, a native of the East Indies.

Satinet.—This silken material has a glossy surface like that which distinguishes satin. The difference between the two is that satinet is much the thinner of the two; it is also less costly. It is as durable as satin, but has not so rich an appearance. Satinet was much in favour for dresses and pelisses at the beginning of this century, when it was extensively worn both in black and colours.

Satteen.—A very smooth material made of cotton; it is thick and strong, and used chiefly by corset-makers. Satteen, as its name denotes, resembles satin in appearance; the gloss on its surface enables it to be worn for a continuance without any soiled appearance being visible. Unlike satin, it is a very durable fabric; it is made in various colours, and is sometimes used for washing-dresses and for boots, as well as for corsets.

Sauce Boats and Tureens. — Small vessels intended for the reception of sauces and gravies, and forming part of the dinner service. The tureens are the more modern of the two, sauce-boats being intended rather for cold than for hot sauces. The sauce is poured out of the sauce-boat, but a ladle is required for the tureen.

Sauce-ladles. (*See* Ladles.)

Saucepans. (*See* Culinary Utensils.)

Saucers.—For gold, these may be prepared by grinding leaf gold with strong gum solution or honey. When thoroughly ground, the gold is washed with water in a saucer or mussel-shell, and tempered with chloride of mercury. The residuum is fixed to the saucer or shell with gum-arabic containing a little loaf sugar; it must be very evenly spread over the surface of the vessel, and dried, and is used with water only. Gold saucers or gold shells are used by artists when very limited surfaces only require gilding. They answer for miniature, distemper, or any kind of work where the colours are not mixed with oil. Pink saucers are prepared from washed safflower two drachms; add subcarbonate of potash eighteen grains, and spirits of wine seven drachms; digest for two hours, and add distilled water two ounces; digest for two hours more, and add either lemon-juice or distilled vinegar enough to produce a fine rose-colour. This is used as a cosmetic, and for dyeing silk stockings, &c. A little water in the saucer suffices to dissolve the dye. It can be made of pure rouge mixed with a little carbonate of soda, made into a paste with thin gum-water, spread over the saucer, and then dried. For blue, blue carmine is made into a paste with gum-water, spread over the inside of the saucers, and dried. The blue, like the pink, can be used for dyeing small articles such as ribbons, but not if fast colours are wanted. The aniline dyes have almost superseded the dye saucers.

Sauces are liquid preparations intended to serve as accompaniments to food. They have been in use from very early times. The skill

displayed in their preparation was a source of great pride to the Greeks and Romans, who used them almost wholly with fish. A sauce called *garum*, made from a fish called *garon* by the Greeks, was considered one of the greatest of culinary delicacies. Of late years the varieties of sauces have much increased, and they are made to suit every kind of dish sent to table, their choice and manufacture affording ample scope for the display of the culinary genius. They are divided into three classes—meat sauces, fish sauces (*which see*), and sweet sauces. The last-named are intended for puddings and sweet dishes. (*See also* GRAVY.)

Sauces, Adulterations of. — Store sauces, ketchups, and essences of all kinds, which our grandmothers were proud to display as proofs of their skill and industry, are in these times prepared and sold ready made by the Italian warehouseman. Some of these, manufactured by respectable tradesmen, are wholesome and deliciously-flavoured preparations; but the revelations of scientific analyses have shown that all are not to be enjoyed with equal safety, and a good deal of uncomfortable suspicion has been created as to the nature of the ingredients which enter into the composition of bottled sauces. There is nothing like certainty, and the housekeeper who has the time and the means to prepare her own sauces will doubtless find it greatly to her advantage to do so; but for those who cannot do this, the only safeguard is to obtain the sauces of a first-class dealer, and to be willing to pay a reasonable price for a superior article. The adulterations mostly consist of the substitution of inferior for the higher-priced ingredients.

Sauer-kraut is made from the leaves of the white cabbage, and it is extensively used in Germany and the north of Europe. It is said to be very wholesome, and it is a convenient preparation, because it will keep good for so long a time, so that in winter it affords an excellent substitute for fresh vegetables. It has, however, never become popular in England. The cabbages that are used for it are gathered when they have firm white hearts. These are finely shredded, and placed in a tub or vat with alternate layers of salt, to which some add juniper-berries and other condiments. The leaves are then subjected to pressure, and after a time an acid fermentation sets in and the vegetables become sour; then they are put into a cool place and kept for use. Sauer kraut is usually stewed in its own liquor, and served with sausages or bacon. It makes an excellent garnish.

Saunders Blue.—This word is a corruption from the French *cendres bleues*, or blue ashes, a kind of colour prepared from calcined lapis-lazuli. It is sometimes written "Sanders blue," and is like ultramarine in the peculiar shade of that colour.

Saury Pike, or Skipper.—A fish found on the British coasts, sometimes in vast quantities. It is about fifteen inches in length, is slender, and has a long nose like a garfish; the back is dark blue, and the belly white. Though an edible fish, it is not a delicacy.

Sausage Machines. — These machines, which are used for grinding, mincing, or pounding meat, may certainly be considered as one of the most useful of modern inventions. By their aid the meat is minced very efficiently and very quickly; and in making sausages the large machines will mix, cut the meat, and fill the skins at one operation. The small sizes are intended for family use, the larger for hotels and business houses. They are all applicable for mincing meat, vegetables, bread, herbs, and suet, and the size of the meat may be regulated by passing it through the machine once, twice, or three times, according to the size desired. The old plan of cutting meat was by means of cleavers, one in each hand — a practice in which some persons attained great dexterity. In early times in the West, sausage was cut on the block by an axe; but this was, as may be imagined, a very slow process. The earlier forms of sausage machines also used cleavers, which were at first on levers, tripped by cam movement from the main shaft. Afterwards knives were made to reciprocate vertically by means of crank and shaft. Of this form there are many modifications.

Sausages are well-known culinary preparations made either from fresh or from preserved meat. The fresh meat is chopped finely, and mixed with flavouring or other ingredients, chiefly bread-crumbs, then pressed into portions of the intestines of the animal, which have been previously cleansed and prepared for them. These sausages quickly decompose, and therefore need to be used soon after they are made. The sausages made from preserved meat, on the contrary, will keep a long time. In the island of Majorca it is customary for each family to make a supply of sausages sufficient to last for one year, and these constitute the ordinary food of the majority of the population. They are made entirely of pork, and they are not considered fit for use till they have been kept six months. Sausages are extensively prepared on the Continent, and they are much esteemed and extensively consumed. They are understood to be equal in nutritive value to three times their weight in fresh meat. They are made of meat only, and the flavour is agreeably varied. The peculiarity of the process of making sausages offers great temptations for their adulteration. The ingredients of which they are composed are so much disguised that their nature is doubted. When they are good they are very agreeable, and offer a convenient and welcome addition to the ordinary *ménu*. German smoked sausages are highly esteemed; the danger with them is that diseased pork has entered into their composition, which would be likely to cause the terrible and much-dreaded trichinous disease. The sausages of Bologna, in Italy, are also celebrated.

Sauté.— In cookery, the term sauté is understood to signify a process of very light frying. The proper English word is "toss," and in sautés the fillets of meat, or whatever is being fried, are frequently turned or tossed over with great celerity as soon as they are affected by the heat. The object of the tossing

is to prevent the burning of the frying ingredients and to cook them equally throughout. It is necessary for ordinary frying to use a large quantity of butter, oil, or other fatty matter, and this boiling fat creates a heat which has a roasting effect. In sautés a small quantity of fatty matter is used, and the constant tossing tends to keep the heat below the temperature which belongs to common frying. The word *sauté* is the French for "to jump," and means, as used in cookery, simply a mode of frying with very great nicety.

Sauté-pan.—The modern sauté-pan is a shallow copper vessel very much resembling a frying-pan, from which it differs in having the sides straight instead of sloping. By French cooks it is much used instead of a frying-pan, being particularly convenient for tossing quickly over the fire small collops, or anything that requires little cooking.

Sauterne.—The choice wine known as sauterne is one of the many varieties of claret, most of which are derived from the Bordeaux district; and from the Blanches, or dry white wine district, are obtained Sauterne Barsac, vin de Grace, and the exceedingly choice production called Château d'Yquem. Sauterne is a light, agreeable, refreshing drink, has a delicate, fragrant odour, and has a slightly rough or astringent taste, and if genuine has no unpleasant acidity. As a rule, the white wines of the Bordeaux class are finer flavoured and have a more delicate perfume than the red wines.

Save-all.—In the consumption of candles much waste is often occasioned by throwing away the ends of the candles which are too small to stand in the candlesticks. In order to prevent this extravagance, a contrivance may be bought, known by the name of save-all, which is fixed on the top of the candlestick, and by means of which not a particle of the candle need be wasted. In the days when the demand for candles was much greater than it is now, save-alls were used by all economical housekeepers, and were considered a very useful invention.

Saveloy.—Originally a saveloy was a sausage into the composition of which pigs' brains had entered, and which consequently required thorough cooking. This extra cooking was undertaken by the pork butcher, and after a time the term saveloy came to mean a sausage that was sufficiently cooked when bought, and that would keep for a time. The saveloys that are commonly sold in London shops at the present time are made of young pork thoroughly cured, and made red with saltpetre.

Savine.—A small shrub (*Juniperus Sabina*) which grows in the south of Europe and in the East. The tops of the young branches are collected and dried. These contain a strong, odorous, and acrid oil, and are used in the preparation of certain medicines, chiefly in the form of pills, but only under professional advice. An ointment is also prepared with them, and employed for keeping up the discharge from a blistered surface, but it must be used fresh.

Savings Banks.—Banks instituted for the receipt of small savings on deposit, for the encouragement of thrift among the poorer classes of the community. As far back as the year 1817 savings banks were recognised institutions in the country, but until then they were simply the result of private influence and philanthropy, and received no encouragement or protection from the State. In that year, however, an Act was passed "to encourage the establishment of Banks for Savings" in England and Ireland. By this Act the National Debt Commissioners were empowered to pay interest at the rate of £4 11s. 3d. per cent. on all sums deposited with them by the managers of savings banks throughout the country. From this date various enactments were from time to time passed, reducing the interest and limiting the amount to be deposited by any single person, as it was found that the benefits of the system were often reaped by persons for whom they were in no way intended. But these "old savings banks" were, after all, but forerunners of a sounder system. There were many objections to them, among which stood forth pre-eminent the lack of security for the funds invested by depositors. The trustees of these old banks, as a rule, gave their services gratuitously, thus introducing an element of charity into the concern very distasteful to a thrifty man; but in their hands lay, and indeed now lies in the case of such old banks as exist, sole power over the funds to invest them with the National Debt Commissioners or not, as they might think fit. The result of this has been that sad cases of fraud and dishonesty have from time to time blotted the otherwise bright pages of the history of savings banks in this country. But with the establishment of the Post Office Savings Banks (*which see*) in 1861, a new era in their history began, and depositors have now full Government security for their deposits and interest.

Savonnettes.—These, which are made especially for toilet use, are compounded as follows:—A poundweight of new white soap is shaved in thin slices into half a tea-cupful of rose-water; on to this boiling water sufficient to soften the soap is poured. A gill of sweet oil, two pennyworth of oil of almonds, and four ounces of spermaceti are put into a brass pan, which is set over the fire until its contents are dissolved; the soap is then added, together with a quarter of an ounce of camphor which has been previously reduced to powder by rubbing it in a mortar, with a few drops of lavender-water or other scent. The whole is boiled for ten minutes, then poured into a basin, and stirred until it is thick enough to roll into hard balls; this last process should be accomplished as quickly as practicable.

Savory.—An aromatic herb used for flavouring dishes, especially beans. There are two kinds, one of which, the summer savory (*Satureia hortensis*), is grown from seed, and used both green and dried. The other sort, or winter savory (*Saturcia montana*), is used for the same purposes, and can be grown from slips and cuttings. To secure a supply of winter savory, it may be cut just before the flowers expand,

and then dried by being hung up in a warm place, not in the sun. When dry, the cuttings are to be pressed into a mass in small wooden boxes, and afterwards wrapped in paper, in which condition they will keep good for a long time.

Savoy.—This plant is a cultivated variety of the cabbage, having a firm close head and peculiar crinkled leaves. It is cultivated for winter use, and is best after frost has touched it. There are many sub-varieties in cultivation. Savoys should be planted out like other cabbages on a rich soil, and have plenty of room and good manure, and thorough watering in dry weather. When wanted for early winter use, the seeds should be sown about the middle of March, and they will be ready to plant out in June. Good sprouts will grow on savoy stumps, and these will be fit for use when other greens are scarce. Savoys with half-grown heads are named savoy coleworts.

Sawdust, Jewellers'.—This is the sawdust of boxwood, and is used for brightening and drying gold chains, &c., which are placed in it and well shaken, and afterwards taken out and carefully brushed clean. The sawdust may be improved by being placed for a short time in the oven, to warm and thoroughly dry it; after this some place the sawdust in a bag and put in the chains, &c., and shake them well.

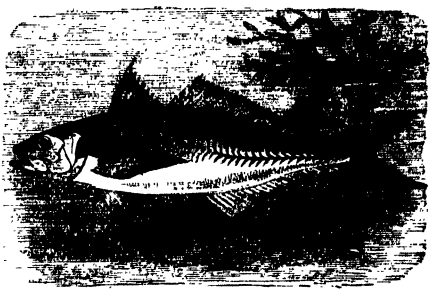
Saws.—Of all tools the saw is that which plays the most useful and common part in all kinds of working in wood. Saws vary chiefly in the size, number, and forms of their *teeth*, each of which acts as a kind of chisel, which, passing in rapid succession over the surface of the wood, scrapes it away, and thus forms a continually-deepening groove. The points of the teeth are most commonly in one direction, and in their action are regulated mainly by the vertical pressure, which in its turn is influenced by the weight of the saw-blade and the relative position of the handle with regard to the line of the teeth. The pressure will, of course, be otherwise affected by the position and wrist of the workman, the variation in the angles of the teeth at front and back, the number acting together, and the nature of the wood with regard to its texture, the direction of its fibres, &c. The blades of saws vary in shape and thickness to meet their varying requirements and applications. *Hand-saws* are used for making straight cuts only. *Compass-saws* are those which have narrow blades, suiting them for cutting curves and circles. *Back-saws* are those which have their backs strengthened by a piece of brass or iron bent over on either side and riveted to the blade, which thus aided may be made thinner than would otherwise be possible. *Bow-saws* are made with a framework over them to receive the thrust, and thus enable the maker to reduce considerably both the thickness and the width of the blade. (*See* Carving in Wood; Fretwork.) The teeth of saws are sharpened with files formed to meet the special requirements of different kinds. The saw is said to have had its origin in the use of a fish-jaw, of which it was originally an imitation.

Saxon Point Lace. (*See* Lace.)

Saxony.—Cloth or flannel made of Saxony wool is considered superior in quality to those woven with wool brought from other countries. This is owing to the peculiar softness and fineness which the fleece of the merino sheep assumes when the animal is pastured on loamy soil such as that of Saxony. The wool obtained from the same breed of sheep in Spain is of a much harsher character. The cloth made from Saxony wool is manufactured in the west of England; the flannel, which on account of its superior softness is particularly suitable for infants' garments, is made chiefly at Saddleworth, near Halifax.

Scabies. (*See* Itch.)

Scad.—This is another name for the horse-mackerel, called by naturalists the *Trichiurus*,



SCAD.

and belonging to the *Teenioides* family. Although nearly allied to, it is not a true mackerel.

Scagliola is a composition laid on brick in the manner of stucco, and worked off with iron tools, giving to buildings, columns, &c., the appearance of marble, from which it can with difficulty be distinguished, as it takes an equally high polish and feels equally hard and cold. It has long been in use in Italy, but was not introduced into this country till the latter half of the last century, the columns of the Pantheon, in Oxford Street, being the first application of it in England. The following are its component parts:—A given quantity of limestone, of the kind usually employed for mending roads, should be pulverised by beating or grinding, or it may be taken from the road in a pulverised state. This, when dried, is calcined in a furnace in the usual way. A similar quantity of argillaceous earth is then to be mixed in water with the calcined limestone, and the whole perfectly incorporated into a plastic paste. The mixture is next to be placed in shallow vessels for the purpose of evaporation. When in a dry state it is broken into lumps of suitable sizes, and calcined again in a furnace similar to a lime-kiln till the carbonic acid has been entirely expelled. The mixture thus prepared is then to be pulverised by grinding or beating, and when reduced to a fine powder is in a fit state for use, and, with the addition of so much water as will be sufficient to make it of the consistency of mortar, can be applied to its purpose.

Scald.—This is another name for a burn (*which see*), and is distinguished from it in this

particular only, that in a scald the burning agent is either a fluid or of a fluid character, whilst in a burn the agent is either a solid body or fire—of course, the distinction is arbitrary and unscientific. The term scald is often popularly applied to a variety of skin diseases affecting the head. (*See next paragraph.*)

Scald-head.—This is the name popularly given to certain forms of skin disease, as eczema, &c., affecting the head, and which are usually characterised by a great deal of scab and mattery discharge. Strictly speaking, the term scall, or scald-head, should only be applied to a parasitic disease called favus. (*See* ECZEMA; FAVUS.)

Scalds, Treatment of. (*See* BURNS AND SCALDS.)

Scales.—A well-known instrument used for weighing. There are many varieties, the principles of which are explained under the heading of BALANCES.

Scallop.—The real name of the shell-fish popularly known as the scallop is the *Pecten*. This fish somewhat resembles the oyster in appearance and the crab in taste. It is comparatively little known, although when fresh and well cooked it is very delicious. Varieties of the species are found in all parts of the world, the one found on the British coast (*Pecten maximus*) being about six inches broad. The deep shells of the scallop should be carefully preserved after they have been used, as they may be made to serve as a substitute for the silver scallop-shell in which it is usual to send scalloped oysters or chicken to table. Scallop-shells are found in abundance on the shores of Palestine. They used to be worn by pilgrims as a sign that they had been to the Holy Land. Some of the larger varieties of the shell-fish are popularly known by the name of clams.

Scallop Pattern.—The form of this is that of the segment of a circle which has small indentations round the segment. The name is derived from the French, a shell-fish so called, the shape of whose shell this outline resembles. This pattern is much used in embroidery, more particularly in the edging intended for washing garments, because it is much more durable than the vandyke edge, whose points are more liable to break than the rounder form of scallop. Trimmings of this nature are more serviceable when the scallop is worked in thick button-hole stitch than when it contains a number of holes round the edge.

Scalp.—This is the integument which covers the cranium, or skull. In structure it is very dense and firm, and is largely supplied with blood-vessels. It is owing to the latter circumstance that wounds of the scalp bleed so profusely as they sometimes do; and it is by no means uncommon, when some large vessel has been injured, for the blood to collect underneath the scalp, and thus form a species of tumour, which sometimes results in inflammation and other serious consequences. In treating wounds of the scalp, it is necessary to cut closely or shave the hair for some distance around the wound, then wash the latter, very carefully drawing the edges together with small pieces of adhesive plaster which have been just dipped in boiling water, applying a pad of wet lint, and then a bandage over all. The plaster should be so adjusted as to leave a little opening for the discharge of matter, should suppuration take place. It is not usual or advisable to apply stitches to wounds of the scalp, owing to the risk of inflammation. The absorption of the tumour of blood previously mentioned may be facilitated by cooling lotions, saline aperients, rest, and careful diet.

Scalpel.—This is a small knife used by surgeons for dissecting, and for performing minor operations.

Scammony.—This is the *Convolvulus scammonia*, belonging to the natural family *Convolvulaceæ*, and is a native of Greece, where it is found growing wild in hedgerows and thickets. The root is used in medicine, and when pure and unadulterated it is one of the best cathartics we possess, the dose being from five to ten grains of the powder. It is hard, however, to find [illegible] by the doses may be much more. In ca[illegible] old banks, as a rule, gave their servi[illegible] rapid state[illegible]tously, thus introducing an element of apo[illegible]y into the concern very distasteful to a is usy man; but in their hands lay, and indeed there[illegible]es in the case of such old banks as exist, a portion[illegible]ower over the funds to invest them with[illegible] purg[illegible]national Debt Commissioners or not, a[illegible]d to t[illegible]might think fit. The result of this [illegible]e calor[illegible]that sad cases of fraud and dis[illegible]

S[illegible] from time to time blotte[illegible] rumour, or an actio[illegible] pages of the histo[illegible] affronted in public. Scan[illegible]s country. But, injurious, by making the reco[illegible] Post Office Sav[illegible]he court the means of perpetuating libel[illegible]a new[illegible]nd malignant slanders; and the Cou[illegible]rs ha[illegible]n aid of the public morals, is bound to interfere to suppress such proceedings. "If that which is stated," said Lord Eldon, "is material to the issue, it may be false, but cannot be scandalous; if relevant, it is not impertinent, though scandalous; if relevant and pertinent, it cannot be treated as scandalous; if false, it must be dealt with in another way. But if irrelevant, and especially also if scandalous, there would be much greater reason to regret that a Court should not be armed with the power to protect parties from the expense, and its records from the stain which arises from the introduction of irrelevant and scandalous matter." It is provided by the Judicature Act, 1875, order 27, rule 1, that the Court or a judge may order to be struck out, or amended, any matter in the statements of claim, defence, or reply respectively, which may be scandalous, or which may tend to prejudice, embarrass, or delay the fair trial of the action. By order 31, rule 5, scandalous or irrelevant interrogatories may be struck out on the application of the party required to answer.

Scantling.—This is a name given by carpenters and builders to small timbers such as are in use for the quartering in a partition (*which see*), rafters, purlins, or pole-plates in a roof. All quartering or squared timber under five

inches square is called scantling. In carpentry, the term is used to express the transverse dimensions of a piece of timber. Masons employ the same word to designate the size of stones in length, breadth, and thickness.

Scapular, or Scapulary.—Part of a monastic dress. It consists of a long strip of serge or stuff, the centre of which is passed over the head, while one end hangs down in front and the other behind. The colour and the length vary with circumstances. The name scapular is also given to a small piece of stuff which is worn by certain persons, members of a Roman Catholic association, but not monks or nuns. This scapular is often square, is tied about the neck, and is placed beneath the outer clothing.

Scarf.—A long straight piece of material worn across the shoulders as an extra covering, or tied round the neck. This article of dress is of ancient form and universal use. At the commencement of this century it was customary for elderly ladies to wear a scarf in-doors, and very beautiful specimens still remain of those used for evening attire. These were made of lace, of silk, brocaded satin, China crape, gauze, and other delicate tissues. The scarf does not become every figure; when the wearer has high shoulders it will not remain in its proper position; sloping shoulders and a slender figure are required for a scarf to look graceful. Latterly, small scarves have been worn round the neck by both sexes; these are cut the cross way of the material. If made of thick silk or satin they are somewhat expensive, but as such wear much longer than those cut from thin materials of that kind, and as also they can be re-dyed most satisfactorily, the increased cost at the outset is amply repaid.

Scarf Pins and Rings.—A scarf-pin is a large pin usually of gold, but also made of other metals, with an ornamental head, frequently set with diamonds and other precious stones, but met with in a great variety of forms. Its name indicates its use. Scarf-rings are sometimes round, sometimes oval, and sometimes almost globular, with an upper aperture for the two ends of a necktie, and two lower apertures, one for each end of the tie. All these are commonly made of gold, and are often set with jewels.

Scarlatina.—This is the term popularly given to a mild form of scarlet fever. The term is sometimes misleading, as the impression which it is more or less intended to convey is that the affection is not scarlet fever, and therefore is not contagious or infectious. It cannot be too strongly stated that scarlatina has the same origin and possesses all the characters of scarlet fever, though in a less virulent form; and to this also it may be added that though less violent it is often attended with fatal results, owing to certain complications, or *sequelæ*, as they are called, which but too frequently arise from the neglect of proper precautions on the part of parents and nurses, caused, no doubt, by the confidence with which the mildness of the attack inspires them. (*See* SCARLET FEVER.)

Scarlet Beans, or Scarlet Runners.—Another name for French beans. (*See* BEANS.)

Scarlet (Colour and Dye).—The term is of Eastern origin; in Persian it is rendered *skarlât*. 1. An orange-red colour, a compound of crimson and yellow. 2. Cloth of that colour. To produce a very bright tint, woollen cloth must first be dyed yellow by means of any of the yellow dyes, and then plunged into a bath of cochineal, with tartar and nitro-muriate of tin (chloride of tin). For common crimsons, alum is employed as the mordant and cochineal as the dye. Should a pale colour be required, a little madder may be added to cochineal. Silk cannot be dyed a full scarlet, but the nearest approach to that colour may be procured by first impregnating it with murio-sulphate of tin, and then dyeing it in a bath composed of four parts of cochineal and as many of quercitron.

Scarlet Fever.—This is a highly contagious and infectious fever, originating in some specific poison, the exact nature of which is not known, but which finds its way into the body, and produces certain characteristic phenomena there. Scarlet fever is frequently epidemic in this country, and, curiously enough, these epidemics make their attack with some appearance of regularity, beginning in a mild form and affecting comparatively few persons, then increasing both in virulence and prevalence for three, four, or five years, afterwards gradually subsiding and for a time almost disappearing. It is to this peculiarity—viz., the ebbing and flowing of the disease—that the term "waves of scarlet fever" has been applied, and by it careful observers are enabled to foretell pretty accurately the advent, character, and probable duration of an epidemic. The symptoms of an ordinary attack of scarlet fever are as follows:—After a period of what is called incubation, which varies from a few hours to ten days, the affected person is seized with alternate fits of heat and cold, thirst, vomiting, sore throat, white tongue red at the edges, high temperature, more or less enlargement of the glands of the neck, and great feverishness. These symptoms are succeeded, in two or three days—sometimes more, sometimes less—by a characteristic rash of a bright red colour, which commences on the forehead and face, gradually extends to the trunk, and finally covers the extremities, being especially vivid and conspicuous in the neighbourhood of the joints. This rash lasts about four days, and then recedes in the order in which it came, the cuticle, or scarf-skin, peeling off either in large flakes or fine powder, its vitality having been destroyed by the rash. This peeling process is called desquamation. With the disappearance of the rash the fever subsides, and the tongue loses its peculiar white appearance and becomes beefy red. The period of desquamation may last for some time, and until it has ceased great care must be taken to protect the new skin, which is very susceptible to cold. Scarlet fever has received several names, derived either from the violence or mildness of the attack, or from the prominence of certain local symptoms. Thus, for example, when there is little fever, little

sore throat, and the rash is the only distinctive feature, it is called *scarlatina*. Again, when the throat is the part chiefly implicated, it is called *scarlatina anguiosa;* and in certain other cases where the throat symptoms are yet still more serious, or when the poison has been so violent as to impart such a shock to the system as to endanger life, then the fever has been called malignant (*scarlatina maligna*). Lastly, there are instances when no rash or other symptom of scarlet fever has been observed, and yet what are called the *sequelæ* of the disease—viz., anasarca, general dropsy, &c.—have occurred; to this form the name of latent (*scarlatina latens*) has been given. *Treatment.* Mild cases of scarlet fever require no special medicinal treatment; confinement to a well-ventilated room, an occasional saline aperient, cool acid drinks, diet consisting largely of milk and farinaceous food, and, during the period of desquamation, the daily bath, are all that is required. It cannot, however, be too strongly urged that, though these cases require nursing only, they are just as likely, if not more so, to be followed by the *sequelæ* already mentioned as the more serious form of the fever, and this result is in most cases due to some foolish indulgence or impropriety on the part of the nurse. If the throat is very much affected, with swelling of the glands of the neck, steaming hot flannels may be applied externally, and frequent inhalation of steam will also give great relief. In certain cases leeches and poultices will be necessary. The following mixture may also be given to a child about six years old:—Chlorate of potash three grains, nitrate of potash one grain, dilute nitro-muriatic acid one drop, syrup of orange and water of each half a tea-spoonful; to be taken three times a day. If dropsy occurs—easily recognised by puffiness under the eyes, swelling of the face, abdomen, and legs—the warm bath must be resorted to, and cathartics, such as the compound jalap powder, given almost daily. The strength must be at the same time supported with steel wine, cod-liver oil, &c., and a generous diet. With regard to the fever, it must never be forgotten how highly contagious it is, and therefore every precaution is necessary in the way of disinfection. All the secretions should be received into vessels containing some disinfecting fluid; the linen, when taken from the body, should be treated in the same way, as well as everything which the patient has touched, tasted, or handled. The bath water used during the desquamating process must be particularly dealt with, and carbolic soap will at this period be found useful.

Scarlet Lake.—A colour produced from a combination of aluminous earth and cochineal.

Scars.—These are the marks which remain upon the skin after a wound or sore has healed. (*See* Cicatrix.)

Scene Painting.—This is executed in distemper colours upon sheets of canvas. The artist chiefly aims at effect, and his work, though coarse, is rendered brilliant and showy by the use of conspicuous colours. The materials used are water, size, turpentine, and ordinary pigments. Success depends on skill in perspective, drawing, and a knowledge of the effects of colours under special conditions.

Scent-bags. (*See* Sachets.)

Scent-bottles.—These are small bottles made of glass, which have a glass stopper, and a cover over that of silver, gold, or plated metal. Bottles of this description usually contain aromatic vinegar, eau de Cologne, sal volatile, or pungent salts, according to the predilection of the owner. The most convenient form of bottle is that which is long and round, and has stoppers at either end, for this enables it to be held easily and applied readily. The prettiest are those made of coloured glass; ruby, turquoise, blue, or emerald green are very effective colours. Scent-bottles made of moulded glass and with plated lids may be bought for a few pence; the more expensive kinds are made of cut-glass, and have gold or silver lids attached by a hinge to the rim of the bottle: these lids are often chased, embossed, or studded with precious stones. When using a scent-bottle, the glass stopper should never be pushed in or turned round when in the bottle, for stoppers are very liable to become fixed and immovable if not put in carefully; when this difficulty happens, warm water or oil must be employed. (*See* Glass Stoppers, To Loosen.)

Scents. (*See* Perfumes.)

Schedule.—A small scroll or piece of paper usually annexed to and forming part of some larger document. The word is derived from the Latin *schedula*, the diminutive of *scheda*, a parchment or scroll, which is in its turn derived from the Greek *schidē*, a piece cut off. In English jurisprudence, a schedule is understood to mean a document attached to another, and forming, for legal purposes, part of it—such as the schedule to an Act of Parliament; the schedule or inventory of goods attached to deeds, leases, &c.

Schiedam.—The name of Schiedam is frequently given to the variety of gin called Hollands, simply because a greater quantity of this spirit is made at Schiedam than at any other town in Holland. Genuine Schiedam is a rich, mellow, soft spirit, and is highly esteemed by connoisseurs. (*See* Geneva; Gin.)

Scholarships.—Foundations at colleges and universities for the maintenance, in whole or in part, of deserving scholars, under certain fixed regulations. Scholarships usually take the form of an annual payment of from £40 a year upwards for a specified number of years, such annual payments being, as a rule, contingent on the success of the scholar at certain examinations. At the colleges of Oxford and Cambridge there are a considerable number of scholarships specially set apart, according to the wish of the founder, for candidates from certain schools, and a small proportion are subject to special regulations in respect of place of birth. The majority, however, are open to all comers, and are competed for by public examination.

School Board Elections.—The regulations for the election of school-boards depend

upon the three Statutes known as the Elementary Education Acts of 1870, 1873, and 1876. As explained in a paragraph on school-boards (*see* NATIONAL EDUCATION), proceedings for their establishment may be initiated either by the Education Department or by the ratepayers. Should a meeting be called by the ratepayers of a parish or "school district" to decide as to the formation or non-formation of a school-board, and should the meeting decide to the contrary, it is provided that no further vote can be taken on the subject until after the lapse of twelve months. A school-board having been assented to by the ratepayers or ordered by the Education Department, the election proceeds. All burgesses in a borough and all ratepayers in a parish are entitled to vote, each voter having a number of votes equal to the number of members to be elected. The voting is in all cases cumulative—that is to say, the votes may be distributed among the candidates or concentrated on one at the will of the elector, this regulation being intended to guard against the non-representation of minorities. There is no prescribed qualification for membership of a school-board, although there are a few disqualifications, legal and personal. Among the former may be mentioned questions of property, rating, and residence; and amongst the latter, minority, alienship, and insolvency. Women are eligible, and those elected have been very efficient and valuable members of the board. School-boards are elected triennially, and all the members go out of office together.

School Boards. (*See* NATIONAL EDUCATION.)

School Books.—Under this general title are included a large variety of books used for the purposes of education, such as copy-books, ciphering-books, exercise-books, arithmetics, histories, geographies, grammars, text-books, &c. Whether selected by the schoolmaster or the parent, great care should be exercised in the choice of such books, as, next to the personal work of the teacher, the success or non-success of early education depends upon the appropriateness of the books used for the purposes of study.

Schools.—Establishments for general education, very various in nature and character, extending upwards from the primary and preparatory schools of the country to the universities and technical schools and colleges. All of these will be found separately described under the headings of COLLEGES; EDUCATION; EDUCATION, TECHNICAL; GRAMMAR SCHOOLS; NATIONAL EDUCATION; PUBLIC SCHOOLS; UNIVERSITY.

Sciatica.—This is a painful disorder which affects the sciatic nerve or its sheath in its course along the hip and back part of the thigh. The affection at times appears to partake of a purely neuralgic character, the pain being both excruciating and intermittent, and unaccompanied by any constitutional disturbance other than that which the severity of the pain occasions. In this form of neuralgic sciatica the nerve itself is affected; but in another form, which has its origin in chill (from damp sheets, for example), in rheumatism, or gout, the sheath of the nerve is the seat of the disease, and this is found generally more or less inflamed. There is a third form of sciatica, to which women are subject, and which is purely hysterical. The treatment of neuralgic sciatica consists in the administration of quinine, with bromide of potassium, or opium, or of some other medicine which is found serviceable in neuralgia (*which see*). Blisters and the hypodermic injection of morphia are most valuable remedies, and in certain cases afford the greatest relief. When sciatica is of a rheumatic or gouty origin, then the remedies suitable for these diseases must be resorted to. When it occurs in women who are hysterical, and is clearly of that character, then the medicines and general treatment which are found useful in hysteria will do much good; but it is important that every care should be taken not to make any mistake as to the exact character of the sciatica, as the treatment which is found beneficial for one form of the disease may prove injurious in either of the other forms. Persons who have suffered from sciatica should always wear flannel, and carefully avoid exposure to prolonged cold and such things as have a tendency to lower the vital power.

Scire Facias (that you make known).—A *scire facias* is a judicial writ founded upon some matter of record, and requiring the person against whom it is brought to show cause why the party bringing it should not have advantage of such record, or (as in the case of a *scire facias* to repeal letters-patent) why the record should not be annulled and vacated. It is deemed an action and in the nature of an original proceeding. It is used for a variety of objects, the most common one being to revive a judgment after it had become extinct.

Scissors.—An article the superiority of which consists more upon the amount of workmanship consumed in their manufacture than any other description of cutlery. The blades, in the majority of sorts, are pretty similar in their general outline, it being mainly upon the bows and shanks that the labour and ingenuity of the workmen are expended. The difference in the quality of scissors is almost equal to their diversity of shape, a single pair of show scissors having cost ten guineas, while vast quantities are manufactured for exportation at the rate of a few pence per dozen. The following are the principal varieties of scissors:—1. *Cast-steel polished scissors.* These are hardened in the blades, shanks, and bows, and comprise the finest sorts, and are mostly used by ladies; and to a lady is attributed the distinction of having inspired the felicitous idea of *hard polishing*, Mr. Robert Hinchcliffe, of Sheffield, having in the year 1760 manufactured a pair of this description for presentation to the lady of his choice—an improvement which has been adopted by all manufacturers. 2. *Shot scissors.* These consist of steel blades and iron shanks and bows. Large scissors in general, including tailors' shears and those used in dressing horses, are thus manufactured. 3. *Shear-steel scissors.* The blades only of these are hardened; the sort most in vogue for ordinary purposes. 4. *Lined blades.* Scissors of all the larger

sizes are often made entirely of iron, with the exception of a slip of steel welded along the edge of the blade. Besides those already mentioned, there are fancy scissors, with shanks and bows of gold, silver, &c.; lamp-scissors, for trimming the wicks of oil-lamps, one blade of which curves outwardly and forms a plate to prevent the wick from dropping; and several lesser kinds of scissors too numerous to particularise.

Scolding.—It is only necessary to mention this as a very bad habit to be avoided in every family. The scolding of children, servants, and other members of a household weakens the bonds of attachment and affection, discourages the objects of it, and never leads to any good result. Rebuke may sometimes be necessary, but that is consistent with authority and dignity, whereas scolding can only result in being destructive both of dignity and of authority. The evils of endless fault-finding, are, in fact, innumerable.

Scones.—The triangular cakes known as scones are made either of flour or barley-meal, and seem to be more highly appreciated in Scotland than they are with us. They are made very much after the same principle as tea-cakes and light buns, and are plain or rich according to the amount of butter allowed. In Scotland, scones and oat-cake are baked on a girdle; but as this is not used in England, the hot plate must be substituted, and will be found to answer the purpose very well.

Scoops.—A scoop is a sort of ladle used to convey substances from one place to another. There are many varieties, and the scoop takes its distinctive name from the special use to which it is put. Thus there are sugar-scoops, flour-scoops, cheese-scoops, &c.

Scorbutic. (*See* Scurvy.)

Scorched Cotton or Linen, Treatment of.—One of the best restoratives to original whiteness of texture for these two fabrics is that very simple one—the open air. Before putting out the articles they should be made thoroughly wet, and have a layer of soap rubbed on the surface; then they should be left exposed to sun or rain for a few days. Another method for restoring scorched linen will be found described under the heading of Linen, Care of.

Scorzonera.—A plant used in cookery, a native of Southern Europe and the East. The roots are the part used, and in form resemble small carrots, but are of a dark colour externally and white inside. They possess useful properties, but require to be properly cooked. They are scraped, soaked for a time in water, and then boiled, and served like parsnips. The plant is a perennial, can be cultivated in this country, and will endure the cold of severe winters. One variety of scorzonera has a pale outer skin.

Scot and Lot (from the Saxon *llot*, a chance or lot, and *sceat*, a part or portion).—This term formerly indicated certain duties payable by those who claimed to exercise the electoral franchise within certain cities and boroughs before they were entitled to vote. It is said that the practice became uniform to refer to the poor rate as a register of "scot and lot" voters, so that the term, when employed to define a right of election, meant only the payment by a parishioner of the sum to which he was assessed on the rate. (*See* Electoral Franchise.)

Scotch Barley. (*See* Barley.)

Scotch Bread, or short-bread, or short-cake, as it is variously named, is a kind of crisp cake highly esteemed in Scotland. It is made of flour and butter, flavoured with citron and chopped almonds, and ornamented with caraway comfits or strips of candied citron. The edges of the cakes are usually pinched neatly, and dabbed on the top with an instrument specially used for the purpose called a dabber. Scotch short-bread, made very rich, is frequently sent as a holiday present from Scottish people to their friends in England.

Scotch Fir. (*See* Fir-wood.)

Scotch Kale.—The varieties of the cabbage tribe are very numerous, and the different plants vary almost as much in appearance and flavour as in name. The Scotch or Siberian kale is one of the most important of these, and is very useful as a winter vegetable. It is handsome in growth, very hardy, and sweet and delicate when cooked, often coming in when no other greens are to be had. The pretty, showy, variegated kale is a variety which is useful for garnishing, and very ornamental while growing.

Scouring.—This term is one often used for the methods which are employed to take away grease spots or other disfiguring marks which could not be removed from woollen fabrics by the ordinary process of washing. When the English method is followed, the cloth is stretched on a board and brushed with strong soap liquor; after this has been thoroughly done, a weaker dilution of soap is used, and then warm water only; finally, the garment is drained, dried, and pressed. This treatment is adopted for strong materials, such as cloth or carpets; the more delicate fabrics are not subjected to hard brushing. In all cases the grease spots receive special attention. The French method is that universally employed for cleaning gloves: the articles are put into camphine, it being asserted that that spirit does not injure colours and at the same time dissolves grease. Old-fashioned housewives used to extract grease spots from their dresses by placing clean brown paper on the place, and holding a hot iron over but not on the paper, when the heat drew the grease into the paper. The use of benzine has now superseded this simple process. When this cleansing liquid is used, the spot should be well saturated, and then the material should be held tightly, and rubbed until dry with a clean cloth. Ammonia is very useful for cleaning and restoring colour to black materials. When wood or stone requires to be scoured, sand and a hard brush are the best aids to whiteness. Sand takes away the

greenish hue and the blackish colour which stone and wood often assume when not kept in proper order. Soda is often used for this purpose, but it will never give that whiteness of appearance which sand produces. Some housewives buy the outside husks of the cocoa-nut in lieu of a brush; these scrubbers are more effectual and more economical. Boards should be brushed the way of the grain, and should not be made very wet; the best method is to scatter sand over them, and then to brush them with a wet brush; afterwards to wash the floor with a thick scouring flannel, drying the boards as much as possible while doing so. In addition to the liability of the water trickling through the crevices and spoiling the ceiling of the room underneath, there is the certainty that the appearance of wood is not improved by being made very wet.

Scrap Albums and Books. — These may be made in almost endless variety, according to the purpose for which they are designed. Sets of strong cards, ornamented with views, scraps, &c., and bound together in the fashion of fans, make very pretty books. In the case of bound books, if not already so prepared, every other leaf must be cut out; otherwise, when the pictures are pasted in, the book will swell beyond the dimensions of the binding.

Scrap Screens. — The arrangement of these is a most interesting and fascinating employment; it should be followed in a room set apart for the purpose, for as not much can be done at a time at any one portion, the various preparations for and parts of the work should remain undisturbed. The use of an attic or of a closet-room is generally practicable. Sometimes old screens are utilised; when one is not at hand, a proper one must be bought. The framework of this is deal, over which canvas is strained very tightly. The screen is then sized with very strong hot size; when dry, it is covered with brown paper pasted on both sides, in order that it may dry without creases and be quite tight. The framework of a screen about five feet high would cost 4s. per flat or leaf; if canvassed ready for use the price would average 10s. a leaf. So far the plan of preparation is always the same; the method of decoration is chosen according to the ideas held by the decorator. Some persons place the pictures close to the edge of the screen, others paste black paper round it to serve as a background for a border of flowers. The pictures require to be treated in the following manner:—After being carefully cut out, they are put first into water, and then dried with a towel; they thus have the stiffness taken away and are slightly damp. Ordinary paste is used; when placed in position, they are rolled until quite flat and without a crease. After the screen is covered it is sized and then varnished. This last process is one seldom satisfactorily accomplished by amateurs; it is a difficult task to varnish a surface of that description without leaving a streaky effect, which, of course, spoils the general appearance. The general fashion is to place whole pictures, more or less large, on the screen, and to fill in the interstices between with indiscriminate scraps of flowers, birds, or insects. A more difficult mode, but one which affords the most interest and exhibits the greatest skill, is that of forming complete pictures out of pieces of other pictures. Due regard is paid in this case to perspective and proportion, and in this way most ingenious combinations can be formed. Extremely pretty landscapes, rural scenes, town life, &c., can be made by taking many scraps and placing them judiciously together. For this, patience as well as an artistic eye will be required; thus, for a stretch of sky or length of ground, which are the two most difficult points of attainment, many minute pieces are often required, all of which must match in character. Such pictures give more constant pleasure than those in which relative size is not considered, as when a bird appears to be larger than the boy it is near, and a man stands higher than a tree. Strips of flower bordering can be bought, but borders of this kind are apt to look stiff; not so when the flowers are all cut out and placed on separately, for greater variety can be given in this way. For the sake of diversity, one side of a screen can be covered with coloured scraps and the other with engravings or photographs; or one side can be made grotesque and the other grave; or, thirdly, there can be a summer and a winter side, composed severally of pictures which accord more particularly with those two seasons.

Scrapers. — Scrapers are simply-formed instruments for the purpose of scraping, and vary in shape to suit them for the different kinds of scraping for which they are employed. The scraper used by shipwrights and seamen is a small iron triangular instrument, having all its edges sharp and a handle at its middle, to fit it for the purpose of removing dirt from the surface of the planks of a vessel's deck or sides or masts; they are made with one scraping edge, and sometimes with two handles. A piece of iron with its edge upwards fixed near the outer door, or fitted in a firm heavy stand, and used for cleaning the soles of boots and shoes after walking, bears the same name. The mezzotinto scraper is an instrument used by engravers, being merely a blade of steel one edge of which tapers to an edge and ends in a point, &c.

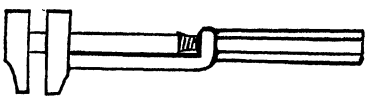
Screening, in its general meaning, is equivalent to sifting. The dust of coal and the smaller particles are removed in this way, and the coal subjected to this process is known as screened. Sand is also screened, to separate the finer from the coarser particles, &c.

Screens.—Those of large size intended to stand on the floor are made of wood, or of canvas stretched on a framework of wood. These usually have two or more divisions, which are joined by hinges. This class of screen is especially useful in dining-rooms when space allows it to be placed near the door, the constant opening of which for the entrance of dishes often causes discomfort to the diners, unless protection from draughts is afforded by a screen. Of late years the fashion has arisen of

covering these screens with coloured pictures. (*See* SCRAP SCREENS.) Another description of screen is that known as the cheval screen; this is not so much used as formerly. A frame of carved woodwork stands on the ground, and the centre exhibits needlework of some kind—very often coats of arms embroidered on fine cloth, a picture or representation of birds or flowers worked with wool, or an artistic arrangement of feathers. There are also banner and hand screens (*which see*).

Screens, Decoration of.—Feathers are an unfailing resource, and if these are arranged with the nicety and picturesque effect which the Indian natives exhibit in their productions, this style of decoration is not to be surpassed in beauty. Peacocks' feathers are the most prized, their feathery filaments adding grace to beauty; those of the macaw are more brilliant in colour, but somewhat stiff in appearance. The pheasant, the guinea-fowl, and the jay contribute pretty specimens for the purpose. Pictures of all kinds; embroidery on cloth, silk, satin, velvet, leather, or gauze; flowers and fruits painted on silk—these are various methods used for the decoration of screens.

Screw Drivers, Wrenches, and Keys.—Screw-drivers are chisel-shaped tools used for driving common screws into woodwork, &c., the head of the screw being provided with a cleft to receive the edge of the tool. Screw-wrenches are tools employed to grasp the heads of large screws used for fastening together parts of machinery, &c. There are various forms of screw-wrenches, among them



SCREW WRENCH OR HAMMER.

being that figured in the accompanying illustration, which is popularly known as a screw-hammer. Screw-keys are a simple form of wrench, consisting of a curved bar of metal fitted at either end with a key, with which to grasp the heads of rivet-screws, &c.

Screws.—Cylinders of wood or metal, consisting of a helical ridge or groove winding round a cylinder. The screw is one of the most powerful of the six mechanical powers. *Screw-nails* and *wood-screws* are the screws familiar to every one, much used by carpenters and mechanics for fastening together two or more pieces of wood or other material. Small screws are turned and driven in by means of tools called screw-drivers (*which see*).

Scrip.—A certificate given in receipt for money paid on account of shares in any joint-stock undertaking, preliminary to the registration of the shareholders; also a certificate given on payment of instalments towards public loans previous to the issue of the bonds.

Scrivener.—A writer; a term not now in common use, but properly applied to one whose business it is to draw up and engross deeds, conveyances, and securities for money, and other legal documents.

Scrofula.—This is a disease of the tubercular order, closely allied to consumption, and popularly known as king's evil (*which see*).

Scroll Pattern.—A term derived from the Norman-French *escourelle*, a roll. The distinctive device of this pattern is that of a spiral or continuous design which resembles the unwinding or unrolling of a long length without break or detachment.

Scrubbing-brushes.—It is a good plan to allow each servant (who requires scrubbing-brushes at all) to have two of these useful articles for her own separate and exclusive use. One of these should be for scrubbing boards, and the other for any dirty work there may be. As the brushes become old they should be kept for cleaning down the sink. Good bass brushes are more cleansing, as well as cheaper, than those made of hair. They wear out more quickly, but as they cost only about a third the price of the others it is well worth while using them. Vulcanised india-rubber brushes are, perhaps, better than any others, but they are expensive in the first instance.

Scruple.—A weight of 20 grains, or the third part of a drachm. (*See* APOTHECARIES' MEASURE.)

Scullery.—The name of scullery is given to the small apartment adjoining the kitchen where dishes, pans, and other culinary utensils are cleaned. Skulls and shells were the cups, bowls, and dishes of barbarous tribes: hence the origin of the word scullery.

Scullery-maid.—The position of scullery-maid is lower than that of any other domestic servant, the kitchen-maid being under the cook, and the scullery-maid under the kitchen-maid. The work of a scullery-maid consists almost entirely in washing dishes, plate, pans, kettles, and cooking utensils, and doing all such work as must be performed in the scullery. Young girls are usually chosen for scullery-maids whose experience is limited, and who consequently expect only small wages. In many cases, however, it has been found that scullery-maids have by quickness and intelligence very soon fitted themselves to take a higher position. In a large kitchen, where a scullery-maid has over her a clever cook and a good kitchen-maid, she may, if so inclined, learn a great deal, and in time make herself sufficiently proficient to take a situation as cook. Although her duties are menial and laborious, her opportunities of observation are numerous, and by making good use of these she may before long occupy a position of much higher rank.

Scullion.—This word is of Irish derivation, and is now very seldom used. It signifies a servant whose duties are confined to the scullery in cleaning pots, kettles, and pans, and who is expected to do other menial services in the kitchen.

Sculpture.—This word was once often used to mean what we now call an engraving. It is now commonly employed for the art of carving figures of all kinds in wood or stone,

especially the latter. The sculptor's art also includes the production of figures in metal, terra-cotta, and other materials. Of this most ancient and widely-practised art the early Greeks still remain the most distinguished professors; but the Romans also produced splendid work, and many moderns have been famous in the same domain.

Sculptures, Copyright in.—By the Act 54 Geo. III. c. 56, it is provided that any person who makes or causes to be made any new or original sculpture, or model, or copy, or cast, has the sole right and property therein for the term of fourteen years from first putting forth or publishing the same, "provided, in all and in every case, the proprietor or proprietors do cause his, her, or their name or names, with the date, to be put on all and every such new and original sculpture, model, copy, or cast, before the same shall be put forth or published." An additional term of copyright for fourteen years is granted if the proprietor be living at the expiration of the first term of fourteen years, and have not divested himself of the right.

Scurf. (*See* Dandriff.)

Scurvy.—This is a disease of the blood, due either to the presence of some morbid material in it, or, which is more probable and is the theory generally received, to the deficiency of some important normal constituent. This constituent, according to some authorities, is potash; according to others citric acid, or at least that form of it which exists in fruit and vegetables, in combination with other vegetable acids, as malic and tartaric acids. Scurvy has from time immemorial been the scourge of seafaring men, owing to the continuous salt meat diet and the scanty supply of vegetables or fruit which are necessarily incidental to a protracted voyage. The disease has, however, not been confined to this class alone, for it has appeared at various times in the wake of armies, and in certain localities even in Europe has been endemic. It was formerly supposed that salt food was the great agent in promoting scurvy; but experience has shown that, though this form of diet may excite a predisposition to the disease, it does not originate it, and that, as long as it is combined with fresh vegetables or lime-juice, it may, comparatively speaking, be indulged in with impunity. The symptoms of scurvy are, in the first instance, lassitude and prostration. After a time patches of varying size and of a purplish colour make their appearance in various parts of the body, especially in the extremities. These patches are prone to ulcerate, and form foul, unhealthy ulcers which bleed readily, and there is considerable swelling of the surrounding parts. The breath becomes offensive; the gums are generally very tumid, and bleed readily. This proneness to hæmorrhage from very slight causes is a characteristic feature in scurvy. The tendency in this disease is to death from syncope or fainting, and this must therefore be guarded against as far as possible. With regard to the treatment, it need scarcely be said that it must consist, for the most part, if not altogether, in restoring the blood to its ordinary healthy condition by a vegetable or fruit diet. When this is not available, lemon-juice may be given in one or two table-spoonful doses two or three times a day; and it is marvellous how quickly patients recover under its influence. Lime-juice may also be given daily as a preventative during long voyages, or when from any circumstance fresh vegetables are not procurable. The following are the rules laid down by the Board of Trade for its use in sea-going vessels:—"Every ship on a long voyage should be supplied with a proper quantity of lime or lemon juice. The juice, having been received in bulk from the vendors, should be examined and analysed by a competent medical officer. All measures adopted for its preservation are worthless, unless it be clearly ascertained that a pure article has been supplied. Ten per cent. of brandy (spec. grav. 930), or of rum (spec. grav. 890), should afterwards be added to it. It should be packed in jars or bottles, each containing one gallon or less, covered with a layer of oil, and closely packed and sealed. Each man should have at least two ounces (four table-spoonfuls) twice a week, to be increased to an ounce daily if any symptoms of scurvy present themselves. The giving out of lime or lemon juice should not be delayed longer than a fortnight after the vessel has put to sea." Certain skin diseases which have their origin in an impoverished condition of the blood are popularly called scorbutic, but differ in many important points from true scurvy.

Scurvy-grass.—This is called *Cochlearia officinalis* by botanists, and belongs to the natural order *Cruciferæ*. It is common enough in England, growing near the sea in muddy places; it is also found both in Germany and France. It possesses good anti-scorbutic qualities, and is also a stimulant, and gets the name of scurvy-grass from having been used either as an antidote to that disease or to cure it. As it is a good addition to the salad and a purifier of the blood, it ought to be cultivated in our kitchen gardens. The seeds should be sown about the month of July in drills nine inches apart, and when the plants come up they must be thinned out to eight inches apart, and they will be ready for use in the following spring.

Scutcheon. (*See* Escutcheon.)

Scuttle.—The Saxon of this word is *scyttle*, which means a lock, bolt, or bar, and the word scuttle is from the same root as our word shut or bolt. Strange to say, however, "to scuttle a ship" is to bore a hole in it, in order to make it sink. In a domestic sense, a scuttle is known to be a pan or pail for holding coals.

Sea Bathing.—This is a wholesome and invigorating exercise which affords much enjoyment to the healthy and strong, and may be safely indulged in once a day during the warm summer months. Sea bathing is also a powerful remedial agent in certain diseases, especially when there is debility; but in such cases it must be used with great caution, or mischief may accrue. Delicate persons should therefore take beforehand, at home if practicable,

a few tepid salt-water baths, and then one or two quite cold. This will prepare them for the open-air bath, which should be taken at noon or about two hours after breakfast, and, if possible, in bright sunshine. The first bath should be a plunge in and out, a careful rubbing with a rough towel, and a smart walk afterwards. Strong and healthy people may bathe with impunity before breakfast if they prefer it, but a cup of coffee and a biscuit should be taken previously even by these, as it is not considered advisable to bathe upon a completely empty stomach; neither is it safe to do so immediately after a full meal, or when the body has in any way become chilled, as after a heavy perspiration. (*See* BATHS AND BATHING.)

Sea-beet, or *Beta maritima*, is a variety of beet which grows wild on some of our coasts, and is sometimes used like spinach. An authority on botanical subjects says:—"The sea-beet is chiefly remarkable for the changes which it undergoes in cultivation, as from it have been produced the different varieties of garden beet and mangold-wurzel. If we examine the wild plant, we find some specimens in which the roots and foliage are highly tinctured with a purple colour, whilst others incline to a yellowish-green hue. These two varieties are the initiatives of the red and the white beet, and also of the red, orange, and white mangold-wurzel." The cultivated sea-beet is of course the better kind.

Sea-bream.—This fish is caught on the south and west coasts of this country in summer and autumn. It is handsome in appearance, and reaches a length of sixteen inches or more; but though edible, it is rather coarse and insipid eating.

Sea-holly.—The *Eryngium maritimum*, or common sea-eryngo, which grows on the sandy shores of Great Britain. (*See* ERINGO, OR ERYNGO.)

Sea-kale comes when choice vegetables are rare, and there are few that excel it in delicacy of flavour and elegance of appearance. Asparagus and sea-kale resemble each other in their requirements and their uses, and whoever can grow the one satisfactorily will find it an easy matter to grow the other. The sea-kale is not so difficult to grow as many have imagined; it is, on the contrary, one of the most easily cultivated of all delicate vegetables, for it will do well on almost any ground, and almost anywhere, provided the soil be sufficiently deep.

Sea-peas.—The seeds of the *Lathyrus maritimus*, which grows wild on some of our sea-coasts. Owing to their unpleasant taste the sea-peas are not desirable food, but have been eaten in times of scarcity.

Sea-salt.—The salt which is obtainable from sea-water by evaporation. In an impure state it contains chloride of magnesium, which may be removed with ease. The salt is then re-dissolved and crystallised if required to be fine and used for table salt. In a somewhat coarse condition it is used, in solution with common water, for domestic baths. Sea-salt is technically described as a chloride of sodium.

Sea-sickness.—This is the unpleasant feeling of nausea and vomiting experienced by most travellers in making a sea-voyage. It is said to be due to the peculiar motion of the waves and vessel combined acting upon the stomach, and causing such irritation in that organ that, for a time at least, it cannot retain either food or drink. The amount of sickness is usually proportionate to the susceptibility of the traveller, the roughness of the water, and the size of the vessel. Many remedies have been devised to cure this objectionable malady, but hitherto without much effect. Spirit of chloroform, or chloric ether, as it is generally called, in doses of from twenty to thirty drops in a wine-glassful of cold water, is about the best of these. It may be taken before embarking, and repeated in a few hours if necessary. Care should be taken, at the same time, that the stomach is neither overloaded nor empty, and it is advisable that susceptible persons should as soon as possible assume the recumbent position, either in their berths, or, better still, on deck, until they have become accustomed to the motion. The great thing is to keep from being sick, if that can be done, as when once the action of vomiting has begun it is difficult, if not impossible, to control it. Some people are terrible martyrs to sea-sickness, no amount of travelling enabling them to resist it; and in a few very rare cases, and during a long voyage, the exhaustion induced by the prostrating effects of the sickness, as well as by the want of food, has had serious results. In ordinary circumstances, however, the traveller soon gets over his sickness.

Sea-water.—The water of the ocean "contains large quantities of common salt, together with chlorides and sulphates of sodium, magnesium, potassium, and calcium, and minute quantities of many other substances." The presence of these ingredients is the principal cause of some of the more remarkable properties of sea-water: it is, for example, more easy to swim in than fresh water, and is in many cases more desirable for bathing purposes. Its nauseous taste and unwholesomeness for drinking are so well known that no explanation of them is necessary. That it does not freeze so readily as fresh water is due to its mineral constituents; and that it is generally warmer has been ascribed to its incessant motion.

Sea-weed, To Preserve and Dye.—The term sea-weed is applied to a very large number of marine plants which differ exceedingly from each other. Among them, however, are some which, on account of their beautiful forms and colours especially, are much sought after and carefully preserved, either dry or in the marine aquarium. The more delicate specimens may be dealt with in the following manner, when intended for mounting in a book or placing in a portfolio:—Suppose the pretty little tuft of the Caroline weed is selected, as it very likely will be, on account of its exquisite

tint and fibre: let it rest in the open air for some hours after being gathered, to improve its colour, which will change from brown to pink. Fill partially a saucer or plate with fresh clean water, and float in it the sea-weed, with a sheet of white paper under it. As it lies, take a large pin or needle, and lay out all the filaments in fan shape upon the paper, which must then be removed with its tender burden. After arranging any little disorder, place the sea-weed as it lies between sheets of dry blotting-paper, and press it to remove the moisture. Then let the sea-weed dry with the paper, to which it will adhere; when dry, remove the sea-weed, which can be damped and placed upon another piece of paper, and fastened down either by simple pressure, which is often sufficient, or by means of the smallest quantity of gum solution under the largest stems. Sea-weeds of a firmer or coarser character may be washed, and often require bleaching, before they are pressed and placed in a book for preservation. Some sea-weeds are washed and dried in their natural form, and are arranged in bouquets, which, when well arranged, and with the specimens properly secured, are very pretty. For dyeing sea-weeds, the ordinary aniline dyes answer very well. Elaborate instructions are, however, beyond the scope of this work.

Sea-weeds, Esculent.—Several kinds of sea-weed are eaten, but it will be sufficient here to mention two or three. The one called laver is prepared with lemon-juice, butter, and spices. Carrageen moss is another; but this as well as laver are treated of in articles under their respective headings. A third is dulse, which both Scotch and Irish eat; it is washed in fresh water, dried, and packed for preservation in casks. Some eat it with fish and butter, and others boil it in milk with a little rye-flour. Sheep and cattle will eat dulse in its fresh state.

Seal Oil.—Among the numerous fluid fats or oils obtained from animals, seal oil is of great importance. When made before decay has begun, it is colourless and nearly inodorous, and is much superior to whale oil. Like other fish oils, owing to the mode of extraction, it is necessarily impure, and requires to be refined or purified; but after this process has been successfully performed, seal oil constitutes a very useful article of commerce.

Sealing-wax.—A composition made of resinous materials, variously coloured, which is used for receiving and retaining impressions of seals and for other purposes. Common hard red sealing-wax may be made according to the following recipe:—Powdered resin six ounces, red-lead four ounces, vermilion two ounces, powdered shell-lac two ounces; mix all these carefully and melt them over a slow fire. When thoroughly incorporated, and while fused, work into sticks of any size required. The vermilion is sometimes omitted when very common sealing-wax is required, and sometimes the shell-lac also. For black sealing-wax, ivory-black is used instead of red-lead and vermilion. For green sealing-wax, finely-powdered verdigris forms the colouring matter; for yellow, mas-sicot, chrome, or other yellow pigment; for purple, a mixture of vermilion and smalt; for blue, verditer or smalt, or a mixture of the two, according to the shade desired. In all cases the incorporation of the materials should be effected with caution in an open copper pan. After cooling a little, the wax may be formed into sticks by rolling with a piece of polished wood upon a slab of marble, or, if preferred, the wax may be poured out while hot and cast in moulds. Sealing-wax with gold speckles is made by adding gold-coloured mica spangles, talc, or other materials. Sealing-wax may be scented if desired, a common ingredient for the purpose being balsam of Peru. The best kinds of sealing-wax are prepared with Venice turpentine instead of resin.

Seals.—In general, a seal is a piece of metal, stone, or other substance, upon which an inscription, device, or coat of arms is engraved in intaglio, so that an impression from it may be produced in some soft material such as wax. Sometimes the word means the engraved stone, &c., with its mount, as a watch-seal, or any other contrivance used for sealing letters and documents. In this sense the forms are innumerable. The impression produced equally bears the name of seal, and is often required to be attached in some way to legal documents by way of attestation or ratification. The use of seals dates from a remote antiquity, and prevailed in Assyria, Egypt, Rome, and other ancient empires. It has been continued by emperors, popes, kings, and corporations, as well as by others of every class. If a king or a noble could not write, his seal served him instead; and in some circumstances it has been regarded as more valid than a written signature, or as at least an equivalent. To various legal documents, such as those by which real estate is conveyed, a seal cannot be dispensed with, though, being also accompanied by signatures, it is only a form. In this country the Great Seal and the Privy Seal (*both of which see*) must be used on certain occasions as symbols of regal authority and sanction.

Sealskin and Fur.—The seals from which the fur is obtained of which so much use has been made of late years in this country are found in the northern seas, chiefly near Greenland and Newfoundland. The fur of the young seals is considered to be the best. Before being used, the coarse hair which covers the soft fur lying underneath is removed, this being done by paring away part of the skin, when the hairs fall out. The skins are dyed a rich Vandyke brown, that hue being considered preferable to the natural colour, which is of a yellow, golden shade. This fur, being very thick and close, resembles a rich velvet; it is used for jackets, waistcoats, collars, cuffs, and trimmings, for hats and caps, bags, purses, and other small articles. The prices asked for sealskin fur vary according to the quality of, and also the quantity contained in, the garment. Jackets can be bought from five to thirty-five guineas, the size as well as the perfectness of fur being considered in the sum demanded. The fur is very warm and very durable. The chief drawbacks to jackets made of sealskin are

their great weight and warmth, as when taken off, the wearer is very liable to take cold; for these two reasons sealskins should be kept mostly, if not altogether, for use when driving or travelling. The skins of the old seals are used by the Greenlanders for coverings of houses, and to form rough garments for themselves.

Seam.—In some of the midland districts the country people give this name to lard, for which another provincial name is *saim*.

Seams.—When two edges of material are joined together the work is done by seaming. Seams are sewed on the right side of the garment; they are usually only brought into requisition for calico or linen, and when two selvages of either of these fabrics require to be united; in such cases the seams, if properly sewed, will be almost invisible. The two edges should be placed very evenly together, and kept in position either by pins or a tacking thread while the work is in progress. The chief difficulty in this branch of needlework lies in not puckering or fulling one side of the seam more than the other. To avoid this defect, the sewer must put the needle straight through both edges; for if a slanting direction is followed, more of one side will be taken up, and a pucker must be the result. In cases where one of the breadths is gored, or has had the selvage taken away, such a one must be held next to the sempstress, as the edge in either case is sure to be more or less stretched and unequal compared with that which has a selvage. The needle used should be short and not thick, and the cotton should be suitably fine; the stitches taken should be close together, very regular, and not very deep. When the seam is finished the thumb-nail should be taken along it to flatten the work; if it does not lie quite flat, the reason will be that the stitches are taken too deeply, or are made with cotton too thick for the purpose.

Searce, Searse, or Sarse.—An unusual name for a fine sieve; properly one of hair.

Search of Registers, &c.—As a general rule, registers kept by public authorities can be consulted on compliance with the conditions imposed in each case. Thus all who keep register books of births, marriages, and deaths, must allow search to be made when properly required. In like manner search may be made after wills, deeds, writs, bills of sale, and a great many other documents, which, though private in their origin, are of public importance and interest. It would be impossible, and is not necessary, to enumerate all the instances in which search may legally be made; and it would not be practicable to record the conditions which must be complied with in special cases. Most persons should, however, be made aware that not a few of the books kept by the parochial authorities are practically open to such parishioners and ratepayers as may desire to search them at reasonable times and for reasonable objects.

Search Warrant.—An authority requiring the officer to whom it is addressed to search a house, or other place therein specified, for property therein alleged to have been stolen or secreted.

Searcher.—A custom-house officer whose duty and business it is to examine ships outward bound, in order to ascertain if they have any prohibited or unaccustomed goods on board, &c.

Seasoning.—The ingredients added to any species of food to give it a higher relish are designated as seasoning, and are usually pungent or aromatic in flavour, as salt, spices, herbs, acids, sugar, or a mixture of these. Not only is food rendered more tempting to the palate by the addition of seasoning, but in some cases the latter serves to correct injurious properties that may belong to food. The aromatic and pungent qualities of the flavouring agents assist digestion.

Seasons.—The four quarters of the year are commonly styled seasons, and their commencements are associated with the position of the sun in relation to the zodiac. Thus spring begins when the sun enters Aries; summer when it enters Cancer; autumn when it enters Libra; and winter when it enters Capricorn. According to this, spring commences about March 21st; summer about June 22nd; autumn about September 23rd; and winter about December 23rd. When the word seasons is regarded in connection with weather and the annual succession of vegetation, &c., it is necessarily not applicable to strictly defined periods. Hence, when mention is made of seasons as early, late, backward, irregular, &c., the reference is to the weather and crops, or such-like. Still more vaguely the word season is used for time, or some special time; *e.g.*, "strawberries are in season," that is, it is the time when strawberries ordinarily ripen and appear at table. "The season of Lent" is the time of Lent.

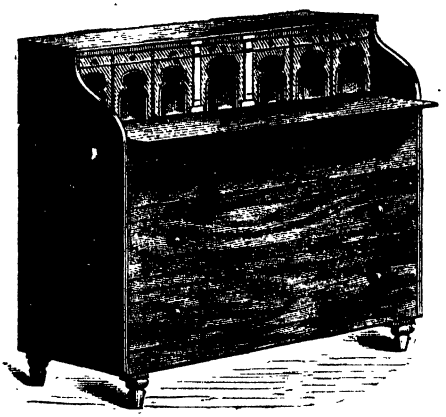
Seats, Garden. (*See* GARDEN SEATS AND TABLES.)

Secret Drawers.—Sometimes a casket, chest, desk, &c., is so constructed as to comprise compartments the presence of which is not obvious to an ordinary observer. These, summarily styled secret drawers, are intended for the reception and protection of valuable articles or documents from the eyes and hands of the inquisitive or the dishonest. The simplest method of including these private receptacles in drawers and boxes is by means of a false bottom, which can be fastened down if required, and easily removed when necessary. For fastenings perhaps nothing is better than the ancient spring which yields to pressure when rightly applied by the initiated.

Secret Writing.—Writing which is either in cipher (*see* CRYPTOGRAM) or is traced in invisible ink, *i.e.*, ink which can only be rendered visible by the application of some heating or chemical process. (*See* INK, INVISIBLE.)

Secretaire is a species of writing-table, fitted with pigeon-holes, drawers, &c., mostly

used by literary men, lawyers, and others. A general idea of the appearance of the common



SECRETAIRE.

form of this useful article of furniture may be derived from the accompanying illustration.

Secretary.—A secretary is really one who is occupied with the secret or private affairs of his employer; but the word has come to denote more especially one who generally manages the affairs of a committee, society, &c. A private secretary is a person whose duty is to conduct the written correspondence of his master, and who, in a multitude of other cases, is engaged in writing. Thus he may write letters from dictation or summary directions, may copy documents for preservation or transmission, may address letters, &c. But he will also be expected in some cases to be more than a confidential clerk in a mercantile establishment, especially when he is required to supplement the literary culture, or in other ways to make good the incidental deficiencies, of his master. For the proper discharge of this difficult, delicate, responsible, but really honourable post, all the qualifications of an educated gentleman or lady, and a disposition and habits of a high order, are needed.

Secretions.—These are fluids poured out by certain organs, which are either retained to serve some useful purpose in the body, or are expelled from it as being hurtful. To the former class belong the secretions of the mucous and serous membranes, the salivary glands, the glands of the stomach, the liver, pancreas, &c., some of which play an important part in nutrition, whilst others only lubricate and moisten, and thus facilitate motion and functional action. To the latter, or excrementary class, belong the urine, sweat, a little bile, the menstrual discharge, and the carbonic acid and water exhaled from the lungs. The secretions are subject to various influences, both emotional and otherwise, which have a tendency to check or promote them. Thus, for example, we have tears shed abundantly in joy, grief, or anger; the perspiration augmented by fear, and the secretions of the heart, kidneys, bowels, &c., sometimes stopped, at other times increased, from the same cause. An excessive flow of blood to any part checks secretion, whilst a moderate increase augments it. When to an augmented flow of blood is added weakness of the superficial vessels, then there is increased secretion, as observed in the night sweats of hectic fever.

Sedan Chair. — Portable covered seats made to be carried by men, and named after the place in which they made their earliest appearance. They were introduced into this country late in the sixteenth century, and at first were exceedingly unpopular, as it was urged that they degraded men to the level of the beasts which had been employed for the conveyance of similar covered seats of a larger size from a very early period. Sedan chairs became commonly used in London soon after Sir Francis Duncomb obtained the sole privilege of sending them out for hire for a term of fourteen years, dating from the year 1634. In 1649 they were in general use in most parts of the country.

Sedatives.—These are certain medicines and medicinal agents which, when taken internally or applied externally, produce a sedative or soothing effect, though in their mode of action they often widely differ. They are usually divided into internal and external sedatives. Under the head of internal sedatives are comprised : — 1. *Narcotics, or soporifics* (*which see*). 2. *Spinal sedatives.* These diminish the action of the spinal cord, and are used to allay spinal irritation as it occurs in some forms of paralysis, &c. They are also very useful in spasmodic affections, as in muscular tremors and whooping-cough. Hemlock, bromide of potassium, prussic acid, and the Calabar bean are examples of this class. 3. *Vascular sedatives.* These are medicines which control the action of the heart and the circulation generally. To this class belong digitalis, hellebore, aconite, tobacco, &c. 4. *Stomachic sedatives.* These are medicines which allay irritation and pain of the stomach, from whatever cause arising. They include the preparations of bismuth, the salts of potash and soda, the nitrate and oxide of silver, belladonna, opium, prussic acid, creasote, and a host of others. External or local sedatives are remedies which, when applied to any part of the body, exercise by their action upon either the nerves or blood-vessels of that part a soothing effect, diminishing and in some cases causing complete loss of sensation. They are useful in relieving irritation, inflammation, and neuralgic pains; and some of them, by their being able to produce anæsthesia, or loss of sensation, are valuable helps to the surgeon in the performance of minor operations, as they frequently obviate the necessity for administering chloroform. External sedatives include ether spray, ice, aconite, morphia, opium, prussic acid, acetate of lead, belladonna, &c.

Sedentary Occupations, &c.—Sedentary occupations are such employments as call for no active exertion, and are commonly pursued in a sitting posture. Such trades as those of tailors, shoemakers, and seamstresses belong to this class, and such occupations as those of authors, secretaries, clerks, &c. By sedentary

habits we mean that the subject of them keeps much in-doors, and is not accustomed to take much physical exercise nor to figure in the social circles of his friends. As regards both forms of the sedentary, it has been found that they sometimes induce physical derangements, and sometimes interfere with cheerfulness of temper and elasticity of intellectual faculty. Body and mind need exercise and change as well as rest, and without all these the most wholesome fare will fail to preserve truly good health and spirits. The sedentary have rest in excess, and their duty is to take regular moderate exercise, to seek change of scenery, and to divert the thoughts in any other proper way, and always to regulate their diet as regards quantity and quality of food and drink. In addition to these points of prime importance, let it be noted that the sedentary are frequently much more susceptible of atmospheric and other influences than those who live more in the open air. The difference between the two classes is more than superficial; the sedentary, therefore, must take all wise precautions to protect themselves against damp and draughts, heat and cold, all sudden changes of temperature and weather, all noxious gases, and risks of contagion. The risks which, in accordance with the habits of modern society, are incurred by tender and delicate people, whose life is, as a whole, a very sedentary one, are great and grave indeed. It will suffice here to mention the risks and give advice; the rest must be left to the good sense and resolution of the parties most concerned.

Seed Beads.—Diminutive beads which resemble turquoises, opals, rubies, and other gems, made chiefly for the further ornamentation of needlework. They are used in large quantities by the Indians of North America, who adorn the leather saddles, mocassins, pouches, and numerous other articles of their manufacture with them, in the arrangement of which they show considerable taste and skill.

Seed-lac. (*See* LAC.)

Seed Pearls.—Small pearls, so called because they resemble grains of seed in size. They are usually set in close order round the centre ornament of brooches and rings, particularly those which are made and worn as special memorials of deceased relatives or friends. Seed pearls are also strung in lengths, which when twisted together form a necklet. These pearls are also arranged in clusters in the form of flowers for ear-rings, or made into a kind of lace-work for necklaces. Pearls look their best when worn by people who have dark hair, and also when the dress is black. These ornaments are suitable for mourning habiliments.

Seidlitz Powders.—These are aperient powders which are in great request, and are too well known to require much description. They are generally sold in two small parcels, the larger of which is wrapped in blue paper, and contains the following ingredients, viz., potassio-tartrate of soda two drachms, bicarbonate of soda two scruples. The smaller parcel is wrapped in white paper, and contains the acid, viz., tartaric acid, thirty grains. In taking a seidlitz powder, the contents of each paper should be dissolved separately, the larger in a tumbler, the smaller in a wine-glass, each containing a little warm or cold water, according to taste; the solution in the wine-glass should then be poured into that in the tumbler, and drunk whilst effervescing. Seidlitz powders should be taken before breakfast, and it is advisable to take as much exercise as possible for the remainder of the day, to obviate the discomfort they occasionally cause.

Seidlitz Water.—This is one of the many natural spring waters which have been of late years in so much request. It possesses some aperient properties, but not to such an extent as several of the other mineral waters. An analysis of seidlitz water shows that it is composed of the following ingredients:—Sulphate of magnesia, chloride of magnesium, carbonate of magnesia, sulphates of soda and lime, carbonates of lime, strontia, manganese, and iron, traces of alum and silica, water, and carbonic acid. It was to take the place of this water that seidlitz powders (*see preceding paragraph*) were first introduced, with what success need scarcely be said.

Seisin, in law, signifies possession. In this sense we say premier seisin, for the first possession, &c. Seisin is divided into that in deed or in fact, and that in law. A seisin in deed is where possession is actually taken; a seisin in law is where lands descend, and the party has not entered thereon, or, in other words, it is where a person has a right to lands, &c., and is by wrong disseised of them.

Selenite. (*See* MOONSTONE.)

Self-coloured.—All of one colour; either not dyed at all, or not dyed since it left the loom. A term sometimes applied to textile fabrics.

Self-defence. (*See* DEFENCE.)

"Selling off."—These words are often seen in shop windows, where they are placed in order to attract customers, and are supposed to imply the easy acquisition of "bargains." (*See* BARGAINS.) "Selling off" may be either genuine or fictitious. When genuine, it may mean impending retirement from business, change of proprietorship, close of the shop, an effort to dispose of unseasonable and old-fashioned goods, superfluous stock, &c. When fictitious, the announcement is a mere trap or trick to catch the ignorant and unwary. There are shops in London the windows of which are blazoned year after year all the year round with the enticing words "selling off." Strangers alone are caught, of course; but the evil is that the articles sold are such as would, for the most part, be dear at any price—worthless rubbish. Another variety of the "selling off" imposture is this: men who have cheap trash to dispose of take an unoccupied shop for a short time, fill it with their wares, make a great display, and as soon as they think it desirable to do so, go on to another shop, where the process is repeated, and so on in endless succession.

Selters Water. (*See next paragraph.*)

Seltzer Water.—This is a pleasant drinking water which occurs naturally in various springs in Germany and elsewhere, and is also largely manufactured in this country. The natural water, or eau seltzer, as it is called, consists of the following ingredients:— Carbonates of soda, baryta, strontia, magnesia, and lime, superphosphates of lime and alum, chlorides of potassium and sodium, fluoride of lime, silica, a little iron, water, and carbonic acid. The manufactured water contains chlorides of lime, magnesium, and sodium, carbonate of soda, carbonic acid, and water. Natural seltzer water is a wholesome beverage, and can be strongly recommended. It does not possess any aperient properties worth mentioning. Seltzer water is sometimes known as selters water.

Selvage, or Selvedge.—The edges of all textures are woven closely, to keep the threads firmly in the web and to prevent ravelling. These edges are called selvages, and they form a test of the qualities of cotton and linen fabrics. Those of superior manufacture are those whose selvages are even and regular. Black silk fabrics usually have coloured selvages; this enables the sewer to keep the work straight when sewing such together. The border line of selvage should be observed, and the whole of the edge kept out of sight in all materials, except in the case of calicos and linens, when the selvages are seamed together and remain visible.

Semaphore.—By this name we now recognise the machine used for the posts set up to convey signals on our railways; but the term is much older than travelling by steam, and was adopted in England from the French, to signify any machine whereby communications were made by signs.

Semolina.—This substance consists of particles of wheat, varying in size from grains of sand to small millet. Only the hard wheats are adapted for making it, such as those of Spain, Odessa, and the south of Italy. The grinding is performed with the millstones sufficiently apart to leave the produce in a granular form, instead of reducing it to a state of flour. The granules are of various sizes, and they are carefully separated by sieves, the openings of which graduate from fine to coarse. Semolina may be made into puddings, or used for thickening soups, and forms a nourishing and digestible article of food. In France its use is more extensive than in England, and the millers there take great care to secure as large a quantity as possible during the grinding of the wheat. In Paris a kind of bread, made of the coarser kinds of semolina, is sold under the name of *gruau;* and in Italy it is, along with maize meal and millet, made into polenta.

Semoule.—Another name for semolina. (*See preceding paragraph.*)

Senna.—This is the dried leaves of either Alexandrian senna (*Cassia lanceolata* and *Cassia obovata*) or the Tinnevelly senna (*Cassia elongata*), the former growing in Upper Egypt and Abyssinia, the latter in India, and both belonging to the natural order *Leguminosæ*. Alexandrian senna, though neither so pure nor so good as the Indian, has a large sale. It should be carefully picked before being used, as it generally contains a large proportion of the leaves, stalks, flowers, and pods of the argel plant, which are said to produce griping. This kind of senna is easily recognised by the leaves being of a mixed character, viz., either pointed or oval. Indian or Tinnevelly senna (*Cassia elongata*) is that which is used officinally, and is of very superior quality. Senna is an excellent aperient, and is very useful in habitual constipation, especially of a dyspeptic character. Combined with some saline, as sulphate of magnesia or tartrate of potash, and a little sal volatile, it makes an admirable and deservedly popular house medicine. Senna should never be given when there is inflammation or even much irritation of the bowels. The preparations of the drug are:—1. *Confection of senna.* This consists of senna seven ounces, coriander in fine powder three ounces, figs twelve ounces, tamarinds nine ounces, cassia pulp nine ounces, prunes six ounces, extract of liquorice three-quarters of an ounce, refined sugar thirty ounces, distilled water twenty-four ounces. The dose is from one to two tea-spoonfuls. 2. *Infusion of senna.* This is made by adding ten ounces of boiling water to an ounce of senna and half a drachm of sliced ginger, allowing the infusion to simmer for an hour, and then straining. The dose is from one to two ounces. 3. *Compound mixture of senna.* This is composed of sulphate of magnesia four ounces, extract of liquorice half an ounce, tincture of senna two and a half ounces, compound tincture of cardamum ten drachms, and infusion of senna sufficient to make a pint. The dose is from one to two ounces. 4. *Compound powder of liquorice.* This consists of senna and liquorice-root rubbed into fine powder, of each two ounces, and powdered sugar six ounces. The dose is from one to two tea-spoonfuls. 5. *Tincture of senna.* This is prepared from senna, broken small, two and a half ounces; raisins, free from seeds, two ounces; caraway and coriander, of each half an ounce; and proof spirit one pint. The dose is from one tea-spoonful to a table-spoonful. 6. *Syrup of senna.* This is prepared by an elaborate process from senna, broken small, oil of coriander, refined sugar, distilled water, and rectified spirit. It is a good preparation, and may be given to infants with safety. The dose is from half a tea-spoonful to a table-spoonful.

Sennit.—This is a braid formed by plaiting rope-yarns or spun yarn together.

Sensation.—A sensation has been well defined as "the mental impression, feeling, or conscious state resulting from the action of external things on some part of the body, called on that account sensitive." Among these may be mentioned the feelings caused by the senses of sight, hearing, taste, touch, and smell. As Professor Bain remarks, they are clearly "distinguished from the feelings of energy expended from within (the muscular), and from the emotions, as fear and anger, which do not arise immediately from the stimulus of a sensitive surface."

Senses.—The faculties by which we acquire perception of external things. They are usually stated as five in number—sight, hearing, taste, touch, and smell. Of these, touch, hearing, and sight are often termed the intellectual senses.

Sensitive Flames.—In 1865 Mr. Barrett observed that a prolonged shrill note had a curious effect on a gas flame which he had burning. The flame, which was fourteen inches long, was shortened several inches by the influence of the sound. Further investigations proved that under certain conditions gas flames are regularly sensitive or susceptible to the influence of sound vibrations. Leconte, in America, found that the flames would not jump until the pressure on the gas brought them near the flaring point. Professor Tyndall took up the question with his usual energy, and with important results. The phenomena may be easily produced, and some of them are amusing: in one case, small print may be read by the light of the gas only while influenced by the sound of a whistle; in another case, the flame may be made to ignite gun-cotton or to fire a cannon by the simple use of the proper sound; in another example, an electric bell may be rung far away; and, indeed, the flame may be made so sensitive that it will beat time to the ticking of a watch or other slight sound. It has been found that streams of unignited gas, or of air, may be also rendered sensitive.

Sensitive Flowers.—When we say a thing is sensitive, we mean that it is so either consciously or unconsciously. An object which is chemically sensitive is destitute of sensation in the ordinary meaning of the word. In physiology it is different, but it is very difficult to say where the limit of the consciously sensitive is to be drawn. For the purpose of this note such minute inquiry is not needful, though we think the so-called sensitiveness we are about to mention is mechanical rather than conscious, and has no more to do with positive sensation than the curling of a piece of parchment when heat is applied. Many flowers expand and close at stated hours of the day; some turn with the sun; some contract like the common sensitive plant; some not only contract, but enclose and imprison sundry insects, which are killed. But in whatever way sensitiveness is manifested in vegetation, it is reducible to touch. We have not proof at present that flowers can either see, hear, smell, or taste. Of course, they eat and drink, and their food must be suited to their constitution; and, considering the effects of light and certain vapours and gases, it may be admitted, or rather may be laid down as a fact, that they are not only mechanically sensitive in the circumstances first indicated, but are chemically sensitive under those last indicated. Of one thing we must not lose sight, and it is this, that the sensitiveness of plants and flowers while living goes far beyond that which was formerly supposed, and occurs in cases where no one suspected it.

Sensitive Plant.—A name usually applied to a species of Mimosa, the *Mimosa sensitiva* of botanists, a slender herbaceous twining plant, an originary of South America. Among the subdivisions of this species is the *Mimosa albida*, with very sensitive leaves and pale pink flowers, but quite a hothouse plant. Another, and the most common, is the *Mimosa pudica*, a branching annual, one or two feet high, with leaves which are sensitive when touched at any point, but especially at the glands at the bases of the pinnæ, or groups of leaflets. Of the Mimosas which are more or less sensitive it is remarked that the leaves, when touched, close downwards; that they all do this when night comes on; and that the time required for their recovery varies with climate, season, weather, &c. The name of sensitive-plant has also been applied to *Oxalis sensitiva*, *Cassia nictitans*, *Æschynomene sensitiva*, *Æschynomene viscidula*, &c.

Sensitiveness.—A feature of character which in moderation is desirable and proper, but which, when in excess, is the cause of really unnecessary discomfort. To some extent it is dependent upon natural constitution, but is greatly influenced by habit, health, and other circumstances. In all cases, even when constitutional, it may be regulated and made amenable to control; and it is the duty of every person not only to cultivate it in a moderate degree, but to strive against its domination. A person who is insensible to what naturally appeals to the feelings is in an undesirable condition; and one who allows his feelings to carry him away whenever he is exposed to influences which tend to excite emotion is in a state which is to be pitied or deplored. The proper culture of the feelings is a duty incumbent upon every one, but it is not easy to give detailed advice, and we can only, therefore, direct attention to it as an important element in the formation of character, and as conducive to personal happiness and the comfort and well-being of others.

Separate Use, or Separate Estate.—Property which a married woman is, in certain circumstances, entitled to retain for her separate and independent use. By the custom of London, a married woman may acquire a separate estate by carrying on trade on her own separate account. The right of the wife to the enjoyment of property separately from her husband is usually secured by the appointment of trustees in her behalf, to whom the property is conveyed in trust for her sole and separate use. But although no trustees be appointed for the wife under a limitation to her separate use, equity will convert her husband into a trustee for her, and she would still be entitled to the enjoyment of the separate estate. And under the Statute 21 & 22 Vict. c. 85, a woman judicially separated from her husband holds her property to her own separate use, and such use continues, notwithstanding that cohabitation is afterwards resumed. So also, under the Married Woman's Property Act, 1870, numerous species of property are made the wife's separate estate. To the extent that a married woman has separate estate she is a *feme sole*, and unless restrained from anticipation she may alienate it by any of those voluntary or involuntary modes by which a *feme sole* or man may do. (*See* HUSBAND AND WIFE.)

Sepia.—The name of the cuttle-fish, or squid. The pigment known by this name, so much employed by artists, is of a rich grey-

brown or Indian-ink colour. It was formerly supposed to be prepared from the ink of the sepia, or cuttle-fish, which has the faculty of discolouring the water around it for the purpose of self-concealment when flying from the pursuit of an enemy. Sepia being prepared from Indian ink, drawings in the latter are consequently called sepia drawings. Before China was as well known as that country now is, Indian ink was believed to be derived from the ink-bag of the cuttle-fish.

Septuagesima Sunday.—In the Ecclesiastical calendar, the third Sunday before Lent, or the ninth Sunday (nearly seventy days — Latin, *septuagesima*, seventieth) before Easter. The first Sunday in Lent is called Quadragesima Sunday, and the three preceding it, Quinquagesima, Sexagesima, and Septuagesima Sunday respectively.

Sequestration is the separating or setting aside of a thing in controversy from the possession of both those who contend for it. It is of two kinds—voluntary or necessary. Voluntary is that which is done by consent of each party; necessary is that which the judge does of his authority, whether the parties will or not. It is used for the act of disposition of the goods and chattels of one deceased with whose estate no one will intermeddle. A sequestration is also a kind of execution for debt, especially in the case of a beneficed clerk, of the profits of his benefice, to be paid over to him that recovered the judgment against such clerk till his judgment debt is satisfied. It is provided by the Judicature Act, order 47, that where any person is by any judgment directed to pay money into court, or to do any other act in a limited time, and after due service of such judgment refuses or neglects to obey the same according to the exigency thereof, the person prosecuting such judgment shall, at the expiration of the time limited for the performance thereof, be entitled, without obtaining any order for that purpose, to issue a writ of sequestration against the estate and effects of such disobedient person. Such writ of sequestration shall have the same effect as a writ of sequestration in Chancery theretofore had; and the proceeds of such sequestration may be dealt with in the same manner as the proceeds of writs of sequestration have hitherto been dealt with by the Court of Chancery. It is also provided by order 42 (rules 2 and 4), that a judgment for the payment of money into court may be enforced by writ of sequestration, or in cases in which attachment is authorised by law, by attachment; and that a judgment for the recovery of any property other than land or money may be enforced by (among other remedies) writ of sequestration. By rule 1 of the same order, it is provided generally that a judgment for the recovery by, or payment to, any person of money may be enforced by any of the modes by which a judgment or decree for the payment of money of any court whose jurisdiction is transferred by the Act of 1873 might have been enforced at the time of the passing thereof.

Seraglio is the palace of the Sultan of Turkey at Constantinople, on the eastern point. The area is 150 acres, enclosed with high walls. The entrance from the west is called the Sublime Porte, a name generally given to the whole Government. The second gate is called the Gate of Happiness, and in its splendid buildings are lodged a very large number of females, guarded by eunuchs.

Serenade originally meant the performance of music in the open air on a serene night, but latterly it has conveyed the idea of the Spanish custom of a number of gallants singing under the window of some favourite lady. It consists of both vocal and instrumental music, and was a practice of the early Greeks and Romans. A serenade is sometimes performed simply in honour of some distinguished person as a mark of high esteem, and is very often accompanied by a torchlight procession; but it is a practice that has long fallen into disuse in England. When a single performer serenades, he usually accompanies himself on the guitar, mandoline, lute, &c. Serenades are also sometimes used as concert pieces; they are then light, pleasing compositions, comprising several movements.

Serfdom, or Slavery, existed in Britain until 1660, when it was finally abolished, although it was not until 1772 that it was determined by law that the existence of a slave in this country was never to be allowed. The Romans exported British slaves from England during the time of the subjection of this country to their rule. King Alfred the Great made laws for the better regulation of slavery. The Normans sold the Saxon and British peasantry like cattle, and at Bristol they were sold in open market for exportation, chiefly to Ireland and Scotland.

Serge.—A twilled stuff, manufactured in the same way as satteen, one description having one side woolly and the other smooth. The longest wool is chosen for the warp, and the shortest for the woof, the former being more twisted than the latter. This material is much employed for ladies' dresses, for summer dress by the clergy, by the monastic orders, and also for linings. Navy serge is a thicker, more durable, and woolly make of this stuff than the ordinary serge of the shops; the manufacture is in the hands of the Government, and it is supplied for the exclusive use of the navy. The colour is invariably a dark blue, so well dyed that no amount of wetting will discharge it.

Serjeant-at-Arms.—Formerly an officer whose duty it was to attend on the king and on the Lord High Steward in court, to arrest traitors and other offenders. There is now a Serjeant-at-Arms in each of the Houses of Parliament, who executes the commands of the House in preserving order, apprehending delinquents, &c.

Serjeant (at Law), or of the coif (*servientes ad legem*), otherwise called serjeants counter, are of the highest degree in the common, as doctors are in the civil law; but, according to Spelman, a doctor of law is superior to a serjeant, for the very name of a doctor is

magisterial, but that of a serjeant is only ministerial. Sergeants-at-law at one time had exclusive audience in the Court of Common Pleas, though they were not restrained from pleading in any other court. It was formerly the practice for newly-appointed judges to have this degree conferred upon them (if they had not already attained it) before elevation to the bench. The degree of serjeant-at-law is now, however, abolished; and by the Judicature Act, 1873, s. 8, no person appointed a judge of the High Court of Justice or of the Court of Appeal shall, after the commencement of that Act, be required to take or to have taken such degree.

Serpentine.—A magnesian stone (hydrated silicate of magnesia), susceptible of a high polish, and much used for ornamental purposes in the place of marble. It derives its name from the fact that it somewhat resembles a serpent's skin in its spotted and veined appearance.

Serum.—This is the liquid part of the blood deprived of corpuscles, fibrine, and colouring matter. When blood has been allowed to stand for a little time, a red clot is formed from the fibrine and corpuscles; this is surrounded and covered by a slimy, straw-coloured fluid, which is the serum. Serum is composed principally of albumen, saline matter, a little fat, and water, and coagulates almost into a solid mass when heated. In ordinary circumstances, serum is not secreted by serous membranes in the same way as mucus is by mucous membranes; but this may and frequently does occur under the influence of inflammation.

Servants.—A servant is a person, male or female, who voluntarily performs certain offices for another person, and obeys his commands, in consideration of payment accorded for the same. The office is a voluntary one, and this constitutes the difference between a servant and a slave; for a slave is compelled to do his master's will, but a servant is not, and the only consequence that can follow a rupture of the contract between the parties is that the one who is in the wrong must pay damages for the breach. There are various kinds of servants, for, strictly speaking, all those who act in subordination to others are servants for the time being; but in a general way the term is understood to denote household or domestic servants, sometimes called menial servants, because their service lies *intra mœnia*, within the walls of a house. Household servants are of either sex, and of various kinds, as butler, cook, housemaid, &c. Each one is hired for a particular kind of service, which is understood to devolve upon him or her, according to the position occupied; and when, owing to the various arrangements of different households, some special duty rests upon any one, this is generally made a matter of express agreement at the time of hiring. The duties customarily performed by each one are given in detail under the separate headings of BUTLER, COOKS, HOUSEMAID, &c. It is usual for both male and female servants to take rank in the household according to their position, and among female servants the order of precedence is as follows:—Housekeeper, lady's-maid, head nurse, cook, upper housemaid, upper laundry-maid, under housemaid, still-room-maid, nurse-maid, under laundry-maid, kitchen-maid, scullery-maid. Menservants rank by themselves. (*See* MALE SERVANTS.)

Servants, Character to. (*See* CHARACTER TO SERVANTS.)

Servants, Dishonesty of.—The qualities of honesty, respectability, and sobriety are of such paramount importance that they should be mentioned most particularly when information as to the character of a servant is required. The most persistent and minute inquiry is justifiable in order to obtain satisfaction on these points, and no pains should be spared in arriving at a correct opinion concerning them. When, however, notwithstanding all the care that has been taken, a mistress is so unfortunate as to get a dishonest person into the house, she may immediately, on the discovery of the same, cause the boxes and possessions of the servant to be examined, and, if proof of the theft is obtained, may dismiss her at once from the house without previous warning. This dismissal is usually accompanied by delivery into the hands of the police. If, after all, the charge is a mistaken one and cannot be proved, the mistress has made herself liable to an action for false imprisonment, and possibly also for defamation of character. From motives of justice and humanity, however, a mistress should be very careful that she does not lightly make a serious charge of this kind against a servant. There are so many ways in which small articles can disappear without a fault being committed by any one, that a suspicion of dishonesty should be entertained very reluctantly. A false charge may give so much pain, and may work such ruin, that a right-minded person will be most unwilling to jump to the conclusion that the only explanation of a trifling loss is to be found in the dishonesty of a servant. And while feeling thus, she will be careful in another direction, and will know that she has no right to put temptation in a servant's way by leaving money or jewels lying about in a room, to be taken possession of or left according to the disposition of the finder.

Servants' Dresses.—A printed calico is the ordinary material for a servant's morning dress—lavender in sprigs, checks, spots, or stripes, of small dimensions, being more commonly worn than other colours, and buff-coloured prints are the next in favour. Eight yards should be allowed for a plain dress of this description. For the afternoon, alpacas and coburgs are the most suitable, the former either in black or grey. A white cap is an essential item in the dress of a female servant. In superior households bonnets only (not hats) are allowed. The housekeeper and lady's-maid are not required to wear a cap, unless from personal choice. A white apron of cross-barred muslin should be worn by the house or parlour maid while waiting at table or in the afternoon, and an all-over apron of linen or calico when at work in the house. The cook should wear a large white linen one having a bib in front, and a pair of long white linen cuffs, or half-sleeves, to be pulled on up to the elbow.

Servants' Hall.—This room, in large houses, is used for the servants to take their meals in. It is usually furnished with a long large table and forms to sit upon. In many households it is customary for the upper servants to take breakfast and tea in the housekeeper's room, and dinner and supper only in the servants' hall.

Servants, Hiring.—The hiring of servants is a business that calls for the exercise of both judgment and discrimination. When a vacancy occurs among the servants, the mistress usually inquires first of the tradespeople, and then of her neighbours and acquaintance, in order that she may find a suitable person to fill the situation. These means failing, she either enters her name at a register office or answers an advertisement in one of the papers, or, it may be, herself inserts an advertisement in a newspaper stating the kind of servant she is in want of. These plans are all more or less successful; but, perhaps, the last two are those that can be the most recommended. No doubt there are numerous highly respectable register offices and servants' homes, and similar institutions, where excellent servants may be heard of; but many of the register offices appear to be the refuge of inefficient, second-rate domestics, who go there because they cannot get a situation in any other way. The proprietors of some offices of this kind occasionally answer *bonâ fide* advertisements for servants, and on receiving an answer endeavour to extort a fee from the householder for procuring a servant. When it is decided to insert an advertisement in a paper, the mistress should be particular to introduce into the wording of it as many details as she can respecting the kind of situation to be filled, the number of servants kept, the number of the family, and the wages given. A lady who does this is more likely to be successful in her search than one who gives a bare statement of facts. The better sort of servants do not care to apply for situations in the dark; and as in the majority of cases they do not write with facility or quickness, they like to have plenty of information given, and to have the introductory steps made as easy for them as possible. It is always desirable that a personal interview should take place between a mistress and the applicant for a situation in her household before the engagement is entered into. A lady can form a much better idea as to what a servant is likely to turn out from seeing her once than from any number of letters. On this account it is well worth while (if the servant lives at a reasonable distance) that the mistress should pay the expenses of a journey backwards and forwards, rather than that she should engage any one whom she has not seen and conversed with. For the same reason, a personal character is much to be preferred to a written one; and a mistress who wishes to obtain and keep good servants should never take any one into her house with a written character only, unless she herself, or some one whom she knows, is acquainted with the writer. There would be fewer complaints about bad servants and bad places alike if both mistresses and servants were more particular as to the character of those whom they engage. When engaging a servant, it will be wise if, in order to avoid future unpleasantness, the mistress detail, as carefully and precisely as possible, every special duty which she will require of her servant and every privilege which she will permit. She should also state most decidedly that no perquisite of any kind will be allowed. A good servant would be much more likely to remain even in a "hard place" where everything was understood beforehand, so that its relative advantages and disadvantages could be weighed and compared, than in one where everything appeared at first sight smooth and agreeable, but where little annoyances and small difficulties kept cropping up to disturb serenity and banish contentment. (*See* CHARACTER TO SERVANTS.)

Servants' Holidays.—The question of holidays is a very interesting one to servants when about to enter a new situation. The matter is generally arranged when the engagement is entered into, the frequency of the holidays being regulated by the circumstances of the family. For instance, it is impossible for a mistress who has a number of little children, and only one servant, to spare her domestic so frequently as can the one who is so well provided with attendance that her domestic machinery may, with a little forethought, be made to run just as smoothly, even though one of the workers be away. In large establishments it is not usual for servants to have short holidays at frequent intervals, although a day is given occasionally when it is desired. Instead of this, a week or a fortnight is given once a year when it is convenient. In smaller households, on the contrary, the servant has "a day out" once a month or once in three months, as circumstances may permit. It is customary for her to make preparation for this beforehand, so that the work may not be left undone because she is enjoying herself. Kind-hearted mistresses are always both willing and desirous that their hard-working subordinates should have the rest and recreation which they need, and which, when they have done their work conscientiously, they richly deserve. At the same time, a right-minded girl would wish that her holiday should entail as little discomfort as possible on the mistress. When a servant stays in a situation for a length of time, a holiday of a few days is frequently given to her in the summer; but, unfortunately, the cases are becoming more and more rare in which a servant stays long enough in a place to merit a holiday of this kind. Mistresses who are in the habit of giving short holidays to those in their employ should not forget to require and insist upon their return at a regular and reasonable hour in the evening, and this for the girl's own sake. The practice of allowing young girls to stay out late, especially in large towns, has been the beginning of bringing ruin and misery into many a respectable home; and no mistress who has the well-being of her servant at heart should permit her to run into danger in this way.

Servants, Law concerning. (*See* MASTER AND SERVANT.)

Servants' Liabilities. (*See* Duties of Servants to Masters; Master and Servant.)

Servants' Livery. (*See* Livery.)

Servants, Notices to. (*See* Discharging Servants.)

Servants' Perquisites.—According to a code unwritten, but very well known and extensively observed by those whom it benefits, certain servants in a household are supposed to have a right to certain goods of their master's, which are called their perquisites. Thus it is very usual in large establishments for the servant who pays the bills, be it housekeeper or cook, to have a per-centage from the tradesmen on the amount of the bills. This, in the majority of cases, is 1s. in the pound. The old newspapers and the wax-candle ends from the drawing-room are the perquisites of the butler; the lady's-maid has the left-off garments of the mistress; the valet those of the master; the dripping belongs to the cook; the housemaid has the bedroom candle-ends and any trimmings or shavings that may be left in the bedrooms; the kitchen-maid has the kitchen grease—that is, the fat after it has been rendered down, together with the scraps of fat or meat that are left on the plates; and the scullery-maid has the bones. These various items are carefully collected, and constitute a regular and by no means insignificant source of income to the servants; and it is said that in large establishments it is not at all uncommon for the perquisites of the cook to be worth more than her wages. Everything that is of no immediate use is preserved and sold to persons who make it their business to look out for and purchase the perquisites, and who very often look after something else at the same time. The system is one that cannot be too strongly condemned, for it has been the most fruitful source of dishonesty among servants, and it lies at the root of the waste that is the disgrace of English households. It makes it the interest of the servant to swell the tradesmen's bills; and mistresses who, from want of energy or lack of spirit, close their eyes to the mischief, are placing a premium upon dishonesty and rewarding extravagance. Far better would it be to give servants higher wages, and abolish perquisites altogether; for the present state of things is merely an underhand way of taking money recklessly out of the pocket of the master, wasting about two-thirds of it, and giving the remaining third to the servant. That this is really the case is evident when it is remembered that the master pays 10d. or 1s. per pound for fat on meat, which the servant renders down and sells for 4d. per pound; whilst, in addition to this, the master afterwards buys fresh lard for frying, when the fat of which he has been robbed would answer the purpose far better. There is no doubt that a great many mistresses are opening their eyes to these facts, and are making a determined attempt to do entirely away with perquisites. And any lady who will join in this effort will be taking part in a great work. She will not only be promoting economy in her household, but she will be benefiting her servants themselves; for she will be removing out of their paths those incentives to habits of dishonesty and wastefulness which will certainly prevent their being thrifty managing wives when they have homes of their own, even if they do not bring about immediate disaster.

Servants, Rank or Gradation of. (*See* Servants.)

Servants, Taxes on. (*See* Assessed Taxes.)

Servants' Wages and Board Wages.—The average of wages paid to household servants has risen considerably during the last few years. Of course, the amount paid must still vary with the circumstances of the employer, and the efficiency or inexperience of the servant, as well as with the length of service. Taking, however, ordinary well-to-do families residing in large towns as a sort of index to the rest, the following list will give an idea of the wages asked for by and given to different female servants:—

Housekeeper	£20 to £50
Lady's-maid	14 „ 30
Head Nurse	15 „ 25
Cook	16 „ 50
Upper Housemaid	15 „ 24
Upper Laundry-maid	14 „ 20
Under Housemaid	9 „ 14
Still-room-maid	9 „ 14
Nursemaid	9 „ 14
Under Laundry-maid	10 „ 15
Kitchen-maid	9 „ 14
Scullery-maid	6 „ 10
General Servant	8 „ 18

These are the average sums given when, as the servants say, "all is found." In many houses it is usual for the servants to provide themselves with beer and tea, and then lower wages are given, and a special allowance is made for these articles. The allowance is made according to the rank of the servant: thus cook and butler may have 2s. 6d. per week for beer and £2 per annum for tea; the other servants will have from 1s. to 1s. 6d. per week for beer, and £1 per annum for tea. When the family is absent from home, and the house is left in the charge of the servants, these are put upon "board wages," as it is called; that is, in addition to their regular wages they receive a weekly sum for their maintenance. This varies with the rank of the servant, and is from 10s. to 16s. per week. When a portion of the necessary provision is already at hand, such as vegetables from the kitchen garden, milk, butter, and eggs from the farm, the wages are reduced in consideration of these.

Service, Breakfast.—Breakfast services and tea services are usually sold at the same time, and are made to correspond with each other, the only difference between the two being in the size and shape of the cups—coffee-cups are generally higher and narrower than tea-cups, and are sometimes made of a much larger size. As it is quite customary for tea to be served at breakfast as well as coffee, the appearance of the breakfast-table will be more

satisfactory if all the different articles of china correspond.

Service, Dessert. (*See* DESSERT SERVICE.)

Service, Dinner.—Dinner services may be obtained in either double or single sizes, and vary very much in substance and design. The small or short sets, as they are called, contain fifty-two pieces. In the sets are included every item, such as the covers of the tureens, soup and sauce ladles, and the stands for the tureens; and each article is distinctly called a piece. The small set is supposed to be sufficient for six persons; the large for twelve; and a still larger size for eighteen persons. It is usually advantageous to purchase a long set even for a small family, as in case of breakage difficulty is frequently found in replacing new pieces of the same pattern. New designs are being constantly manufactured, and in course of time the old patterns disappear, and when new pieces have to be expressly made the expense is sometimes considerable. The designs and workmanship of some of the modern dinner services are very beautiful, and may certainly be regarded as works of art. It is doubtful, however, whether the works of Palissy, Robbia, Cellini, and other famous workmen in porcelain of past ages will ever be surpassed by any production of later date. In the South Kensington Museum, specimens of pottery from the sixteenth century down to our own day are exhibited, and many of these appear to be almost matchless for beauty and elegance.

Service of Writs, &c.—The service of writs, summonses, rules, &c., signifies the delivery or the leaving of them with the party to whom they ought to be so delivered or left; and when they are so delivered they are then said to have been served. Usually a copy only is served, and the original is shown. Various periods of time are limited for the service of particular processes, and these periods cannot in a general way be exceeded. Service is often required to be personal; especially is it so with the writ of summons (the commencement of an action), though even here substituted service may be made by leave of the Court.

Service, Tea. — The tea services of modern times are very different to those in use some years ago. In the days when tea was regarded as an expensive luxury, the cups were very small and narrow in shape, and were made without handles. Now that the exorbitant duty on tea has been abolished, and it may be obtained at a reasonable rate, the cups are made of comparatively large size and are conveniently shaped. Large tea services contain forty separate pieces; small services twenty pieces. Like dinner services, tea services vary almost without limit, in ware, design, and colour, varying from the common strong earthenware to the finest porcelain.

Service, Toilet. — Toilet or chamber services are usually supplied with the idea of matching or forming a pretty contrast to the furniture of the bedroom. They may be obtained in single or double sets, according to the size of the washstand. It is customary in many families to have the monogram or crest enamelled into the ware of the toilet services, as also into other china or earthenware articles. When this is desired, the sets are, of course, made to order.

Service-tree. — This tree, when wild, grows, if the soil be strong enough, to a considerable size. The flowers appear in large bunches, and are succeeded by brown berries resembling in their form haws, but of a larger size. The wood is white, and of a hard tough nature. It is used chiefly for the cogs of wheels and those parts of machinery for which its nature renders it specially suitable.

Serviettes.—This is the French name for napkin, and by it dinner napkins are now usually designated in this country. A description of this class of napery is given under the heading of NAPKINS, DINNER.

Sesamum.—This genus of plants belongs to the natural family *Sesamaceæ*, and is said to have been originally a native of India. The different species are cultivated as annuals, and are great favourites in many countries. The seeds are in some parts put in soups or added to cakes. The sesamum in the West Indies is called *banglo*, or the oil plant.

Seton.—An issue which is brought into use in cases where it is necessary to keep a wound open in order to allow a continual discharge of humour to exude from it. A needle containing a thread of silk or hair is passed through the skin, the thread is left, and the passing of the latter to and fro through the wound keeps the necessary passage open. Setons are made on the nape of the neck, the abdomen, or breast, according to the nature or presence of the ailment. They are brought into requisition in cases of carbuncle, epilepsy, ophthalmia, disorders of the ear, &c. When the required discharge is made, the thread is withdrawn, and the wound is dressed with dry lint. The word seton arises from the Latin *seta*, a bristle, that description of hair having been formerly used for the purpose. When farriers make use of this treatment on cattle they use the term of rowel, and not seton.

Settee.—A seat with a reclining back, made in various forms, and upholstered more or less ornamentally. Settees are sometimes made of a circular form to occupy a place in the centre of a room, or nearly so.

Setter.—This dog is a great favourite with the sportsman, and justly so. There are various breeds of the setter, the most celebrated being the English setter, the Irish, and the black-and-tan or Gordon setter. The following are the points of a well-bred English setter:—Head long and not deeply flewed, about four and a half inches from the eye to the tip of the nose. Nose large, and nostrils expanded, point cold, black, and wet; nasal bones slightly depressed in centre; nose more blunt than sharp; jaws level; lips not hanging much, but flewed at the angles; ears set low on the head, lobe-shaped, moderate in length, hanging nicely to the cheeks, feathered at the upper portion, but not

all the way to the tip. Prick ears are highly objectionable; eyes "speaking" and intelligent, and not weeping at the corners, which would indicate a spaniel cross. Altogether the English setter's head is difficult to describe; and, indeed, few artists have even succeeded in doing it justice on canvas. The neck is slightly arched, muscular, and lean, not throaty—that is, no dewlap; shoulders deep and with a backward slope; fore-arm large and straight and muscular, and the elbow well let down; pasterns long and straight; feet compact and cat-like; the soles thick and strong; the chest deep, but not too wide through the heart; back straight and short from shoulder-blade to thighs; thighs long, and stifles well bent; loins must not be too slack or loose; stern (tail) should not be too long, and should, when the animal is at attention, be carried in a line with the back; there is no feather on the tail from about two inches from where it is set on, then a nice comb-like fringe; the body coat is long and silky and straight, the back of the fore-legs and the breast being densely coated. It is said that the Gordon setter cannot do such a good day's work as the English, and that the Irish is difficult to break and apt to be wild.

Settle.—The settle is a kind of long seat, having a back to keep off draughts, which may still be seen in old-fashioned cottages, where it is used as a fixture, one on either side of the great open chimneys.

Settlement, Parish. (*See* PARISH SETTLEMENT.)

Settlements, Marriage. (*See* MARRIAGE SETTLEMENTS.)

Severalty.—Any one is said to hold lands or other property in severalty when he is the sole tenant thereof, and holds them in his own right only, without any other person being joined or connected with him in point of interest during his estate therein.

Seville Oranges. (*See* ORANGES.)

Sèvres Porcelain. (*See* PORCELAIN, FRENCH.)

Sewers, House. (*See* DRAINAGE AND DRAINS.)

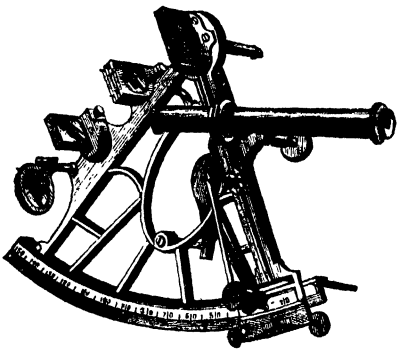
Sewing. — One of the chief requirements for good sewing is that the needles and threads used should be suitable in their degrees of fineness to the materials sewed by them. Thus for thin fabrics, such as muslin and cambric, needles and cotton of proportionate size and thickness should be employed. An exception to this rule is made in the case of net; for this, coarse cottons are always required, for the finer thread slips undone, and the stitches will not stay in their places. Sewing is more quickly done with cotton than with silk, but cotton threads look out of place in silken materials; coloured cottons also turn brown, fade when washed, and always show visibly should the garment be dyed. The disadvantages of silk are its liability to slip and to knot. Regularity and great evenness of stitches are other requirements to the attainment of excellence. The different branches in the art of sewing are button-hole, herring-bone, felling, gathering, hemming, running, seaming, stitching, whipping—all these come under the denomination of plain sewing, and most of them are referred to under their respective headings.

Sewing Machines. — For these very useful machines a debt of gratitude is owed to Elias Howe, a mechanic of Massachusetts, who in 1841 brought over his invention to England. At first the machine was employed by corset-makers only, but ere long the great advantage its use afforded became more widely known; and at the present day boots and shoes are stitched, and every kind of garment sewed, by machines of this description. The principle of them closely resembles that of the stocking-frame. Since the first introduction there have been various improvements, both in the sewing and the method by which it is accomplished. The needle of the first machine imitated in action that employed by the hand; it passed entirely through the material, and this was not satisfactory in its result. The second kind brought forward was a French invention. This machine nimbly executed a chain-stitch, which it performed by the aid of a hooked needle and with a single thread. The latter proved an objection, for when by any mischance the thread broke, the work came to pieces with great rapidity, and sometimes the seams of dresses opened while on the owner's back. A third kind of machine was introduced from America which remedied this defect. This machine executed a strong close stitch by the help of two threads; the stitch is called the mail-bag stitch in America. As it has proved a very satisfactory worker, the majority of machines now in use are constructed on this principle. Each maker introduces some little variety and christens his machine by a different name, but the general idea is the same. The one drawback to this class is that the shuttle has to be frequently filled with thread, and the sudden discovery that the small winder is empty often stops the work at an inconvenient point in its progress. Every kind of machine has its partisan, and therefore it is impossible to put one in advance of another. America has produced a fourth variety, which is supposed to be superior to any previous sort; in this the presence of a shuttle is not required, although there are two threads; these interlace and form a chain-stitch, but yet do not entangle themselves. Each class of machine is provided with extra helps, by means of which the sewer can braid, bind, quilt, and tuck; these add to the original cost. With ordinary care and attention, sewing machines can be easily managed; each one has its little peculiarities, which should be studied and remembered. For instance, one machine requires the thread to be wound very evenly on the shuttle bobbin, and another will not work when this is so done, but requires the thread to be passed quickly from side to side when wound. Some novices imagine that a machine must be constantly oiled—this mistake leads to the excess of oil clogging the wheels; to remedy this, a few drops of paraffin spirit should be put with a quill into each oil-hole, when the oil will at once regain its proper degree of liquidity. When not in use, machines should be carefully

put away in a box provided for the purpose, or covered over, for dust as well as accidental injuries must be guarded against.

Sexagesima Sunday.—In the Ecclesiastical calendar, the eighth Sunday, or nearly sixty days (Latin, *sexagesima*, sixtieth), before Easter. (*See* SEPTUAGESIMA SUNDAY.)

Sextant.—This word, derived from *sextans*, a sixth, is used to denote an instrument used by surveyors, sailors, and others, to measure horizontal angles. It is formed like the quadrant, except that it is only 60°, or the sixth part of a circle. At sea it is serviceable to measure the angular distance between the



SEXTANT.

moon and the sun or a star, in order to determine the longitude. Its arc is extended to 120° for the purpose of measuring their distance when greater than 90°, and it is also provided with some appendages not commonly annexed to a quadrant (*which see*). The frame is usually of brass or some other hard metal. The quadrant reads off miles, but the sextant is more minutely subdivided so as to read off parts of a mile.

Sexton.—This word is a corruption of "sacristan," and is generally employed to designate a subordinate official who has the general care of a church, its bells, clocks, chimes, &c., and of the churchyard in connection with funerals. A sexton's duties in detail have been thus described:—"To keep the church and pews cleanly swept and sufficiently aired; to make graves and open vaults for the burial of the dead; to provide (under the churchwardens' directions) candles for lighting the church, bread and wine and other necessaries for the communion, and also water for baptism; to attend the church during divine service in order to open the pew doors for the parishioners, keep out dogs, and prevent disturbance." The sexton has by common law a freehold in his office, to which he is appointed by the incumbent, or, by custom, by the parishioners; and his salary is decided either by custom or by the vestry. The office is sometimes held by a woman, or sextoness.

Sgraffitto is a species of decorative art, and the process, as carried out for decorating the walls at South Kensington, is described as follows:—For the top of the building (and this also refers to the work down to the first floor), the first or floating coat was composed of one part of ground selenitic lime to four parts of rough sand and a little plaster of Paris, this coat being three-quarters of an inch thick. The next or black layer was composed of one part lime, one and a half of black oxide of manganese, two of Barra shale or clay, and in the upper parts of the building this was three-eighths of an inch thick—a thickness which it was found necessary, at a subsequent stage, to reduce to less than one-quarter of an inch. The third or finishing coat was composed of silver sand, lime, and whiting in equal proportions. This coat was hardly more than one-sixteenth of an inch thick. The upper frieze was composed of purple-brown and a little manganese, the colouring matter being somewhat less in proportion than in the black. Having made a full-sized drawing of the proposed ornament, it can be transferred to the wall by tracing. The lines are marked through the paper on to the wet and yielding plaster; or, if the drawing is executed in charcoal, it may be printed on the wall by turning its face towards the plaster and rubbing it firmly on the back. Then, with an ordinary desk penknife, which has been found to be the best tool, the artist firmly incises the outline, cutting through the upper layer into, but not through, the black layer below; he then scrapes away the upper layer and exposes black wherever black is wanted, leaving the upper layer wherever white is wanted; and in this way any design in two tints can be executed with rapidity and effect. Where large spaces of black occur, it is as well to use a broad tool with a square end, which not only removes the upper layer easily and quickly, but gives a tolerably even surface to the layer below. Although designs are very generally executed in black and white, any colours which are permanent when mixed with plaster can, of course, be used. Shading by lines can easily be done, provided they are not too near together, otherwise the projecting white may be apt to chip off.

Shad.—This is a fish, called by naturalists *Alosa communis*, belonging to the family *Clupeidæ*, or the herring tribe, two species of which are found on our own shores—one about fourteen inches long, the other from two to three feet. The first is plentiful in the Thames as well as the Severn. They go up the river in May to spawn, seldom passing London Bridge, however, and return to the sea in May. The flesh is somewhat dry, and therefore not in high repute. The large shad is seldom found in the Thames. It has been called the king of the herrings.

Shaddock.—A kind of orange belonging to the genus *Citrus*, which includes the various kinds of oranges, as well as the lemon and the lime. It is called by botanists *Citrus decumana*. It is a roundish, pale yellow fruit; the pulp is juicy, sweet, and somewhat insipid. Shaddocks grow to a very large size in India, the small kinds seen in the London markets being known by the name of the "forbidden fruit." There is also a small shaddock grown in the West Indies called the grape fruit.

Shades for Lamps, &c. (*See* LAMPS, SHADES FOR.)

Shagreen is a species of grained leather prepared from the skins of horses and other animals, and is also made from the skins of the sea-otter, seal, &c. It is principally manufactured in Poland, Russia, and in various parts of the Levant; by the Tartars, Russians, and Tripolitans from the skin of the wild ass, and by the Persians from the skins of horses. The hinder back piece of these animals is cut off a little above the tail and around the loins in the shape of a crescent; it is first soaked for a few days, and, when the hair has dropped off, stretched, and the hair and epidermis removed by scraping. The flesh side is subjected to a similar scraping process, and the skins then stretched on wooden frames, and the hair side covered with the seeds of the *Chenopodium album*. A board or piece of felt is then placed on the seeds, and by pressure the hard ones are forced deeply into the skin, which is afterwards hung to dry. When thoroughly dry the seeds are shaken off, and the skin pared down with a knife almost to the bottom of the indentations made by the seeds. The skins are once more soaked, the parts compressed by the seeds rising up and forming elevations, and they are then immersed in lye, and afterwards dyed with various colours, green being the most general one.

Shako.—A military head-dress which was originally introduced by the Germans; it is worn by infantry of the line. In France, at the commencement of the Empire, the three-cornered hat then worn by the infantry was exchanged for the shako, the form of which is greatly varied. At present that worn by the infantry is round and high with a flattened crown, while that of the cavalry is higher and with a pointed crown. Ornaments of different kinds serve to distinguish officers and men.

Shalloon.—This name is derived from that of the town of Châlons, in France, where the manufacture of the species of worsted stuff so designated originated. It is loosely woven with a twill, and varies in width from thirty-two to thirty-six inches, is dyed in various colours, and mostly employed for linings. There is a very fine description of shalloon called cubica. Dean Swift makes mention of the former:—

"In blue shalloon shall Hannibal be clad."

Shallots, or Shalots.—The eschalot, or shallot, is a bulb of the same family as the common onion. It is a native of the East, was introduced into Europe by the Crusaders, and has been cultivated in England as long as the leek. The flavour of the shallot is stronger than the common onion, but it does not leave an unpleasant scent behind. There are two varieties—the common kind, with long, slender, dark leaves; and the best shallot, which has larger bulbs, is of a more dwarf habit in the green, and will keep two years. The leaves of the plant may be cut while growing, and used like young onions. Shallots are extensively used as pickles, and shallot vinegar is very valuable for flavouring soups, sauces, hashes, &c. Shallot wine is a preparation largely used as a flavourer when an acid taste is



SHALLOT.

not required. It is made by covering bruised shallots with sherry; after being infused some days the liquor is poured off and bottled.

Shampooing (from *tshâmpua*, to press or squeeze—Hindustani).—The process of restoring the circulation, removing rheumatic or neuralgic pains, or of cleansing the skin, which originated in the East, and has been extensively adopted in this country, by means of rubbing the surface of the body, when moist, with the palms of the hands. This treatment is usually pursued in connection with a much heated atmosphere, so as to be assisted by the promotion of copious perspiration. Shampooing is invariably practised in the "Turkish baths," and is found very valuable in cases of chills and many other complaints. Hair-dressers have adopted the term "shampooing" to signify the washing and rubbing of the head with some kind of wash, or soap and water.

Shamrock.—The emblem of the Irish nation, as the thistle is of the Scottish, and the rose of the English. It is called by botanists *Oxalis acetosella*—in fact, the common wood sorrel—and belongs to the natural family *Oxalidaceæ*.

Shapes.—The moulds used by cooks and confectioners are often called shapes. (*See* MOULDS, CULINARY.)

Shares, Shareholders.—Shareholders are the possessors of shares in public undertakings. Where the property is vested by charter or Act of Parliament in a body corporate, the shares of the individual corporators in the concern itself are personal, not real estate, for such shares are merely the rights which each individual possesses as a partner to a share in the surplus profit derived from the employment of the capital, which is a mixed fund consisting in part of personal chattels, as well as lands and fixtures. (See the Companies' Acts, 1862 and 1867.) Shares in all companies which are within these Acts and the earlier Companies' Acts of 1856, or the Companies' Clauses Act, 1845, are personal property; and in many cases

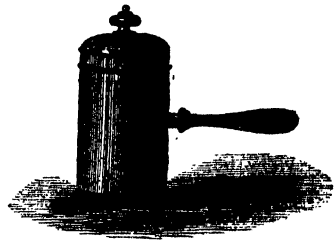
of companies incorporated by special Act the shares have been expressly declared to be personal property. The rule seems to be that the question whether shares in undertakings are real or personal property turns upon the nature of the shares—that is, whether the holder can call for a specific part of the land itself, or only a share of the profits. (*See* JOINT-STOCK COMPANIES.)

Sharpeners, Knife. (*See* KNIFE-SHARPENERS.)

Sharps (Flour).—Sharps, boxings, white stuff, and second flour, are the various names given to the second quality of ground wheat. The products of wheat meal when it has come through the dressing machine consist of (1) fine flour, (2) white stuff, (3) fine pollard, (4) coarse or horse pollard, (5) bran. The second quality, the sharps, goes through another dressing, and the products are (1) fine middlings for biscuits, (2) toppings or specks, (3) dustings, and (4) best pollard or coarse middlings.

Shaving.—Whether men ought or ought not to shave the beard is a question which professional men have answered in different ways. In general, fashion has practically settled the dispute, and decided whether, and in what measure, shaving should be the rule. For shaving cleanly and comfortably, some skill, as well as good razors, will be necessary. The beard should be cleaned and softened by washing with soap and water, and rubbed with a towel. Then it should be covered well with soap lather, or with some shaving paste or liquid. The razor, which should be in good condition, is next to be dipped in water, and without more ado applied to the beard. The operation of shaving is not mere scraping, but is to be performed by drawing the razor so as to make it move in a slanting direction. Holding the razor in his right hand firmly, with the blade opened backwards at an angle, and using the fingers of his left hand to tighten the skin, a practical person will remove his beard cleanly, rapidly, and easily. The blade of the razor is to be applied nearly, but not quite, flat to the skin, which prevents the risk of cutting the flesh. When portions of the beard are left untouched, a fresh application of lather is necessary, and the process is completed by another washing with water and drying with a towel. For shaving, some prefer cold water and some hot, but in ordinary cases, if the skin is at all tender, hot water is best. There are cases in which the head is shaved; but whether in illness or because a wig is preferred, this must be done by the hands of a professional. In these cases the hair is to be cut quite short with scissors before the razor is applied. All who shave should remember never to put away a razor until it has been stropped, or otherwise perfectly cleaned.

Shaving Apparatus.—The implements used in shaving are part of the fittings of a gentleman's dressing-case, and consist of razors and razor-strops, shaving-brush, and a metal box or glass dish for soap. Narrow tall jugs or cups are also needful for the hot water in which the razor is to be dipped before it is passed over the face. Of these, when of earthenware, those of stoneware are preferable; but some gentlemen prefer them in metal, the more costly ones being electro-plated, and the cheaper of block-tin. A first-class electro-plated shaving-pot, with an ivory handle, may



SHAVING-POT.

cost as much as a guinea and a half; but it serves admirably for retaining the heat of the water. The only other item which is essential to comfortable shaving is something (a small fine napkin is best) for wiping the razor upon after each cutting off of beard.

Shaving Soaps.—Any good soap, whether perfumed or not, will answer for shaving, but some prefer special preparations which are sold under such names as shaving pastes and liquids. A simple shaving paste given by Cooley is this:—White wax, spermaceti, and almond oil, of each a quarter of an ounce; melt, and while warm beat in two squares of Windsor soap, previously reduced to a paste with a little rose-water. To use this and similar preparations, smear a little on the beard, and then rub it in with a wetted shaving-brush, which will raise a good lather with either hot or cold water, and one which does not soon dry. A shaving fluid or essence of soap may be thus prepared:—Castile soap, in shavings, two ounces; proof spirit half a pint; dissolve, and add a little perfume. This will raise a lather at once, and is useful for travellers. Such preparations mostly recommend themselves by the oily ingredients or spirit which they contain; and we have heard of persons putting a few drops of olive oil in their soap-box when about to make their lather.

Shawls.—For many centuries Indian and Chinese shawls of great beauty of design, colours, and workmanship, have been brought into Europe. The Chinese shawls are made of Canton crape—a silky material, very soft to the touch; they are handsomely embroidered, and are bordered with long rich fringe. The Indian shawls are of two kinds—the embroidered, on which the pattern is executed on the surface in raised needlework (those of Cashmere are justly famed), and those in which the design is worked in the shawl by the weaver. The minute and neat workmanship displayed in the class of shawls which comes from Central India is surprising, both sides of the shawl being equally beautiful. The method employed by the native weavers of India is that of having ivory skewers, sharpened at both ends, each skewer having a different coloured wool wound round it, with which each

stitch is separately made. The manufacture of this article of apparel did not commence in Europe until the close of the last century (Scotland excepted, where tartan plaid shawls had long been produced for native use). At Norwich, shawls were made in imitation of those from India; Paisley next took up the idea, and then Paris began the manufacture. It was in consequence of the difficulty of introducing variety of colours and patterns with the looms then in existence that the Jacquard loom was invented, by means of which all European shawls are now woven. A great variety of shawls is now made besides those known as Norwich and Paisley. There are those of spun silk, of wool, and there are barége, grenadine, crape, gauze, and lace shawls, amongst other varieties. Shawls are not becoming articles of dress if the wearer is high-shouldered or short in stature.

Shears.—Resembling a large pair of scissors worked by the aid of long wooden handles, shears are very useful implements for clipping hedges and cutting grass. When more closely resembling scissors, with loops of metal instead of the wooden handle, they are used by tailors for cutting cloth, and for other similar purposes.

Sheep-skin Mats and Rugs, To Clean, &c. — In cleaning the white and coloured skin mats that are used so extensively for various purposes, they should, in the first instance, be thoroughly shaken, so as to divest them of every particle of dust. After this the long hair should be washed with soap and water, keeping the skin of the mat as dry as possible. If in spite of care the skin of the mat should become wet, or should it be so dirty as to require washing, it must immediately be placed upon a stretcher, according to the same method as when the skin is being prepared, so that as it dries it may not be in danger of shrinking. When dry, the hair should be shaken and carefully combed, and the mats will have the appearance of being new.

Sheep-skins, To Prepare. — The various uses to which sheep and lamb skins are appropriated are very numerous. About 17,000,000 skins are annually obtained from home-slaughtered animals, and 10,000,000 more are imported from abroad. The manufacturers of shoes and boots consume large quantities of sheep-skins for linings, toppings, &c. They are also used by trunk and bag makers, saddlers, pocket-book manufacturers, jewel-case makers, hatters, organ and other musical instrument makers, upholsterers, glovers, druggists, and perfumers. The mats made from sheep-skins are prepared by stretching the fresh skin with the wool side down, by means of small nails at the edges; the skin is then rubbed over with a powdered mixture of equal parts of common salt and alum, and in this state they are exposed to the air until dry. The flesh side only is exposed to the alum mixture; and though left in the air to dry, the scorching heat of the sun is not allowed to reach them, as the skins would be spoilt by the intense heat. The skins that are meant to be used as leather are first carefully divested of hair, fat, and other impurities, and are cleansed with lime-water. The pores are then opened—which is termed the "raising"—by the application of water acidulated with oil of vitriol; and an infusion of oak-bark or some other astringent matter is used as a source of tannic acid. Skins intended for the curriers to be dressed for uppers usually require about three weeks, and thick hides from twelve to eighteen months. Within the last few years various ingenious contrivances have been adopted to hasten the process of tanning skins. Many of these, though successful with regard to the expedition with which the work is accomplished, are not productive of the best leather. The most durable leather is that slowly tanned in a weak solution; the rapid methods and the employment of very strong solutions render the leather spongy and porous, and not so well adapted for use where strong leather is needed. Morocco leather is prepared from sheep-skins which, after the action of the lime-water, are slightly tanned in a bath of sumach. They are subsequently grained and polished.

Sheets and Sheetings. — Cotton has almost entirely superseded linen for this purpose; the former is much cheaper in price, but the latter is cooler and pleasanter for summer use, and keeps its whiteness of colour for a longer period, and therefore many old housekeepers still prefer linen. Twilled sheeting, either bleached or unbleached, cotton or linen, is the strongest, the most serviceable, and has the best appearance for sheets in every-day use. Of these there are numerous qualities, which are ruled in price by the width as well as quality of thread and fineness of weaving. Sheets should measure from two and a half to three yards for ordinary beds; the width for a single bed is about sixty-six inches, that for a double bed from seventy-eight to eighty-eight inches. Bolton sheets, which are sold in pairs, are very strong and warm, and fitted for rough usage.

Shell Cameo. (*See* CAMEOS, SHELL.)

Shell-fish as Food.—The crustacean and molluscous animals that are used as food are included under the general name of shell-fish. Although these fish hold a position of considerable importance in an alimentary point of view, they are everywhere looked upon as a luxurious rather than a necessary species of food. Taken altogether, they are very likely to upset the stomach, particularly in hot weather, and they sometimes are absolutely poisonous. Oysters are, perhaps, the least objectionable of shell-fish; they are popularly regarded as extremely nutritive, and may often be taken without inconvenience by invalids, and therefore it may be concluded that they are not difficult of digestion. But this cannot be said of the other varieties of shell-fish, which produce, not unfrequently, urgent symptoms of derangement. Sometimes these induce nausea, vomiting, and colic; sometimes an eruptive disorder of the skin is the consequence of indulging in them; and occasionally they have caused giddiness, paralysis, coma, and convulsions. Dr. Pavy says:—"Popular usages generally rest upon some substantial founda-

tion, and the almost universal employment of vinegar and pepper with shell-fish has doubtless arisen from the advantages shown by experience to accrue therefrom. Indeed, the use of these condiments is almost looked upon as a matter of course, and they will have the effect, the one of stimulating an increased flow of digestive secretion, and the other of furnishing a certain amount of additional acid, and thereby augmenting the energy of the natural secretion. Thus increased power will be provided by the agency of these adjuncts to meet the difficult digestibility of the crustaceans in question."

Shell-lac. (*See* LAC.)

Shell-patterns. — These are, as a rule, executed in knitting. By various combinations of stitches the forms of shells are made to appear raised on the surface; each shell is made separately, and all the pieces—which are usually triangular in shape—are joined to one another afterwards with strong crochet cotton. These patterns form a favourite device for knitted quilts, for in this manner the work is not cumbersome, and a piece of it can be taken up at any time. A very simple description of a shell is executed as follows:—Twenty-five stitches are cast on: in the first row two stitches are knitted together four times, after which the cotton is brought before the needle and one stitch is knitted; when this has been done eight times, two stitches are knitted together four times, and the last stitch is purled. In the second row all the stitches are purled; in the third all are knitted; in the fourth, which is the last row, the stitches are purled.

Shellwork.—Small boxes, picture-frames, and other articles of the kind may be made ornamental with shells, if these are arranged with judgment and taste. Consideration should be taken of the size of the article and the size of the shells. Small shells can be laid on cardboard, while heavier shells should have a foundation of thin wood or millboard. A background of dark-coloured velvet sets off shells to the greatest advantage. When this has been pasted or glued on, according as to whether cardboard or wood has been selected, the shells are gummed on after the worker's fancy. A pretty effect is gained when a mosaic pattern is executed; the idea can be taken from tiles or floor-cloth, and be worked out in minuter form. In the South Sea Islands very artistic devices are produced by the natives, who follow out this idea of inlaid work. Shellwork is more effective if small shells are used, when they are put close together; and strong gum, made at home, should be used.

Shelves are boards fixed against walls or otherwise, and supported by wooden or iron brackets, and used for holding domestic utensils, books, &c.

Sherbet.—Originally the name of sherbet was given to a cooling drink used in the East that was prepared with the juices of fruit mixed with water, and flavoured and sweetened. Of late years the word has been similarly employed in our country, the name of sherbet now being given to a powder made of white sugar, carbonate of soda, tartaric acid, and any flavouring essence that may be preferred. By mixing this powder with water, a very agreeable, refreshing beverage is produced.

Sheriff, Sheriff's Court.—A sheriff, or shire-reve, is an officer in each county of England of very great antiquity, his name being derived from the two Saxon words *sciran*, to divide, and *geresa*, grave, reve, or prefect, the sheriff being denominated from the first division of the kingdom into counties. He is called in Latin *vicc-comes*, as being the deputy of the earl, or *comes*, to whom the custody of the shire is said to have been committed at the first division of this kingdom into counties (*see* ALDERMAN); but the earls in course of time being unable, in consequence of their high employments and attendance on the king's person, to transact the business of the county, that duty was committed to the sheriff, who now, therefore, does all the Sovereign's business in the county. The office of sheriff lasts for one year, and his duties, which are numerous and important, are usually performed by his deputy, termed the under-sheriff. The duties consist principally of the execution of writs, precepts, warrants from justices of the peace for the apprehension of offenders, &c. He was formerly empowered to act as judge in actions for recovery of sums under £20 brought in the superior courts, his court being known as the Sheriff's Court. But by modern Statutes the new County Courts have to a great extent superseded the sheriff's jurisdiction in such matters. (*See* COUNTY COURTS.) Under the Statute 28 Edw. I. s. 3, c. 8, the election of the sheriffs of the county belonged to the freeholders of the county, assembled in the County Court; but by a subsequent Statute (9 Edw. II. s. 2), the right of election was restored to the Crown, who made the election through its chancellor, justices, &c. By the Statute 14 Edw. III. s. 1, c. 7, it was enacted that the sheriffs of every county should be annually re-elected at the Exchequer; and the practice at the present day is regulated by the last-mentioned Act. (*See* PRICKING FOR SHERIFFS.)

Sherry.—The wines of Spain, which are best known under the general name of sherry, differ widely in quality. The name sherry is derived from Xeres de la Frontera, a town in Andalusia, the frontier town of the Christians during the occupation of Cadiz by the Moors, from which port it is distant about sixteen miles. Sherry has long held a high position in public estimation as a wholesome and invigorating wine; the poets and writers of the sixteenth and seventeenth centuries make frequent mention of it; and Shakespeare, who no doubt had partaken of some which Lord Essex brought home from the sacking of Cadiz in 1596, extols it very highly. There are several varieties of sherry, varying in colour, body, and taste. In its natural state sherry is pale in colour, but, to suit the market, colour and body are imparted to it by the addition of *arrope*, the Arabic word for boiled "must." This ingredient consists of grape-juice which has been evaporated down until it has assumed the condition of a thick and dark-coloured syrup somewhat resembling treacle. The addi-

tion of arrope not only adds to the colour and fulness of the wine, but also modifies its taste. When pure, sherry is not so stimulating as most other wines; it contains less free acid, and agrees well with most constitutions. The finest and driest sort of Xeres wine is Amontillado, and the peculiarity of its flavour is a mystery of nature that has not been correctly solved. It has a very pronounced bitter taste. The other dry wines that are often found almost free from saccharine matter are Vino di Pasto, Montilla, and Manzanilla. The principal sweet and coloured Andalusian wines are known by the names of Paxarette and Rota Tente; the latter, which has a low per-centage of spirit, is chiefly used in England for sacramental purposes. Malaga is a sweet luscious wine of low alcoholic strength. Sack is a name of antiquity as applied to Spanish wine. Formerly it comprised a dry wine of the character of sherry; but the "sack" of the present day belongs to the group of sweet wines. There are, besides, many other excellent Spanish wines, both white and red, among the latter of which is the delicious Val de Peñas, resembling Burgundy; it is made near Manzaneres. Sherries are known in England by the names of the shippers. They are less adulterated than most wines.

Sherry, British.—Very excellent wine, known by the name of British sherry, is manufactured in our country to a great extent. There are various methods of preparing it. A very good sherry is made from Teneriffe, slightly flavoured with cherry-laurel or bitter almonds, and may either be diluted or not with Cape or raisin wine, or good perry. For most British sherry, raisins (*which see*) are used more than any other fruit, the soundness and full flavour of the dried grape rendering it peculiarly suited for this purpose.

Sherry Cobbler.—The pleasant beverage known by the name of cobbler is an American invention, and is a universal favourite. Though occasionally made with spirit, wine is more generally used in its composition. Sherry cobbler consists of sherry, sugar, slices of orange, or a few strawberries or raspberries, and, if liked, a little powdered cinnamon or grated nutmeg is added. The tumbler is then filled up with planed ice, and the liquid is imbibed through straws.

Sherryade.—The very pleasant summer beverage known by the name of sherryade is made after the same principle as orangeade, lemonade, and other cooling drinks, sherry constituting the principal flavouring ingredient.

Shetland Wool.—The real Shetland wool is remarkably fine and soft, much more so than that known as Pyrenean, which is harder because it is twisted. The shawls and veils knitted with this wool are deservedly admired and appreciated for their delicate beauty. This particular kind of wool is not obtainable in England; when ready for use, it passes into the hands of the manufacturers in Scotland, who employ women to knit the shawls and other articles sold in England, for which purpose only the exact quantity required is given. Shetland wool as known in this country is a degree thicker than Pyrenean wool; it takes a place between that and Andalusian wool; it is softer than either, because not so tightly twisted. This wool is very useful for knitting jackets, hoods, shoes, and shawls for infants.

Shield (Heraldic). (*See* Escutcheon.)

Shift. (*See* Chemise.)

Shingles.—This is the popular name for one of the forms of herpes (*herpes zona*), a skin affection which appears as clusters of vesicles or little blisters, surrounded by some redness of skin. Shingles attack, as a rule, one side of the body only—the right more frequently than the left—and the eruption is so peculiarly developed as to present some uniformity of arrangement, looking like a belt or zone half round the body: hence the name, *herpes zona*, which has been given to it. As the disease is usually situated along the course of some of the cutaneous nerves, there is frequently considerable pain both before and after the appearance of the eruption. This, however, soon subsides, and need occasion no alarm. The treatment consists in the application of zinc ointment or Goulard's lotion to the vesicles, in preventing these from being chafed or ruptured; and, as the origin of the complaint is usually indigestion, the bowels should be well relieved by a mercurial pill, followed by a short course of one of the mineral waters, as, for example, the Hunyadi Janos water. This is not a contagious affection.

Shingles (Building).—This is the term given by the builders to thin boards, which are used in America and the colonies for the same purpose as slates and tiles in England. They are from eighteen to thirty inches long, four to six inches broad, and at one end three-eighths of an inch thick, while at the other they are reduced to less than one-eighth of an inch in thickness. The wood used for shingles is selected from the kinds that split easily and straightly.

Shinty. (*See* Hockey.)

Shirtings.—Fabrics made specially for this purpose are of a certain width, in order to avoid the necessity of joining additional pieces. The materials in general use are longcloths of various qualities, regattas, galateas, and flannels.

Shirts.—When making shirts, special attention is requisite to exact measurements, not only of the whole size required, but of the corresponding parts. Thus each pair of gussets should be exact counterparts; the length of each side of the front should be precisely equal; the middle of the neck-band should be in the centre of the back. Attention to these and other such-like small matters will ensure a good-fitting garment. Flannel shirts should be made a trifle larger than the measurements, to allow for shrinking. This material should be shrunk before it is cut out; but even after that perspiration makes flannel liable to contract. As flannel shirts are chiefly worn by those who take violent exercise, by rowers, cricketers, foot-ball players, and sportsmen, extra size is also always required to prevent rents.

A linen neckband is preferable to one of flannel, because of the thickness of the latter. For white shirts, the front, collar, and cuffs are made of linen; between the two folds of linen one fold of thin calico should be placed, and this will give the desirable substance and stiffness when starched. Collars are usually worn separately, because, being soon soiled, they require to be changed more frequently than the shirt. Wristbands fit better when made in two parts, *i.e.*, when the sleeve is set into a narrow band and the cuff is placed in the other edge of the band. Shirts made at home cost much less money; but unless a perfect fit can be ensured, those made by clever shirt-makers will prove more satisfactory, for constant alterations rarely prove effectual if the shirt is a misfit in the first instance.

Shivering.—This is a condition which results from shock to the nervous system. It may be very slight and of trifling importance, as, for example, when it arises from exposure to cold only; but it may be the precursor of some fever or inflammation, and in such cases often becomes a very significant symptom. It is then called a rigor. Rigor, or shivering, is also a marked feature in ague. (*See* AGUE.) When it occurs in either acute or chronic inflammations it usually indicates that matter has formed—a circumstance which may necessitate a complete alteration of the treatment. The shivering which precedes most acute diseases has been frequently compared to the alarm and consternation of sentinels, which are in this case the nerves, conscious of approaching danger.

Shives.—A name given to the circular discs of oak which are used instead of cork bungs for casks.

Shoddy.—The manufacture of what is called shoddy is an established branch of trade, whereby materials formerly worthless are now converted into goods of a very profitable and useful description. It is produced from the soft rags of worn-out and seemingly valueless woollen carpets, flannels, hosiery, &c., which, being opened and torn up into shreds of the requisite character, are applied in spinning yarn for cloth, pilots, tweeds, carpets, &c., in conjunction with wool. The manufacture of shoddy was at one time peculiar to this country, but it is now common all over the European continent. Preliminary to their conversion into shoddy, the rags are carefully sorted, with reference to their kinds and colours, the removal of buttons, seams, button-holes, and hardened bits. The cotton and linen rags are put aside for the manufacture of a kind of shoddy called mungo, and because, being vegetable fibres, these will not take the dyes employed for wool. The manufacturing process is commenced by machinery for *willowing*, which frees the rags from dirt, sand, and other extraneous substances. They are next saturated with oil, about one gallon of olive oil being used to 250 lbs. of rags; mineral oils are unsuitable. They are then subjected to a machine which makes 800 revolutions a minute, and which, when the rags are thoroughly dry, grinds or tears them up, and at the same time throws out any button-holes, seams, and hard unopened pieces. Another machine, resembling a *carding* engine, opens the rags and combs out the filaments, and soon after they are ready for the ordinary processes of manufacture into cloth. Shoddy is packed into bales by means of hydraulic presses of great power, to lessen the freight charge in shipping it for exportation.

Shoe-brushes.—These are made of hog's bristles. The hair is doubled and fixed in holes by means of wire, which is concealed by a thin sheet of wood which lies over the fastenings. Those brushes the bristles of which are merely fixed into the holes by means of cement are worthless. For cleaning shoes two brushes are required, one with which to apply the blacking, and the other to dry the shoe and produce a polish. (*See* BRUSHES.)

Shoe-buckles.—Metal fastenings for the shoes worn across the foot and directly below or upon the instep. In the years 1774 and 1780, buckles were decorated with jewels, the nobility wearing diamonds and the plebeians paste. A pair of diamond buckles belonging to James II. was valued at his death at about £125; those worn by the Hon. John Spencer at his wedding, early in the eighteenth century, at £30,000. During the Regency of the Prince of Wales, this style of adornment went out of fashion, and strings superseded it, although the prince, at the earnest solicitation of the manufacturers, continued the use of buckles himself. Of late years there has been an attempt to revive the fashion; and while curiosity shops abound in fine old specimens of every description, in gold, silver, and steel, in diamonds and paste, a more common article of modern manufacture has contented the public in general. They appear, however, in Court fancy costumes; and servants in livery sometimes wear them. At one time the manufacture was very important, and thousands of hands were employed in the craft, chiefly at Walsall, Birmingham, and Wolverhampton. During the reigns of the first two Georges, the buckles worn by fashionables of both sexes were so enormous that Sheridan expresses the doubt, in one of his comedies, as to "whether the shoe was made for the buckle, or the buckle for the shoe."

Shoe-horn.—An appliance used to facilitate the entrance of the foot into a shoe. The width, form, and smoothness of the inside of a cow's horn has rendered it particularly well suited for this purpose, one side towards the point being cut away, so as to leave the other half somewhat in the shape of a spoon. The broad end is placed inside the heel of the shoe, and the horn being smooth and stiff, the heel of the foot when placed within it can easily slide down into the shoe. So-called "shoeing-horns" are also made of wood, with ornamental carving on the handle.

Shoe-laces. (*See* LACES FOR SHOES, &c.)

Shoeblack Brigade.—A company formed of boys taken from the "ragged schools," and employed to clean the boots of

pedestrians in the streets of London, for which they are properly licensed. They wear a distinctive uniform, varying in colour according to the branch of the parent society to which they respectively belong. The Central Home is at Saffron-hill, E.C., and it has eight branch societies, besides the Roman Catholic Home and two others. These are all, as nearly as possible, self-supporting, being maintained out of the earnings of the boys. The Shoeblack Society was thoroughly organised in January, 1851, at the time of the first Great Exhibition. In 1862 as many as 1,200 boys had passed through the "Red Society," by which we mean the original Central Society alone; and their united earnings had amounted to £11,000. In the latter-named year the City of London instituted licences for shoeblack boys, and their stations were then fixed. In June, 1875, a "shoeblack's beadle" was appointed to supervise all the boys, and to prevent those expelled from one branch from entering another without warning; to aid in the transfer of boys; to secure situations for them on land and at sea; to visit the homes (ten in number, and two other societies whose earnings are not included with the rest), and the boys at their several stations. There are various executive officers connected with the societies in question, each society having its own peculiar laws, and acting independently one of another. Many young shoeblacks leave the brigade with savings amounting to £20, £30, and even £60. The boys have numbered some thousands since the society's commencement; but a very small per-centage has disappointed the hopes entertained, and a considerable number have not merely entered into respectable trades and other occupations, but have risen to hold the highest positions of trust. Each boy is supplied with a box with a piece of wood shaped like the sole of a shoe on the top of it, on which to rest the boot to be cleaned, and the box holds the brushes and blacking, and serves as a stool to raise the foot of the employer. As a rule, these societies have proved most successful in reference to the way in which the boys turn out. When any one of them leaves the brigade to follow a trade or any other occupation, his comrades usually join together in presenting him with some remembrance.

Shoemaker's Black.—Green vitriol or copperas dissolved in water, in the proportion of one ounce to a pint of the latter. Applied to leather, it dyes it black immediately.

Shoes (from the Dutch *schoe* and *schoen*, and the German *schuh*).—Coverings for the feet, the style and material of which vary with the nationality, the climate, the changes of fashion, and the age of the wearer. The earliest form known is the sandal (*see* SANDALS), copied in classical times by the Romans and other nations. Those worn by modern Europeans are of leather of various descriptions, a thicker kind being employed for the sole. Shoes of velvet and cashmere are also worn by women. Cricketing-shoes are made of a coarse kind of linen or canvas, with straps of leather across the upper part to strengthen it at the bend of the foot; and there are short thick spikes of iron in the soles, to give the wearer a hold to the ground when running on the wet and slippery grass. A peculiar description of shoe has also been devised for the game of lawn tennis. It has no straps across the upper part, and no spikes, but in place of the latter the sole is composed of deeply-ribbed india-rubber or caoutchouc. The snow-shoe, such as is worn in Northern latitudes, is a kind of racket, about three feet in length, consisting of a network of deer-skin thongs in a frame of hickory-wood, with straps across it, by which the feet are secured in the centre. The peasantry in France, Holland, Belgium, and Germany wear wooden shoes over a woollen sock, which just covers the foot. In France they are called *sabots*. The Prince of Orange was said to have "saved our own land from the Pope and wooden shoes;" and in Walpole's time the popular cry was, "No slavery! no excise! no wooden shoes!" a tax on leather ones having obliged the people to wear them. At the beginning of the present century amateur shoe-making became quite a passion amongst gentlewomen, and their work-tables were full of the tools of the craft. Many very ancient guilds of shoemakers have existed both in England and France, under the patronage of St. Crispin and St. Crispianus. According to the census of 1861, there were 252,000 persons engaged in the manufacture of boots and shoes in Great Britain alone, including the hand and the machine made articles—the one being sewn with a needle, the others being put together chiefly by means of pegs. The form of the shoe has undergone many and widely differing changes. In the reign of Richard II. the pointed toes were so long that they were chained up to the knee to save the wearer from falling; while in 1543 we find effigies wearing exceedingly broad and short ones. In 1611 shoes were sometimes attached to a kind of stilt of wood, covered with leather half a yard high, painted or gilt, called a *chapiney*. The high heels worn by our great-grandmothers have partially returned to fashion in the present day, but are much reprobated by doctors. Many customs and traditions are connected with shoes. The removal of them is a mark of respect in the East, as notified in Holy Writ (Joshua v. 15). To deliver a shoe in exchange used to be a token of renunciation, as also exemplified in the history of Ruth and Boaz. Throwing a shoe after a newly-wedded pair is both an English and a Turkish custom, of disputed signification and origin. The bride's shoe used to be delivered to her husband by her father amongst the Anglo-Saxons. "Looking for dead men's shoes" is a well-known mode of expressing a desire for heirship to property; and in conformity with the ancient tradition that misfortune follows the putting on of the left shoe before the right, it was said that Augustus Cæsar was nearly assassinated in a mutiny one day after having so done.

Shoes, To Waterproof. — Shoes and boots may be rendered impervious to water by the use of the following composition:—Melt three ounces of spermaceti in an earthen vessel over a slow fire; add to it six drachms of india-rubber cut into slices, and when these

are dissolved, add eight ounces of tallow, two of hog's lard, and four of amber varnish. Mix all together, and the compound will be fit for use at once. Two or three coats should be given with a common blacking-brush, and then a fine polish will be obtained. The following is another method of waterproofing leather:—Boil a neat's foot in two quarts of linseed oil for two hours; then add six ounces of india-rubber, and after leaving it to boil till completely dissolved, apply it to the leather with a soft brush.

Shooting Stars. (*See* METEORS.)

Shopping.—An art practised chiefly by ladies, either for their amusement or from necessity. It would be difficult to prescribe rules in this case, and more so to ensure compliance with them. Supposing business to be the motive, a lady should settle beforehand what she intends to purchase, should inquire for it, and should purchase when she is satisfied with the quality and the price. She must be cautious, and not be led to inspect all the novelties and bargains which may invite her, or she may be induced to buy what she does not want, and perhaps cannot afford. With ladies of position and wealth, shopping is a pastime, and they go to see what is to be seen, sometimes retiring after giving no orders, but causing much trouble, and sometimes, without previous consideration, purchasing largely what takes their fancy at the moment. In all cases the temptations attendant upon shopping are great, and should be prepared for.

Short Bread, or Scotch Bread, as it is frequently called, because it is common in Scotland, is a sweet and friable cake made of flour, butter, and sugar, and pleasantly flavoured. The cakes are usually of a square or oblong shape, and are ornamented on the top with comfits or sliced candied peel. The inhabitants of Edinburgh and its vicinity are in the habit of sending this bread to their friends at a distance as a token of remembrance.

Short Cake.—Ordinary short cake is merely pastry sweetened with sugar, rolled out, stamped into fancy shapes, and baked. Making short cake is a good way of using scraps of pastry.

Short Paste. (*See* PASTRY.)

Short-sightedness. (*See* NEAR-SIGHTEDNESS.)

Shorthand. (*See* STENOGRAPHY.)

Shortness of Breath. (*See* BREATH, AILMENTS OF.)

Shorts (Flour).—This is but another name for the bran and coarse parts of meal. (*See* BRAN.)

Shoulders, Ailments of. (*See* BROKEN BONES; DISLOCATIONS.)

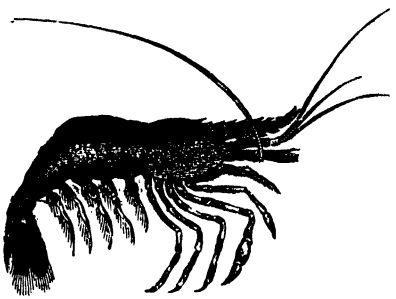
Shovel-board.—An old-fashioned game which was played by striking or pushing pieces of money and such-like up to certain marks upon a board. The same name was given to the board used. Sometimes it was called shuffle-board or shove-board.

Shovels are scooping-up instruments, most of them having raised edges. They are used for taking up a quantity of loose substances together; for instance, coals, sand, mould, &c., and for these purposes they invariably have long handles, the exceptions in this particular being those employed for collecting cinders, money, &c.

Shower Bath. (*See* BATHS AND BATHING.)

Shrewsbury Cakes. — The delicious little sweet cakes known by this name are made of flour, butter, sugar, and eggs; currants are sometimes added, but they are frequently omitted, and grated ginger is used instead. When the pastry is mixed it is divided into thin cakes and baked.

Shrimp.—This favourite crustacean (*Crangon vulgaris*) is closely allied to the lobster, crayfish, and prawn. It inhabits most of the sandy shores of Europe, and is found abundantly on the British coasts. Shrimps are very generally esteemed as a table relish, and besides being eaten when freshly boiled, they are potted, and used for making a fish sauce. There are two varieties of shrimps, the brown and the red. Of these the brown is the larger and more highly flavoured; it swims near the shore; the red is the smaller and the more delicate. The shrimp is about two inches long, and



SHRIMP.

is very delicate in structure. It is of a greenish-grey colour and almost translucent, and readily escapes observation, both when it is swimming through the water or resting on the sandy bottom. Its quick darting movements, however, like leaps, will betray it to those who look closely into the small pools which are left on the sandy shore by the receding tide. It is usually taken in nets, which are made like large bags, and are either drawn by boats or pushed along by men and women, who wade up to their knees in shallow water. Persons who pursue this avocation are named shrimpers. Shrimps are very interesting additions to the aquarium.

Shrinking.—This process is highly necessary before cutting out garments which will be washed at some future time. Flannel of every class always shrinks when first put into water, and therefore it should be induced to contract before it is cut into shape. It should be put in a tub, and cold water should be poured upon it; in

this it must remain in soak for some hours, and then stretched and dried; after this it will not shrink again if properly washed. Many persons shrink the wool intended for socks before they knit it into shape; this must be carefully done, that no tangle is made in the skeins.

Shroud.— A winding sheet, or large wrapper in which the dead were wrapped. At one time they were required to be made of woollen, and hence, perhaps, Pope's line:—

"Odious! in woollen! 'twould a saint provoke."

In the plural the word is used for the ropes which rise from the sides of a ship to the masts to keep them steady.

Shrove-tide.—The name given to the days immediately preceding Ash Wednesday, or the first day in Lent. The term is derived from the Anglo-Saxon *scrifan*, to shrive or confess, and means literally "confession-time," the days before Ash Wednesday being formerly regarded in the Romish Church as days of preparation for Lent, and specially set apart for confession and shriving by the priest.

Shrub, Rum. (*See* Rum Shrub.)

Shutters are coverings for glass doors and windows, and for household purposes are made of wood. The most ordinary kind of shutters fold up, and are placed at the sides of the windows, and when opened are made secure by a thin bar of iron placed across them. Another kind of shutter of a somewhat stronger nature consists of two pieces of wood run upon sash-lines; these when not used fall into a space at the bottom of the front part of the window. This kind is secured by a bolt passing through a hole in each shutter, which bolt fastens them together from the inside. The shutters for business premises are made of wood or iron, a modern improvement being revolving shutters which work on springs, and are simply pulled up and down when required. These are vastly superior to the old-fashioned wooden shutters which were put up outside shop-windows, owing to their simplicity in working and their increased security from burglary and fire, added to which, with these appliances there is no risk of breaking the windows.

Sialogogues.—These are medicines which increase the flow of saliva and mucus from the glands of the mouth. They are useful in relieving the dryness of mouth incident to some diseases, but are seldom given for this purpose only. The most important sialogogues are tobacco, mustard, horse-radish, pellitory root, mercury, and iodide of potassium.

Siberian Crabs.—This fruit, which is frequently met with in old gardens, is a native of Siberia, and in all probability is the parent, by hybridisation, of many of our cultivated varieties of apples. It is of a yellowish colour, and rather austere to the taste, but it is good for baking purposes, and excellent preserve can be made from it. Siberian crab jelly is most delicious in flavour and brilliant in colour, and in making this it is necessary only to follow the recipes usually given for apple jelly.

Sick, Diet for. (*See* Invalid Cookery; Invalids.)

Sick-nurse. (*See* Nurses.)

Sick-rooms. (*See* Invalids.)

Sickness. — This is the term popularly applied to any departure from a condition of health. It is also used synonymously with nausea and retching (*which see*).

Side Tables.—These are usually narrow tables of a light ornamental description, which are handy for occasional use, and will stand in the corners or recesses of rooms.

Sideboards.—These pieces of furniture are made for the dining-room, and are usually of a handsome description, being constructed of ornamental woods, and often elaborately panelled and carved. The carved work is usually of a character suggestive of its purpose, being composed of fruit, fish, or game, enriched with hop or vine leaves, &c., treated more or less conventionally. Paintings are also frequently inserted for their further adornment, occasionally with appropriate inscriptions, and sometimes sheets of looking-glass. The sideboard is usually constructed with a back, which is occasionally supplied with shelves and ornamental brackets for the display of plate. It is commonly divided into three parts, containing drawers and shut-in fittings, suitable for receiving the ordinary requisites for the dining-table, &c.

Sidesmen. — Persons who were formerly appointed in large parishes to assist the churchwardens in inquiring into the manners of inordinate livers, and in presenting offenders at visitations. The whole of their duties seem now to have devolved by custom upon the churchwardens, though in some large parishes this office still exists as assistant to the churchwardens.

Sienna. — A pigment made of a natural earth, so called because composed of terra di Sienna, Italy. It is of two descriptions: the raw sienna is of a brown colour, and burnt sienna has a reddish tinge.

Siesta.—This is a Spanish word for a mid-day nap. In hot countries, such as Spain, where the heat is intense in the middle of the day, it is the custom with the inhabitants to rise very early and pursue their occupations until mid-day, at which time they close the outside shutters of their houses, and indulge in rest and sleep until the cooler hours allow them to resume their work.

Sieves are implements for separating the smaller particles of substances from the larger, and vary considerably in form and size, to suit the articles to be sifted. The most ordinary kind of sieve consists of a hoop from two to six inches in depth, forming a flat cylinder, and having its bottom constructed of wire stretched tightly over. Those used for sifting finer substances are made with fine hair, network, and other materials, in lieu of wire. The drum sieve, which is used extensively by druggists and confectioners for sifting very fine powders, consists of three parts or sections, the top and bottom being covered with parchment or leather, and fitting over and under a sieve of the usual form, which is placed between them. By this means the manipulator is not inconvenienced

by the clouds of powder which would otherwise be inevitable from the process, and a great saving of the material is effected.

Sifter, Cinder. (*See* CINDER SIEVE.)

Siftings of Tea.—After tea-leaves have been dried, roasted, and sorted, they are packed in chests ready for sale. When sold they are again sorted—that is, the large leaves are separated from the small leaves, the portions being variously named, to express the quality of the tea. When the process is complete, various fragments, such as the dust of tea and the broken tea-leaves—the fannings, as they are technically called—are left behind, and these are carefully collected and sold at a cheap rate under the name of tea siftings. The siftings yield a strong, darkly-coloured, but not very finely-flavoured liquid. They are extensively patronised by careful housekeepers.

Sight, Defects of. (*See* EYESIGHT, ABNORMAL OR DEFECTIVE.)

Sign-manual.—1. The royal signature, by which the personal act of the Sovereign is manifested, whereas the affixing of the Great Seal is an act of state. 2. The signature of any one's name in his own handwriting.

Sign, Seal, and Deliver.—The several acts constituting together the execution of a deed. (*See* DEED.)

Signets.—A signet is properly a seal; hence a signet-ring. One of the seals used for authenticating royal grants was called the signet, and there was a signet office and a clerk of the signet in connection with its use. Until 1848, documents which had to pass the Privy Seal required to have the signet first attached at the signet office, but since that date the office has been abolished. In Bell's "Dictionary of the Law of Scotland," the signet is defined to be the seal by which the king's letters for diligence are authenticated. The Scottish clerks or writers to the signet were anciently clerks in the office of the Secretary of State, and by them writs passing the king's signet were prepared. At present the term writers to the signet is applied to those gentlemen of the legal profession in Edinburgh whose position and duties correspond somewhat with those of first-class London attorneys.

Signs of the Zodiac.—The twelve signs, with their astronomical names and English equivalents, are as follows:—

♈	Aries	Ram.
♉	Taurus	Bull.
♊	Gemini	Twins.
♋	Cancer	Crab.
♌	Leo	Lion.
♍	Virgo	Virgin.
♎	Libra	Scales.
♏	Scorpio	Scorpion.
♐	Sagittarius	Archer.
♑	Capricornus	Goat.
♒	Aquarius	Waterman.
♓	Pisces	Fishes.

Each of them extends along exactly 30° of the ecliptic. The first point in Aries is that through which the sun passes at the time of the vernal equinox, and the order of them proceeds thence eastwards, so that the sun enters Cancer at midsummer, Libra at the autumnal equinox, and Capricornus at mid-winter. The six signs beginning with Capricornus are called ascending signs, because as the sun travels through them he is acquiring a greater altitude in the northern hemisphere; and, conversely, Cancer and the five which follow are called descending signs. These twelve equal divisions of the ecliptic were thus named originally, because at that time—more than 2,000 years ago—the constellations which bear the same names occupied the nearest position in the heavens; but in course of time a gradual change has taken place, and the zodiacal sign is thus thrust back about one-twelfth of the whole circle, so that it nearly corresponds now with the constellation which is immediately behind it in the above order of succession.

Silesias.—Very soft linens, white and coloured, which owe their peculiarity to the treatment of the flax threads. Silesias are extensively used for the linings of dress bodices, for which this material is particularly adapted, as it is not stiff, although strong and slightly glazed. The sewing needles used by hand or machine have no difficulty in penetrating it.

Silhouettes.—This name was given to a method of producing portraits in profile, filling in the space within the outline with black paint; or to a process of cutting out such profiles in black paper, and afterwards mounting them upon a piece of white cardboard. They received their name in jocular reference to the meanness of a very economical Finance Minister who flourished in France about the middle of the last century, being ludicrously cheap in comparison with ordinary portraits, and only half a face.

Silica.—The oxide of silicon, a name derived from *silex*, the Latin for flint. Rock crystal, quartz, chalcedony, and flint consist of almost pure silica; but in combination with the alkalies and other elements as silicates, it enters into the composition of many gems and other mineral substances. It is, indeed, the most abundant solid mineral found in the crust of the earth. Silica being hard and heavy, and not acted upon by ordinary acids, it becomes a product of the disintegration of rocks; the other components get decomposed, and the lighter portions carried away by the action of water, leaving grains of sand as a residue, which are largely made up of small fragments of quartz or flint. Silica is found in wheat straw and in the stalks of some other plants; but those soils which are made up principally of siliceous particles are not generally very productive. The chief chemical use of silica is in making glass, in which it is combined with potash, soda, lime, or lead, according to the description of glass required, forming silicates of the respective bases. The only acid which affects either it or glass is the hydrofluoric. Fire-clay is a silicate of alumina, which is nearly infusible in a furnace, and is therefore used for making fire-bricks and crucibles.

Silk.—The manufacture of this fabric has been known in China from a very early era, but the knowledge from what source the silken threads were obtained was not known

in Europe until the sixth century, when some silkworms' eggs were secretly conveyed from China by a couple of travelling monks. Silk was from that period produced and woven in Italy with more or less success. In the fifteenth century France commenced to manufacture the fabric; and later silk was woven in England that had been prepared in Italy. The silken goods fabricated by the Eastern nations are peculiarly fine, thin, and soft to the touch. Chinese, Indian, and Persian silks alike possess these characteristics. European silks, on the other hand, are noted for thickness and substantiality. The desire for these qualities has of late years led to much adulteration of silk. It has been found that the use of certain vegetable decoctions and dyes adds materially to the weight of silk, and also gives it an appearance of greater substance. In reality, these acids seriously injure the quality of the fabric, which soon looks glazed, and assumes a greasy appearance. The quality of silk may be partly tested by feeling it, also by folding and crumpling it in the hand. If it feels harsh to the touch, and if it remains in stiff folds and is easily creased, the probability, if not the certainty, is that it will not prove satisfactory, and that the threads will cut and wear through wherever folded. A dull-looking thick corded silk, known as grosgrain, has of late years taken the lead in fashion, and has superseded a thinner make of glacé silk, which was not so costly as its thicker successor is.

Silk Canvas.—When this is used for wool-work no grounding is required; all the threads are fine and are equally separated, and thus the necessity for grounding is obviated. This canvas is chiefly used for work executed in chenilles or floss-silks; also for raised wool-work. Care should be taken not to disturb the evenness of the threads, and also to count them exactly, for little defects cannot be hidden under the grounding. This canvas is soon soiled, and therefore muslin or leno covers, in which the work may be enveloped, are advisable when it is in ordinary use.

Silk Cotton, or Mocmain.—The substance which bears this name is produced by trees of the genera *Bombax*, which are found in the tropical parts of America, Asia, and Africa; the silk fibres fill the capsules in which the seeds are enveloped. Silk cotton cannot be utilised to any great extent, because its fibres are too elastic, short, and smooth to be spun in the same way that cotton is spun. Mocmain is the name given to the silk cotton which comes to this country from the East Indies; it is a useful stuffing for cushions.

Silk, Dyes for.—Madder, logwood, nutgalls, lac-dye, sumach, indigo, weld, and archil, catechu, Brazil wood, annatto, cochineal, cudbear, walnut-peels, verdigris, copperas, and sulphate of iron; also acacia-flowers. Silk follows next in order to wool, as having a strong affinity for colour. White Chinese silk, having a superior lustre to the European, is better suited to the purpose of dyeing. Raw silk is found to receive the colouring matter, and to retain it more permanently, with its resinous varnish still upon it, than when it has been scoured and whitened. Silk takes the coal-tar dyes in the most perfect manner. (*See* ANILINE DYES.)

Silk, Painting on.—Water-colours are required for this work. Some persons cover the surface they paint on with Chinese white before applying the colours—this preparation is made to prevent the colours from running; others are of opinion that the slight running serves as a shade, and in that particular improves the colouring. Chinese white is always necessary when lisse or gauze is painted on. The chief danger is that of making and using colours in too moist a state; the brush should be rather dry than otherwise. Exceedingly pretty hand-screens can be made of white silk: this should be previously stretched very tightly and evenly on a frame of wire or cane. Flowers of different forms and hues, painted from nature, and apparently scattered over the silk, are most effective; a pretty idea is to have wild flowers on one screen and cultivated flowers on the other. For the former the marsh marigold, field hawthorn, blue-bells, heather, apple-blossom—any of these look well when represented in this way; and for the other, choice can be made of nemophila, dog-toothed violets, heaths, liliums, maidenhair fern, and cinnerarias of all hues.

Silk Threads, Braids, &c.—Of the former the various kinds used are Berlin silk, a smooth loose twisted thread; Dacca silk, a kind of floss, which possesses the great advantage of being easily divided when a finer filament is required; crochet-silk, a thick thread containing three plies; floss, which is employed in most specimens of ancient embroidery; purse-silk, a very smoothly twisted silk; three-cord, a silk which is closely twisted and resembles bullion; and finally, the ordinary sewing silks, which are of various thicknesses, and may be bought in skeins, either singly or by the ounce. It is well to remember that silk is apt to become tender if left exposed to the air for any length of time, and therefore it is not economical to buy a quantity at once. Sewing silks can be obtained on cards or on reels; that unwound is usually the stronger, the former being for glove-mending. Larger reels containing longer lengths are prepared for machine use. The narrow silk braids are sold by the knot or skein at fancy-work shops, as they are chiefly used for braiding work on cloth, silk, or leather. The wider widths are kept by drapers, and are sold by the yard.

Silk, To Clean.—When this is required to be done thoroughly, the garment should be taken to pieces, that each portion may receive individual attention. The silk should be sponged on the side which is intended to be the right side when re-made. There are various applications, each of which has its several advocates. Amongst these, gin, whisky, cold tea, and beer are severally recommended, any of which, if properly applied, will prove satisfactory for ordinary cases. The silk should be brushed, and then rubbed with a clean soft cloth, so

that all dust may be taken away; then it is sponged on the right side with a clean sponge made damp with one of the before-mentioned liquids. Benzine is very useful when grease spots have to be taken away; as a rule, this spirit does not injure the colour of silks, but it is prudent to try the effect first on an unseen portion if the hue is delicate. Benzine should be poured on the spot, and then this should be rubbed dry immediately with clean cloths. Grease can be extracted from silk by putting brown paper on the silk and holding a hot iron *over*, not on it, when the heat will draw out the grease into the paper.

Silk, To Iron.—This material should be ironed only on the side which is intended to be the under side when worn. The iron should not be very hot; and if the silk be of a delicate colour, a sheet of clean white tissue-paper should be placed between the iron and the silk. The iron should be passed along the selvage way of the material, and pressure should be used rather than the ordinary rubbing process of ironing. The silk should be ironed, after being cleaned, while damp.

Silkworm.—This is the caterpillar that produces the moth called *Bombyx mori*, natural family *Bombycidæ*. The silkworm came originally to us from China; and in our country the eggs are hatched in May, and the worm takes about eight weeks before it arrives at maturity, changing its skin four times at least, as although the body increases in size the external covering does not seem to grow. As



MALE SILKWORM MOTH.

soon as it is full grown, the silkworm begins to spin its web, decreasing in length as it does so, until it is entirely enveloped in its silken cocoon, which will be in about four days from the time of commencing it. It remains in a state of chrysalis for nearly twenty days, when it emerges a perfect moth. In the winged state they live but a very short time; the female generally dies soon after laying her eggs. The rearing of silkworms is a pleasant and innocent hobby which gives pleasure to many. The regular food of the worm consists of mulberry-leaves, but they will also eat lettuce.

Silkworm Gut is used by anglers for dressing the hook end of the fishing-line. It is procured from the silkworm caterpillar (*Bombyx mori*) just before it begins to spin, and consequently when the silk vessels are distended with the secretion. When the worms are in this condition they refuse food and have a fine silken thread hanging from the mouth; and they are then taken and immersed in strong vinegar for twelve hours in warm weather, and about three hours in cold weather. When ready, they are taken separately by the operator and broken in two, and the secretion, which is found in the silk glands, is stretched out as far as possible on a board and fastened to the ends with pegs. When this is done they are allowed to dry in the sun or in a warm place, and tied into bundles for use. Silkworm gut is chiefly produced in Spain and Italy.

Silver.—This metal is found in its native state, and in various combinations, the most common being the sulphide. Native silver occurs in solid masses, seldom, however, pure, but containing other metals to a greater or less extent. Large quantities of silver are obtained from argentiferous sulphide of lead, which is found in many parts of England. The principal supplies of silver are obtained from Mexico, Peru, Spain, Germany, Siberia, Sweden, Norway, and many parts of Africa. Silver is of an almost pure white colour, having considerable brilliancy, and being susceptible of a high polish. It is very malleable and ductile, capable of extension into very thin leaves and into wires of almost infinite fineness. It resists for a long time the action of air at high temperatures and does not oxidise. It is also not acted upon by acetic acid as is iron and steel, and is therefore of great value for the manufacture of fish and fruit knives. *Standard* silver, of which the silver coinage of Great Britain is made, consists of an alloy containing thirty-seven parts of silver and three of copper. Of this silver are made all articles of plate bearing the hall-mark, no inferior quality being marked. (*See* HALL-MARKS.) In foreign countries the standard for silver is lower than in Great Britain; thus, in France, it consists of an alloy of nine parts silver and one copper, and in Germany of three parts silver and one copper.

Silver, Chloride of.—This is readily prepared by adding common salt to a solution of nitrate of silver. The chloride is immediately formed, and it is so insoluble in water that it is at once apparent as a white precipitate, which is easily separated. It is altered by the action of light, and becomes of a dark purple colour. On this account it is used in photography. The earliest known photographs (by Wedgwood) were produced on silver chloride, but in his day the means of fixing the picture was not discovered.

Silver Colour.—The colour of the metal so called, which is of a greyish-white tint.

Silver Dust or Powder. — To silver articles by means of dust or powder there are two recipes:—1. Take of silver dust twenty grains, alum thirty grains, cream of tartar and common salt of each a quarter of an ounce; powder, and mix. 2. Silver dust one ounce, common salt and sal ammoniac of each four ounces, corrosive sublimate a quarter of an ounce. This latter is used for the purpose of silvering copper, which must be well cleaned previously by means of friction, adding a little water to make a paste.

Silver, Frosted.—When an article has been immersed in a silvering liquid it comes

out covered with the black oxide of silver, which requires much rubbing to bring either the colour or brilliancy required; or else it leaves the liquid in a white or frosted condition, when it needs burnishing. To give polished silver articles this appearance they should be warmed, and painted with a small camel's-hair brush dipped in muriatic acid, or with citric acid dissolved in water.

Silver, German. (*See* GERMAN SILVER.)

Silver Gilt.—There are many processes by which metals may be gilded; some are mechanical, some chemical, others by means of galvanism. The article should be well cleansed and polished, and either of the following methods adopted:—1. Make a mixture of equal parts of sal ammoniac and corrosive sublimate; dissolve these in nitric acid. This is a menstruum, or material in which gold is to be dissolved. Boil it away till half evaporated, then apply the liquid to the surface of the silver, which at once will turn black, but on being heated will acquire a metallic lustre of gold. 2. The article being well burnished must be rubbed over with the amalgam of gold, which will adhere to the surface. It should then be placed in an oven, that the quicksilver of the amalgam may be evaporated. The gold is then left as a black powder, which needs to be well rubbed with a stiff long-haired brush, and then washed in vinegar and water, and lastly with water alone. As the amalgam is a stiff substance, it is usually put on with a wire brush, and a little dilute solution of quicksilver dissolved in nitric acid. The latter method is called wash or water gilding.

Silver, Iodide of.—This is affected, like the chloride, by the action of light, and is therefore useful to photographers. The plate on which the negative of a photograph is taken is generally coated with the iodide by covering it with a film of collodion, in which a certain quantity of iodide of potassium is dissolved, and then immersing the plate in a solution of nitrate of silver. The iodide of potassium and nitrate of silver react upon one another, resulting in the production of a film of iodide of silver.

Silver Lace is composed of silver wire, the latter made by being drawn successively through a great number of holes in a steel plate, graduated in circumference from the largest down to the finest size, no thicker than a hair. It is then spun into lace or cloth. It is quite unknown at what period the art was discovered of working up silver or gold into thread, but materials have been found at Thebes made of gold wire, and also among Etruscan and Greek jewellery, proving that the ancients were acquainted with it. In Anglo-Saxon times the weaving of the precious metals was practised, but it was all hand-work. In Peterborough Minster there were "two golden altar-cloths," and in Ely Cathedral "two girdles of gold wire," in the reign of William Rufus, but how the work was accomplished in those early times we know not. (*See* GOLD LACE.) The first use of a wire-drawing machine seems to have been about the year 1316 at Nuremberg, and in 1560 the invention was brought to England. Two examples of a stuff with pure wire in it may be seen in the South Kensington Museum. Filagree silver work is silver lace adapted to articles of personal adornments, &c., a manufacture brought to great perfection at Genoa, Malta, and Geneva.

Silver Leaf or Foil.—Thin plates of copper or tin, which are made to simulate silver by dipping them in a solution of that metal dissolved in aquafortis. The silver is precipitated, the fluid poured off; fresh water is added, and the silver, being washed, is dried. After this process an equal weight of cream of tartar and of common salt is ground with it, until the whole is reduced to a fine powder. The foils are then rubbed with a slightly moistened rag till the required degree of whiteness is produced. Silver leaf also signifies a thin plate of that metal, made thin by a process of beating.

Silver, Nitrate of. (*See* NITRATES.)

Silver, Oxide of.—There are three oxides of silver known, but they are not of much importance. Silver, however, is not readily oxidised; and the tarnishing to which silver is so liable is not due to the action of oxygen, but to that of the sulphuretted hydrogen, which is always present in the air, especially of large towns, being given off from the coal fires and gas lamps. The sulphur combines with the silver, forming the sulphide, which is dark-coloured. The term "oxidised silver" is a misleading one, the articles so called having been subjected to the action of sulphur for the express purpose of producing the tarnish.

Silver, Oxidised. (*See* OXIDISED SILVER ORNAMENTS.)

Silver Plate.—Even in the houses of well-to-do people real silver plate is by no means so usual as it once was. It offers such a temptation to dishonesty, and its loss is so serious on account of its costliness, that ordinary people are glad to dispense with it, and to substitute electro-plated goods for it, simply that they may be relieved from anxiety. Some old-fashioned housekeepers there are, however, who possess stores of silver that have descended as heirlooms to them, and they have a great scorn for electro-plate, and would feel it a hardship if they were compelled to use it. These fortunate individuals need, of course, to keep a constant guard over their property, and they would do well to keep their treasures under lock and key, leaving out only so much as is absolutely required for daily use. The silver, too, should be treated with great care, and the forks and spoons should be kept separate, for fear of scratching the articles, as scratches cannot be removed. However old and battered silver may be, its value can invariably be realised, for silversmiths are always glad to purchase it by weight. (*See* ELECTRO-PLATE; PLATE BASKET AND CHEST.)

Silver, To Clean. (*See* ELECTRO-PLATE, CLEANING OF.)

Silver Water.—This rather uncommon liqueur derives its name from the fact that silver foil cut into small pieces is put into the preparation and left floating there. The eau d'argent itself is a compound of rectified spirit, clarified syrup, oil of roses, and oil of cedrats.

Silvering Glass.—The various modifications of the process of silvering glass for the production of mirrors are too numerous to receive attention in this work. We shall therefore confine ourselves to the method most commonly in use. For this an amalgam of quicksilver and tin, formed by dissolving tin in mercury, is used, as it adheres to glass, when properly applied, with considerable tenacity. To apply it, a sheet of tinfoil, somewhat larger than the plate of glass to be silvered, is spread upon a suitable table, the top of which is of stone, sloping to one side, and with a perfectly smooth flat surface. Over this foil, when it is rendered as smooth and flat as possible, the quicksilver is brushed to form a uniform coating, and more is afterwards applied, until there is upon the foil a depth of fluid metal of from two to three twelfths of an inch. Upon this, with a sliding movement dexterously managed, the longest side first, is laid the previously polished and chemically cleaned glass plate, care being taken that its edge shall dip below the quicksilver surface to exclude air. By pressing the glass downward with heavy weights, the surplus quicksilver is squeezed from beneath it into a trough provided for its reception. A glass plate of thirty to forty square feet will require 150 to 200 pounds of mercury, although the amalgam of mercury and zinc is not so thick as the thinnest paper manufactured. As the amalgam sets, the top of the table is gradually raised at one end till the plate of glass upon it finally assumes a perpendicular position, and is then easily removed.

Silversmith's Soap is employed to clean and brighten plate, and can be purchased in cakes at 3d. or 4d. each. It is warranted to be free from mercury and any other ingredient of an injurious character. When used, a piece of flannel should be dipped in water, and next the soap rubbed upon it until a thick lather be produced; then apply it to the article of plate; afterwards wash in warm water, and when dried with a soft cloth, proceed to rub with a dry chamois leather till sufficiently bright. When chased surfaces require to be cleansed or burnished, the lather above named should be applied with a soft brush.

Similor. (*See* Gold, Dutch.)

Simnels.—Originally a simnel was bread or cake made of fine wheaten flour, but eventually it came to mean fancy spiced cakes; hence Dyche says a simnel is "a pleasant cake or confection composed of fine flour, sugar, &c." The name is associated with some old English customs at Midlent or Mothering Sunday. Thus Herrick says:—

> "I'll to thee a simnell bring
> 'Gainst thou go'st a mothering"—

referring to Gloucestershire. Bury, in Lancashire, has long been famous for its simnels, which are still liberally dispensed at Midlent. For their description, *see* Bury Simnel. (See also "Cassell's Dictionary of Cookery.")

Simony is the corrupt presentation of any one to an ecclesiastical benefice for money, gift, reward, or benefit. The word is an ecclesiastical one, derived from that Simon Magus who thought to buy the gift of the Holy Ghost with money. Many questions have arisen with regard to what is and what is not simony; but the following points seem to be clearly settled:—1. The sale of an advowson (whether the living be full or not) is not simonaical, unless connected with a corrupt contract or design as to the next presentation, though if an advowson be granted during the vacancy of the benefice, the presentation on that vacancy can in no case pass by the grant. 2. To purchase a next presentation, the living being actually vacant, is open and notorious simony, this being expressly in contravention of the Statute. 3. That for a clerk to bargain for a next presentation, the incumbent being sick and about to die, was simony, even before the Statute of Anne; and now, by that Statute, to purchase, either in his own name or another's, the next presentation, and be thereupon presented at any future time to the living, is direct and palpable simony. 4. But a bargain by any other person for the next presentation (even if the incumbent be *in extremis*), if without the privity and without any view to the nomination of the particular clerk afterwards presented, is not simony. 5. If a simonaical contract be made with the patron, the clerk presented not being privy thereto, the presentation for that turn shall indeed devolve to the Crown as a punishment of the guilty patron; but the clerk who is innocent does not otherwise incur any disability or forfeiture. 6. Bonds given to pay money to charitable uses on receiving a presentation to a living are not simonaical, provided the patron or his relations be not benefited thereby, for this is no corrupt consideration moving to the patron. A covenant to resign a living on request, given to the patron before and in consideration of presentation, was formerly simonaical, and therefore illegal; but by the 9 Geo. IV. c. 94, every engagement by promise, grant, agreement, or covenant, *bonâ fide* entered into after 28th July, 1828, for the resignation of any spiritual office, being a benefice with care of souls, dignity, prebend, or living ecclesiastical, to the intent manifested by the terms of such engagement that any one person whosoever specially named therein, or one or two persons specially named, each of them by blood or marriage an uncle, son, grandson, brother, nephew, or grandnephew of the patron, shall be presented, collated, nominated, or appointed to such office, or that the same shall be given to him, shall be valid to all intents, and its performance may be enforced in equity. Such engagement must be entered into before the presentation, nomination, collation, or appointment of the party entering. The bond must be deposited within two calendar months of its date with the registrar of the diocese or other jurisdiction.

Simple Contract Debt.—This is a debt where the contract or engagement upon which

it is founded is neither ascertained by matter of record nor by deed or special instrument, but by the most simple evidence of all—oral testimony, or by written documents unsealed. By 32 & 33 Vict. c. 46, s. 1, it is provided that in the administration of the estate of every person who shall die on or after the 1st January, 1870, no debt or liability of such person shall be entitled to any priority or preference by reason merely that the same is secured by, or arises under a bond, deed, or other instrument under seal, or is otherwise made or constituted a specialty debt; but all the creditors of such persons, as well specialty as simple contract, shall be treated as standing in equal degree, and be paid accordingly out of the assets of such deceased person, whether such assets are legal or equitable, any statute or other law to the contrary notwithstanding; provided always that the Act shall not prejudice or affect any lien charge or other security which any creditor may hold or be entitled to for the payment of his debt. (*See* DEBT.)

Sine Die.—A Latin phrase, the literal meaning of which is "without a day." It signifies that no day is fixed; and in legal and parliamentary usage an adjournment or prorogation is said to be *sine die* when no specified day is fixed for further consideration of a subject, or for re-assembling.

Sine-manubrium.—A sort of hair-brush made without a handle, and on that account once much recommended as being more effectual than the form in common use.

Sine quâ non.—A Latin phrase meaning literally "without which, not," and used to denote the indispensable nature of any condition.

Sinecure.—An office or dignity which has revenue without any employments or duties annexed thereto, as when a rector of a parish neither resided nor performed duty at his benefice, but had a vicar under him endowed and charged with the care thereof. This was a sinecure. Sinecure rectories were, however, abolished by 3 & 4 Vict. c. 113, s. 48, and 4 & 5 Vict. c. 39, s. 17. When a church has fallen down, and the parish become destitute of parishioners, it is said to have become a sinecure.

Singing, as an accomplishment, depends in the first place so entirely upon Nature's bounty in respect of the quality of the vocal organs (*see* VOICE), that no amount of teaching, although some clever *maestri* have worked wonders, will put a voice into a pupil who is unendowed with one. But there are very few persons who may be said to have no voice at all, and a skilful teacher will often surprise a pupil by discovering a voice, the existence of which was denied because it was dormant. Among the essential requisites for good singing the following stand foremost: — 1. A good voice. 2. A good ear. 3. A good teacher. There is a surprising ignorance among people as to the class or timbre of their own voices. A contralto strains her voice in attempts to sing music written for a soprano; a baritone strives painfully after the high notes of the tenor; and so on. We counsel every singer to seek the advice of a competent professor of singing before "taking up his part," and, having received the advice, to follow it.

Sinister.—The left hand; on the left hand. The ancients, who regarded many appearances as ominous, thought those upon the left hand unlucky and portents of evil. Hence the word has come to mean that which points to something bad. A man's intentions and the very expression of his countenance may be called sinister—that is, may be taken to mean no good; and so his influence, when bad, may be spoken of as sinister. In heraldry, the left side, or the one opposite the right hand of the person looking at it, is called the sinister side; and the bar or bend which crosses a shield from the top of the sinister side to the bottom of that opposite is called a bend sinister, and denotes illegitimacy.

Sinking Fund.—The surplus revenue of the kingdom beyond the actual expenditure, which is directed to be applied towards the reduction of the National Debt. (*See* NATIONAL DEBT.)

Sinks, Attention to.—All sinks for carrying off water should not only be properly constructed, but kept clean and in good order. Those in-doors require special care, and should not in any circumstances be put to an improper use; the traps must not be removed, as foul and noxious effluvia are apt to escape, to the peril of the inhabitants. To the neglect of simple precautions many cases of typhoid, which are often fatal, may be traced.

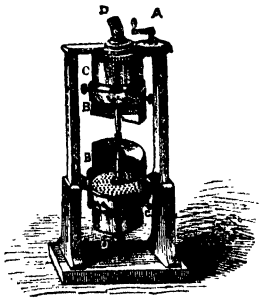
Siphon Taps.—These are taps constructed on the principle of the siphon. (*See next paragraph.*) They combine the advantages of the siphon with those of the ordinary tap.

Siphons.—These in their simplest forms are pipes bent to form a long and short arm, which, when they are filled with water and the shorter arm immersed in the liquid, act by the pressure of the air upon the surface of the liquid. The liquid rising in the pipe reaches the top, and then descends in a continuous stream until the liquid within the vessel is no longer above the lower end of the siphon. The condition under which the siphon acts is that the highest point does not exceed thirty-four feet in the case of water, and proportional heights for other liquids, the differences varying with their respective specific gravities. It is a very useful instrument for drawing off wine, &c., without disturbing the sediment, emptying vessels otherwise difficult to be emptied, and in various hydrostatical processes. The invention of siphons dates back to very ancient times. It was used by the ancient Egyptians for various purposes, and its principle received an important application in the aqueduct which conducted the springs of Mount Pila to Lyons, about forty years after the birth of Christ.

Sir.—In addition to its general use as a form of addressing any person, this term is the distinguishing title of knights and baronets, being prefixed to their Christian names. The

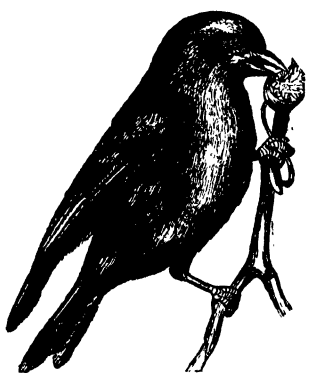
word sire is, like sir, derived from the French *sieur* and *sire*, and has been adopted from France as a form of address to royalty.

Siren.—An ingenious instrument used for the purpose of demonstrating the number of vibrations made by a sounding body in a second of time. The annexed diagram represents the most complete instrument of this order, and is known as the double siren, which was invented by the great physicist, Dr. Helmholtz. A steady current of air is made to enter the tubes (D D); the turning of the handle (A) produces the revolution of the cylinders (C C), and the air passing through the concentric holes in each disc produces the required sound; or, in the case of the double siren, the required combination of tones. The half-caps (B B) are added to strengthen the sound produced. By means of this instrument many interesting discoveries have been made in the laws of tone-production and proportion.



SIREN.

Siskin.—A small song bird, sometimes called the aberdevine, and by Cuvier the *Carduelis spinus*. It is somewhat like the green variety of the canary, and with this bird it is frequently mated to produce mules. It visits this country only in autumn and winter.


SISKIN.

Sittings in Banco. — Sittings of the judges on the benches of their respective courts at Westminster, at which they decide matters of law and transact other judicial business, as contradistinguished from sittings at *nisi prius*, at which matters of fact are tried before a judge and jury. The sittings *in banco* are usually held before four of the judges. At the *nisi prius* sittings one judge only presides.

Sitz Bath.—This is a bath in which the water is made to play on the lower part of the body only. It is much used in hydropathic establishments. The term is, however, frequently employed to express the ordinary hip-bath. (*See* BATHS AND BATHING; HYDROPATHY.)

Size.—A sort of jelly made of parchment, glove-leather, fish-skin, and other substances, by boiling them down in water in ordinary cases. Size for distemper painting is made of the clippings of skins, which should first be placed in a kettle of water and allowed to stand for twenty-four hours, then boiled for five hours, skimming when necessary. After boiling, strain it through a coarse cloth. If the size needs to be kept, two pounds of alum dissolved in boiling water should be added to every pailful. Then boil it again, strain it, and keep it in a cool place. For artists' size, dissolve four ounces of Flanders glue and four ounces of white soap in a pint of water; add two ounces of powdered alum; stir it, and let it cool. This is spread with a sponge or brush over unsized paper which has to be coloured. Common size is made of parchment cuttings boiled down, and also of ordinary glue similarly dissolved by boiling in a sufficient quantity of water. Oil size is made by grinding burnt red or yellow ochre in boiled linseed oil, thinning it with oil of turpentine. For silver size, grind white pipe-clay with black-lead; add Genoa soap, and well incorporate these ingredients with common size. For gold size, *see* GOLD SIZE. Isinglass size is made by boiling down half an ounce of beaten isinglass in a pint and a half of water. Size in various forms is used in sundry arts and manufactures—by paper-makers, book-binders, paper-hangers, white-washers, and distemper painters. It is also employed in the dressing of leather and in different kinds of leather-work Sometimes it is intended to give tenacity to colouring matters, sometimes to produce a gloss and finish to work. Its uses are, however, too varied and numerous to be all mentioned here.

Skate (Fish). (*See* RAY.)

Skates.—The terms skates and skating are capable of two significations, according as to whether they are applied to movements on the ice or on specially-prepared rinks, skating in the latter case being more popularly known as rinking. (*See* RINKS.) The skates, of course, differ considerably in both cases, those used for the purposes of rinking being provided with wheels instead of the thin knife-edge of ice-skates. Wheel or roller skates are of many different kinds, but they all have common points of resemblance in their rollers, base, and straps; the difference between the various patents being rather in the manner in which the wheels move than in their general appearance. And as with roller-skates, so also with ice-skates, or skates proper; there are almost innumerable varieties, and opinions differ greatly as to their comparative merits. Classifying them broadly, however, ice-skates may be divided into two groups: first, the old-fashioned skates of wood and iron, the skater's foot resting upon and being buckled to the wood, and the iron forming a narrow ledge in the centre underneath, upon which the

skater balances himself; and, secondly, skates consisting entirely of iron and steel, and fastened to the foot by springs and lovers. In the case of wooden skates, the heel is provided with a screw, which is screwed into the heel of the boot, and straps of various descriptions pass through the woodwork and bind the skate firmly to the foot. The woodwork of the skate should be adjusted as nearly as possible to the shape of the foot, and it should be hollowed out to fit into the "ball" of the foot and to receive the heel. In selecting a pair of skates, especial care should be paid to the fastenings, the straps, buckles, screws, &c. The advantages of the old form of skate as against the new—to be presently described—may be summed up in a few words: greater security, capacity for wear and tear, adaptability to any boot without the necessity of alteration, and last, and by no means least, *cheapness*. The iron skates, which are of comparatively recent introduction, consist of a light framework of iron fitted with very simple mechanism, so that the skate can be put on the boot almost in a second, and by the action of a triple-acting lever can at once be rendered secure. The advantages of these skates are found in the rapidity with which they may be put on, their lightness, and their completeness, no straps or buckles being required, and no hole in the heel of the boot. Their disadvantages, as compared with the old-fashioned skate, are chiefly their enhanced price, their unsuitability for rough work on the ice, such as hockey or racing, and the undue strain caused by their use on the heels of ordinary boots; indeed, special boots of an exceptionally strong make should, if possible, be kept on purpose for these skates. Into all the mysteries of *inside* and *outside* edge, backward skating, figure cutting, &c., on the ice, it is impossible to enter. Neither, indeed, would it be very profitable, for, like swimming, such things must be learnt in practice and not from a book. And beyond all skating should be learnt, like dancing, in early youth; the various movements will then come almost naturally, and perfect grace may far more easily be acquired.

Skein.—When thread is wound off a hank, doubled and knotted, it is called a skein. Each of these contain a certain quantity, generally an ounce or half an ounce, except the skeins of sewing silk and Berlin wool, which are not so heavy. Skeins of braid measure a certain length. When once a skein of wool or silk is opened, the whole of it should be wound, or it will become tangled, and lose much of its beauty in being extricated. The word is from the Norman-French *escaigne*.

Skeleton Key. (*See* Picklock Key.)

Skeletonising Leaves, &c.—After the longest day, when leaves are in their prime, this work may be commenced. Perfect specimens should be selected, and these must be living leaves plucked from the trees, and not gathered from the ground. The plane, lime, sycamore, Norway maple, pear, magnolia, holly, ivy, and ferns of all kinds, offer a sufficient variety, together with the seed-vessels of the corn poppy, henbane, campanula, mallow, thorn-apple, and lunaria, or honesty. The leaves of the oak, hazel, walnut, chestnut, and elm must not be selected, because the tannin which these contain prevents decomposition from taking place in a satisfactory manner. The specimens chosen are put into open earthenware vessels containing rain-water, and placed in the sun. The leaves lie for days or weeks, according to their thickness. When the outer covering is pulpy and clings to the fingers, the leaf is ready for removal into another earthenware vessel which contains clear water. In this it is shaken gently to and fro, and receives further cleansing in fresh water. For method of transference, a wooden spoon or card is convenient. A soft tooth-brush, used judiciously—*i.e.*, dabbed on the leaf while in the palm of the hand—will clear the network of pulp. When this is accomplished, the skeletons are placed between blotting-paper. The perfect specimens are then selected, and are bleached in the following manner:—A table-spoonful of solution of chloride of lime is mixed with a quart of water, and poured into a wide-mouthed glass bottle; into this the leaves are put, stem downwards, for the reason that the bleaching process begins at the bottom of the bottle, and the stems require the longest time. A cover is placed over the top of the bottle, and it is put in a warm place. The contents are examined from time to time, and directly a leaf is quite white it is taken away, for if allowed to remain too long it becomes brittle. When bleached, the leaves are placed in clean tepid water, dried, and pressed. Seed-vessels require a stronger solution of lime than leaves. A double quantity should be used to the same quantity of water. Artistic groups of these delicate objects can be made on dark-coloured velvet, either in the form of a picture on a velvet background, or as phantom bouquets on a velvet-covered stand under a glass shade.

Sketch Boards and Blocks.—The boards resemble those used for drawing (*which see*). The blocks or pads consist of a number of pieces of drawing-paper of the same size placed one over the other, and held together at the edges in the form of a block. In this way the sketcher has at hand a supply of paper. These blocks vary in size, and the smallest cost about one shilling each. The sketch is made on the topmost sheet, and when finished the sheet is abstracted by cutting the paper round the edge with a penknife. Sometimes these blocks are kept in leather cases, so that the sketch may be safe from mischance.

Sketching.—When in pursuance of this art, the eye should be quick to pick out the most forcible scene in the living picture, or to choose the prettiest and most picturesque portion of the landscape, and the hand should be quick to delineate the favoured piece. In sketching, finished pictures are not produced—merely true and vivid representations of places and persons; an unlaboured freshness should therefore be conspicuous. While sketching from nature, it must be remembered that nature is never stationary; lights and shadows are ever changing, so that it behoves the sketcher to use speed in order to seize a faithful idea. If the sketcher is anxious to portray

some particular building or spot, he should watch and see at what time in the day the light falls the most prettily upon it, and then he should go at that same hour each time; even then exactly the same effect will not be seen each day, for clouds and sunshine vary the light. English skies are unfavourable to sketchers, for there is generally a slight haze, imperceptible to the generality of people, but tantalisingly visible to those who have pursued the art in the clear bright atmosphere of Italy. Some sketchers find the representation of trees in proper proportion their chief difficulty, while the portrayal of water is the *bête noir* of others. The chief points in the scene must be rapidly drawn; due proportions must be observed, as well as the rigid laws of perspective. Rough paper is easier to sketch on than the smoother kinds. A large white umbrella is advisable for the protection of the sketcher from heat and dazzling light.

Skewers.—These very useful articles are indispensable in preparing birds, joints, and other meats for cooking, and their value is never so much appreciated as when they are not forthcoming when wanted. Skewers are made of wood, metal, and silver, and vary in size and thickness according to the use to which they are to be appropriated. Wood and metal skewers are for kitchen use; those made of silver and electro are put into dishes that are being made ready for the table.

Skillet.—This name is derived from the French word *escuellette*, and signifies a small vessel with a long handle used for culinary purposes. Skillets are made in iron, copper, and other metals.

Skimmer.—The cooking utensil known by this name is made in the form of a scoop, and is used for skimming liquors. Milk skimmers are similar articles made with long handles, and are kept exclusively in dairies for skimming the cream from milk.

Skin Diseases.—These are far too numerous to admit of anything more than a mere classification. The most important of them will be found described under their respective headings. Skin diseases are usually divided first of all into two great classes—viz., those which are caused by the presence of an animal or vegetable parasite, and those which are non-parasitical. The former class includes itch, phthyriasis (lousiness), and guinea-worm, caused by animal parasites; as well as ring-worm, liver-spot (*pityriasis versicolor*), chin-welk (*sycosis*), scall-head, and baldness (*alopecia*), all of which are caused by vegetable parasites. To the non-parasitical class belong:—1. *Exanthemata*. These are the different forms of rash, as seen in measles, scarlet fever, &c. These usually terminate in what is called desquamation (peeling). 2. *Vesicles*. These are small elevations of the skin containing a little clear or opaque fluid, which either soon break or dry up and leave an open sore. Chicken-pox, eczema, herpes, and miliary fever belong to this order. 3. *Bullæ* (*blebs*). These are large vesicles which either dry up or break, discharging a straw-coloured fluid, and sometimes leaving an indolent ulcer behind. Pemphigas and rupia are examples of this order. 4. *Pustules*. These are circumscribed elevations of the skin containing matter and terminating in a crust or scab. Small-pox, glanders, acne, ecthyma, and impetigo belong to the pustular order. 5. *Pimples*. These are pointed elevations of skin which usually terminate in scurf. Lichen and pruritus are examples of this order. 6. *Squamæ* (*scales*). These are composed of layers of cuticle usually covering inflamed surfaces, and being continually renewed as they fall off. Leprosy, psoriasis, dandriff, and fish-skin belong to the scaly order of skin diseases. 7. *Tubercles*. These are small, hard, and very obstinate pimples which have a tendency to severe ulceration. Elephantiasis, yaws, molluscum, cancroide, and Aleppo disease are examples of the tubercular order. 8. *Maculæ*. These are spots or discolorations of the skin which may be either temporary or permanent. Freckles, moles, petechiæ, &c., belong to this order.

Skin, Treatment of.—The importance of a careful and rational treatment of the skin can scarcely be over-rated, when it is remembered how manifold and varied are its functions. Whether we regard the skin as the great external covering of the body and a great eliminator of water and effete matter, or consider it in the light of one of the most frequent channels by which disease in its various forms is absorbed, it equally demands our attention. Cleanliness and a uniform temperature, as far as practicable, are the two essentials to a healthy condition of skin. The daily cold bath, unless for special reasons forbidden, is both refreshing and wholesome; but it should be supplemented by an occasional warm soap-and-water or Turkish bath, in order to cleanse out the pores of the skin, which become blocked from various causes, and thus impede perspiration. The skin should be kept warm by suitable under-clothing, of which flannel, thick or thin, according to the season, is best, as any chill is apt to cause congestion of some internal organ which may have serious results. For the same reason it should not be allowed to cool too suddenly, as by sitting in a draught in a hot room or after violent exercise; neither should any one stand about or sit in wet clothes, as in doing so caloric (heat) is withdrawn from the body quicker than it can be replaced, and internal congestion may ensue.

Skins, To Preserve.—The best preparation for the skins of birds is that of arsenic and soap. White soap is mixed with water until its consistency is that of gruel or thin paste; to this is added powdered arsenic sufficient to make the mixture tolerably thick. This is considered to be better than arsenical soap, because it is as effective, and the remainder can be washed away, thus avoiding the danger which accompanies the soap. The preparation should be applied with a coarse brush, and great care should be taken that every part of the inside skin is smeared with it, for decay or attacks from insects will soon spread if one spot is left untouched. The skins of fur animals are hung up to dry in the air or a cool room, and when

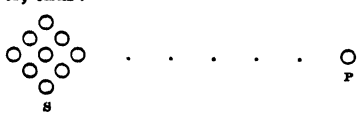
they are thoroughly dry they are handed over to the furrier.

Skipper. (*See* Saury Pike.)

Skirt.—A term applied to the lower portion of a dress, and also to an upper petticoat. For either of these uses a good pattern should be obtained before the garment is cut out, and this should be fitted on the wearer in order to see what alterations will be necessary. Slight differences as to length, width, and fulness have to be observed in different individuals, but these small alterations will not spoil the shape of a good pattern; and unless the latter is used the skirt will not hang gracefully—a defect which will be observable in the under as well as in the outer skirt. When cutting the material by the pattern, particular attention is needed to see that the gores are placed on a right direction of the fabric, for sometimes it is difficult to tell which edge of the paper is intended to represent the slanting side, there being no roving threads to act as a guide. For winter under-skirts, linsey-woolsey and serge are the most serviceable, being none the worse for a wetting. Mohairs, camlets, galateas, and longcloths are useful at other seasons.

Skirting.—Materials are made of special width for this purpose, in order to prevent multiplicity of seams. In some instances the width is made to serve the length of the skirt. The fabrics are of wool, of strong thick cotton, of worsted, or of a mixture of the two. Skirting is also the name given to a kind of gravy beef, and to a narrow board placed round the sides of an apartment.

Skittles.—A game of skill which is common, but not in much repute, because generally connected with public-houses, to which a skittle-ground or skittle-alley is a frequent appendage. To play it, nine wooden pins are set up upon a wooden frame or floor, arranged in three rows, and so placed that one pin only fronts the player, thus:—



Here S represents the order of the skittles, and P the position of the player, who stands with a round or flattened ball, which he throws at the skittles, his success depending upon the number he can lay down. A good player will often bring them all down at a throw. Dutch pins resemble skittles, but the pins are more slender, and the centre one is taller than the rest. This is called the king, and the player aims either to knock it alone down or to knock the rest down and leave it standing. Skittles are sometimes called nine-pins. In one form of the game the ball is suspended by a cord over the centre of the floor. The player holds the ball in his hand, and swings it against the pins to throw them down. Miniature skittles are met with as a toy game for children, to whom they furnish amusement, and are an exercise of skill. There was a kind of skittles in which four pins only were used, as in one of the games called bowls.

Skunk (Fur).—A soft black fur, not much used in this country, which has two white stripes running down the length of the skin. The animal from which it is obtained is allied to the polecat, and is found only in America.

Sky-lark. (*See* Lark.)

Skye Terrier.—A little dog used in the field for almost any work that can be expected of a terrier. It is a long, low animal, with longish, hard, and wiry hair with no curl. The head is also long and somewhat broad; the jaw exceedingly strong; the neck and shoulders are muscular, and the legs straight.

Slander.—The malicious defamation of any one in regard to his character, his trade, profession, or avocation, by word of mouth, as libel is by writing. It is necessary to the recovery of damages for slander, or oral libel, to prove special damage, where the same is not spoken in respect of one's trade, profession, or occupation.

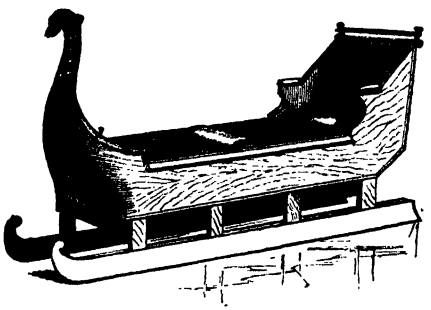
Slashed Work.—This term is used to describe the effect given when a material is cut with long cuts, seemingly at random, and another material is introduced to fill up the gap or rent. Thus the sleeves of a dress are sometimes slashed: slits are made, and another fabric, perhaps of a different colour, is made visible and fills up the aperture prepared for that purpose.

Slate Colour, To Dye.—This colour, like all greys and drabs, is a difficult one to dye, and can scarcely be accomplished by an unprofessional hand. Like greys and drabs, slate can be produced by the use of oxide of iron, the blueness of the shade being given by indigo or woad.

Slates and Slate-pencils.—The former are usually composed of ordinary slate made smooth by being polished with pumice-stone. This process produces a greyness which interferes with clearness of marks, and which it is therefore necessary to disperse. A little ink or oil rubbed over the surface, or a thorough scrubbing with brush, soap, and water, will remove the blue appearance and leave blackness in its stead. The chief disadvantage of these slates is their liability to crack or split should they fall; they should be protected by a wooden frame, and if this frame is covered with thin leather its appearance is thereby improved. India-rubber and composition slates have been introduced, but they are not so satisfactory as the ordinary slate material, because more effort is required to produce marks upon them, owing to a tendency to become greasy, of which no amount of scrubbing seems to rid them effectually. China slates are the pleasantest to write upon, because they are always cleanly. This is the most convenient slate to hang up in a hall or room for memoranda or messages, as an ordinary black-lead pencil can be used for writing on it, whereas the other kinds of slates require special kinds of pencils. Those for the common slates are made of a soft kind of slate formed in narrow slips. As these pencils snap asunder with the slightest blow, and also soil the fingers, it is advisable to use them in tubes sold for the purpose. All slates should have a small piece of sponge attached to their frame by a piece of tape or string long enough to reach over the extent of

surface; the sponge should be made damp, but not wet when used to clean the slate. Soap and water should be used occasionally, after which the slate should be rubbed quite dry with a cloth.

Sledge.—This is a vehicle without wheels used for sliding over ice or frozen snow, drawn



SLEDGE.

by horses or reindeer, or pushed by hand. It is largely used in North America and in various parts of Northern Europe.

Sleep is as much a necessary of life and health as the food we eat and the air we breathe. It is during the precious hours of rest that the brain and nerve-centres store up oxygen and other matters for use when work again begins; the circulation also during sleep is much more tranquil, and the wear and tear of the body, muscular and otherwise, are reduced to their minimum. In infantile life a large amount of sleep is requisite, owing to the necessity for providing the materials for growth, which must necessarily be considerably in excess of the waste. From this period up to manhood, or as long as the process of growth continues, it is most important, in order to ensure that this may be healthy and vigorous, that the old precept of "early to bed" should be strictly enforced. In ordinary adult life it is generally considered that eight hours' sleep out of the twenty-four is a fair proportion. This should be regular, as even sleep partakes to some extent of a habit, and if therefore irregular, it is not usually so complete. The time for taking sleep is not so important as the regularity, but for obvious reasons certain hours are usually set apart for that purpose, these being more or less modified, according to the taste and habits of the individual.

Sleepiness. (*See* DROWSINESS.)

Sleeplessness.—This may either mean disturbed sleep, with protracted intervals of wakefulness, or complete loss of sleep, and in either case it is one of the most troublesome affections with which the physician has to deal. Occurring as it usually does in the busy brain-workers of large cities, it is most difficult for them to throw off the thoughts and cares which are at the root of the malady, and to obtain the rest they so much need. Numerous remedies have been devised to cure sleeplessness, most of them having for their chief object to divert thoughts. Amongst these may be mentioned the arrangement by which water is made to keep on dripping audibly every four or five seconds into a vessel prepared for its reception; soft music, as the Æolian harp or musical box, has been at times effective. Smokers find a pipe and light reading conducive to sleep. Stimulants are resorted to by many, but these have this disadvantage, that a habit is established in which it is not always possible to indulge. Change of air and scene forms perhaps the best of all remedies where sleeplessness, or insomnia, as it is called, has become troublesome. Of course, if all ordinary measures fail, narcotics or sedatives, in the form of chloral, morphia, bromide of potassium, &c., must be taken, but always under medical advice and supervision, not otherwise. Should indigestion or error of diet, as heavy suppers, for example, appear to prevent sleep, these must be corrected; and regular hours, thorough ventilation of the bedroom by night as well as by day, the use of a mattress and not a feather bed for sleeping purposes, must all be strictly attended to by the person whose sleep fails.

Sleeve-links.—These usually consist of two round or oval buttons of gold, silver, &c., connected by an oval link, and used instead of buttons for fastening shirt sleeves at the wrist. Studs and other fastenings are much employed for the same purposes as sleeve-links, and may eventually almost supersede them.

Sleeves.—Measurements for these should be taken in each individual case; the number of inches from the shoulder to the wrist, both outside when the arm is bent, and inside when it is straight, must be ascertained, for if the inside seam is unduly short, the sleeve is very uncomfortable, and is dragged up the arm every time the wearer stretches it out. Sleeves should be cut the selvage way of the material. The shapes vary with the fashion, the most comfortable, especially for winter wear, being the coatee sleeve.

Sleight of Hand.—Legerdemain, or conjuring. (*See* CONJURING.)

Slices.—Fish and egg slices are made of perforated metal, either tin or copper, and are used to lift fish or eggs in a dry state from the water or fat in which they are being cooked. In furnishing a kitchen, an egg or fish slice is one of the necessary articles to be purchased.

Slippers.—Probably the original name of these easy comforts was that of slip-shoe, a term used by the Anglo-Saxons for shoes that had no leather behind. Slippers of this description are sometimes made now. Slippers made of carpet are the least expensive, but these always have an untidy appearance. Leather of all kinds is employed for slippers; morocco wears the best. For fancy slippers, wool-work on canvas is a favourite; small and plain patterns look much more suitable than those which are gay, startling, or florid. Cloth, with patterns braided or embroidered, are serviceable. These kind of slippers are more expensive than leather ones, because the charge for making up the work is considerable. The expense can be slightly lessened by the worker lining and binding the upper parts. Crocheted wool slippers are very warm and comfortable for ladies' and children's

bedroom wear; these can be sewed to cork soles, and thus made up for a very small sum.

Slips (Dress).—These are plain skirts, without flounce or trimming of any description, made for the purpose of wearing under thin dresses, such as net, muslin, grenadine, &c. The material best adapted for slips is silk, which, as it is but imperfectly seen, can be of inferior quality or dyed. Batiste is also used for slips, but its appearance is not so soft and graceful. Thin fabrics always appear to greater advantage when worn over slips. The slip should agree in length with the over-skirt, but need not be of the same width. A plain bodice of the same material should be worn with the slip, and form an under-bodice for that of the dress.

Sloe.—The wild sloe (*Prunus spinosa*) is the parent of the plum, for from it is derived first the bullace (*Prunus insititia*), and through this the common plum (*Prunus domestica*). The sloe grows in Britain, and almost all over Europe, in hedges and thickets and arid places. It is generally a shrub, though sometimes it is a small tree. The fruit is about the size of a



SLOE.

large pea, and is of a pale blue colour, with blackish bloom; it is harsh to the taste. It is used on the Continent for making jam. An extract called German acacia is also prepared from it, which was much used at one time as a cure for diarrhœa. The flowers of the sloe are purgative, and constitute a not uncommon domestic medicine; the leaves are very extensively used in the adulteration of tea. The fruit, when unripe, dyes black.

Sloe Wine.—In some parts of the country sloes are gathered in large quantities, and sold at a cheap rate for making wine. They are, however, on account of their rough taste, seldom used alone, but are mixed with damsons or elderberries in varying proportions to suit individual tastes. The juice of sloes is much used in the manufacture of spurious port, and also to impart roughness and colour to inferior port. It is also employed in some places to make a kind of brandy.

Slugs.—This is the name given to the gasteropodous naked mollusc, so great an enemy to our gardens and fields. Slugs are, unfortunately, too well known to require description; they are found in nearly every part of the world, but are more common in the more temperate regions. Many recipes are known for destroying these creatures, or for protecting tender leaves and fruit from their ravages. A common plan is to surround the foot of the plant with soot; this the slugs will not cross. The larger kinds may be gathered and destroyed. A good plan to catch them is to get a few cabbage leaves, and having warmed them well in an oven to rub them over with unsalted butter or dripping, and place them in the haunts of the infesting mollusc. In a few hours the leaves will be found covered with slugs, and they may then be destroyed.

Small Debts.—Previously to the establishment of the County Courts, there were local courts scattered over the country, presided over by commissioners and other functionaries, for recovery of small debts and demands. These are now superseded by County Courts (*which see*).

Small-pox.—This is a highly contagious, eruptive fever to which human beings, as well as some of the lower animals, are subject. At what period small-pox was first introduced into this country is uncertain, but there is no doubt that it was well known to the Chinese as far back as 1100 years before Christ. It is also uncertain whether the disease originated in the first instance in man or in one of the lower animals; but there can be no doubt that it may be, and frequently is, communicated from one to the other. It was this communicability of the disease from affected cows to those that milked them which first drew the attention of Jenner to the identity of cow-pox with small-pox. Observing, further, that the disease so communicated was of a much milder type and seldom proved fatal, he was led to recommend inoculation from the cow, and subsequently vaccination (*which see*), as the best protection against the more severe forms of this loathsome disease. Small-pox is seldom, if ever, entirely absent from this country, and it occasionally becomes severely epidemic. On the Continent, where vaccination is more strictly carried out, it is seldom seen; but in uncivilised countries, where vaccination is unknown, it makes the most fearful havoc, the few cases which might recover, dying as a rule of starvation and neglect, owing to the dread of approaching the sufferer which the disease inspires. The symptoms of small-pox resemble very much, in the first instance, those of ordinary fever. After a period of what is called latency or incubation, which varies from ten to fourteen days, and which constitutes the first stage of the disorder, symptoms of fever manifest themselves, with hot skin, thirst, headache, foul tongue, severe pain at the bottom of the back or in the bowels, vomiting, and sometimes profuse perspiration; the second stage, or stage of fever, lasts four days, and is succeeded by the third or eruptive stage, which is characterised by the partial or complete subsidence of the feverish symptoms just described, and by the appearance, first on the face and neck, then on the body and extremities, of crops of pimples,

which in two days become converted into vesicles, depressed in the centre, and containing a clear transparent fluid. These vesicles in four days become pustules filled with matter, emitting a very disagreeable and characteristic odour, and their formation is accompanied by what is called the secondary or suppurative fever, which varies in intensity according to the violence or mildness of the attack. The beginning of the secondary fever, and any subsequent complication which may arise either in the lungs, brain, eyes, or other parts of the body, constitute the fourth stage of the disease. The eruption of small-pox is generally spoken of as being either distinct or confluent. The former represents the mild, the latter that severe form of the disease in which the pustules are so exceedingly numerous as to run together and form large masses, utterly losing their distinctive pimply character. There are also other varieties of the eruption, as, for example, the horn-pox and the pearl-pox, neither of which becomes pustular, but are accompanied by very slight fever. Small-pox may also exist without an eruption appearing; or the violence of the poison may be so great as to kill by shock alone before the eruptive stage has had time to become developed. Again, there are in this disease numerous modifications of the eruption, due to the influence of vaccination, to which the name of modified small-pox is given. The treatment of small-pox must be both preventive and curative, the former of which is, of course, the more important. Being probably the most contagious of all diseases, every precaution must be taken to as far as possible isolate the patient and the attendants from the rest of the household; to disinfect or destroy the clothing, and everything which may in any shape or form, either directly or indirectly, come in contact with the affected person; but above and beyond all preventive measures, that of vaccination is the most important. Where this is carefully carried out there is very little danger of taking small-pox, and if, unhappily, it does occur in persons who are unusually susceptible, it is generally of a mild and not dangerous character. Whenever a case of small-pox occurs in a household, therefore, all the members of that household who have not been re-vaccinated should be at once operated upon, and this will in all probability prevent the disease from spreading. With regard to the curative treatment of small-pox, but little is necessary in the mild cases, save to thoroughly relieve the bowels in the first instance, and to partake of cooling drinks of lemonade, cream of tartar, &c. In severe cases, ammonia and brandy are requisite; and should such complications arise as pneumonia, abscesses, &c., they must be treated according to the directions given under their headings. As to the pitting which appears when the scabs have fallen off, this, from the hideous disfigurement which it frequently produces, is naturally very much dreaded both by patients and their friends, and numerous have been the devices to prevent its occurrence; but the results have scarcely been satisfactory. Some medical men, however, have recommended the use of collodion; others puncture the vesicles before they become pustules, allowing the fluid to escape; others, again, cauterise the vesicles, or paint them with application of iodine. Gutta-percha and chloroform, sulphur ointment, calamine mixed with olive oil, chalk ointment, cold cream, pure olive oil, and carbolic oil, have each their advocates, and doubtless do good by excluding air and allaying irritation; but as the pitting is usually proportionate with the extent of the suppurative fever, everything must be done to control this as much as possible. The room should be cool and well ventilated, and the clothing light; the face and hands frequently sponged with tepid water, carefully dried with a soft towel, and afterwards brushed with some cooling application, as, for example, equal parts of olive oil, glycerine, and lime-water or carbolic oil.

Smalt. (*See* COBALT.)

Smell, Loss of.—This (known medically as anosmia) is usually due to congestion of the mucous membrane of the nose, arising from common cold, of which affection it is one of the most ordinary accompaniments. It may, however, arise from injury to or disease of the olfactory nerve, which is the nerve of smell. (*See* CATARRH.)

Smell, Sense of. (*See* OLFACTORY NERVES; *and preceding paragraph.*)

Smelling Salts.—According to a trustworthy authority, "sesquicarbonate of ammonia commonly passes under the name of smelling salts, and, with the addition of a few drops of essential oil, is frequently employed to fill smelling-bottles; but when a strong and durable pungency is desired, the carbonate should alone be used." As there is some difficulty in preparing the more elaborate varieties, it is best to purchase them ready made.

Smelt.—A little fish belonging to the natural family *Salmonidæ*, and called the *Osmerus eperlanus*. There are two kinds, the one about four inches long, and the other double that length. Smelts are really sea fish, and are found in abundance about our coasts, but they go up our rivers some time before they spawn. In the Dee and Thames they are taken in November, in other rivers not so soon; but they do not spawn until the month of March or April, after which they return to the sea. They are fished for about the mouths of rivers, where they lie about eight feet from the surface. The line with which they are caught is called a paternoster line, and the bait may be gentles, or tiny shrimps, or bits of eel. They are cooked by either broiling or frying, and are also good pickled.

Smoke.—The visible volatile matter which is thrown off by some kinds of burning substances, especially those of vegetable origin, as coal and wood. It is chiefly carbon in an impalpable powder, and is deposited in the form of soot.

Smoke-jack.—This name is given to a machine for turning a roasting spit by means of a fly-wheel, which is set in motion by the current of ascending air in a chimney.

Smoked Fish.—Fish, like meat, is smoked as well as dried and salted, in order to preserve it. The process, while it greatly promotes the keeping power of the food, lessens its digestibility; and though smoked fish is highly relished by some, it is unsuited for invalids and dyspeptic persons.

Smoked Meats.—Certain kinds of meat are, after they have been more or less salted, subjected to the action of smoke. This is done partly on account of the flavour they thus acquire, and which is greatly relished by some, and partly for their preservation, because the empyreumatic vapour with which the meat becomes penetrated possesses an anti-septic capacity which increases its power of keeping. Smoking is best done in winter. When performed on a large scale, the articles are hung in rooms, into which smoke is admitted gradually from smothered fires which have been kindled in an underground apartment. The time required for the process varies according to the nature and size of the substance to be smoked. The quality of the wood which is burnt in the fire affects the taste and smell of the meat. The wood of the beech, the green birch, and the oak, is to be preferred to that of the fir and larch. The smoke from juniper branches or other odoriferous woods, such as rosemary and peppermint, imparts a pleasant aromatic flavour to the meat. For this purpose, also, a few cloves are frequently added to the fuel. Meat is frequently smoked in farm-houses, where wood fires are common, by being hung in a cool part of the kitchen chimney. When it is wished to smoke hams or fish on a small scale, the following plan may be adopted:—Procure an old puncheon or large cask, and knock the ends out of it. Place it on a heap of sawdust of green wood, such as birch or oak, and put sticks across the top of the cask. Hang whatever is to be smoked on these, and bury a bar of red-hot iron in the sawdust. Cover the cask to confine the smoke, and admit a very little air below, so that the sawdust may smoulder slowly away and smoke freely.

Smoking.—It is not possible in a work of this kind to discuss the much-vexed question as to whether the practice of smoking is injurious or not. It may, however, we think, be fairly affirmed, both from general principles and from ample experience, that the very moderate smoking of tobacco does not appear to be in any way prejudicial to health, and that in many cases, from its sedative influence, it may prove even beneficial. At the same time, it cannot be too strongly asserted that the excessive use of tobacco is highly injurious, and may give rise to many disorders. In the smoke question, as in most other matters, the truth probably lies between the contending parties.

Smoky Chimneys. (*See* CHIMNEYS, SMOKY.)

Smoothing Iron. (*See* SAD IRON.)

Smuggling.—The offence of importing prohibited articles, or of defrauding the revenue by the introduction of articles into consumption without paying the duties chargeable upon them. It may be committed indifferently either upon the excise or customs revenue. "To pretend," says Adam Smith, "to have any scruple about buying smuggled goods, though a manifest encouragement to the violation of the revenue laws, and to the perjury which almost always attends it, would in most countries be regarded as one of those pedantic pieces of hypocrisy which, instead of gaining credit with anybody, seem only to expose the person who affects to practise them to the suspicion of being a greater knave than most of his neighbours. By this indulgence of the public the smuggler is often encouraged to continue a trade which he is thus taught to consider as in some measure innocent; and when the severity of the revenue laws is ready to fall upon him, he is frequently disposed to defend with violence what he has been accustomed to regard as his just property; and from being at first rather imprudent than criminal, he at last too often becomes one of the most determined violators of the laws of society." Smuggling is restrained by the Statutes which relate to the customs, and in particular by the 16 & 17 Vict. c. 107 (the Customs Consolidation Act, 1853).

Smut.—Black dirt; hence a smutty face is one which is stained with soot or black. Also a kind of inferior soft coal. Smut is a name given to a fungus which attacks growing corn in the ear and turns the grains to a black powder.

Snails.—The common garden snail, or *Helix aspersa*, belonging to the natural family *Helicidæ*, is found in a great many different parts of the globe. The *Helix pomatia* is another common snail of this country, said to have been first imported into England by Sir Kenelm Digby. This snail is the edible kind. Snails seem to thrive best in a moist, warm atmosphere, seeking shelter from the sun's rays beneath leaves, wood, stones, &c. The edible variety is used as food by tens of thousands in Paris, and by many in other countries. The snails are reared and fed for the table in snaileries, and grow sometimes to a very large size. The edible kinds have been considered a luxury from very early times; and there is really no reason why they should be loathed as food any more than the oyster is. It is said that they are collected around London for the Paris market.

Snakewood.—The serpentine snakewood (*Ophioxylon serpentinum*) belongs to the natural family *Apocynaceæ*. It is so called from the twisted appearance of its roots and stems. It is a native of India, where in good soil it is a tall climbing plant, but in poor only a small shrub. It is used by the native doctors in the treatment of a great number of different disorders.

Snap-dragon.—A sort of pastime in which raisins are placed in an open dish with some spirit, such as brandy. A light is applied to the spirit, and the fun consists in snatching the raisins out of the glowing dish and eating them. The effect is heightened by turning down the gas or otherwise darkening the room.

Snap-dragon (Flower).—This is the *Antirrhinum* of botanists, a plant of which there are sundry varieties, one of them being very common in a wild state, and with its bright yellow flowers a pretty ornament to the hedgerow or roadside. The *Antirrhinum majus*, or great snap-dragon, is often found on



SNAP-DRAGON.

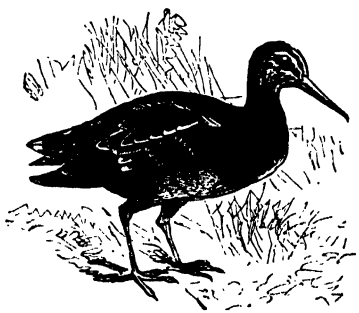
old walls and ruins, and is easily cultivated in gardens, where it grows from one to three feet high. It flowers nearly all the summer, and varies from white to a deep red or purple. It is raised from seed or cuttings. The name snap-dragon is due to the supposed resemblance of the flower to the nose and mouth of some animal; hence it is also known as calf's-snout.

Snaps.—By means of these ingenious contrivances, bags, boxes, purses, and other articles are fastened instantaneously by slight pressure, and stand in no danger of falling open until pressure is again given to the particular spot, when they immediately spring open. Some snaps are made further secure with lock and key. Snaps are a great improvement on slides and clasps, which preceded this more convenient method of fastening. Snaps which are closed and unclosed by pressure are less liable to be disarranged than those which are managed by the movement of a button or plate.

Sneezing.—This is a violent spasm of the muscles of respiration, usually excited by some irritation of the mucous membrane of the nose, as, for example, in taking snuff, or by a cold in the head.

Snip-snap-snorum.—A game at cards, played with a complete pack by any number of persons, as follows:—Each player places before him five coins or counters, and the cards are then dealt round in the usual manner. The person next the dealer plays one of his cards, and if the player following him has a card of equal value, he plays it and says *snip;* the person snipped then places one of his coins or counters in the pool. Should the third player also happen to hold a card of the same value, he plays it and says *snap*, and the second player then forfeits a counter. It may happen—although, of course, this is a rare case—that the fourth player has also a card of equal value, in which case he plays it and says *snorum*, the third player, in consequence, losing a counter. It will be seen, therefore, that the object of each person is to play a card of equal value with the person immediately before him, not only because he thereby makes his opponent lose a counter, but because he at the same time reduces the chances of the succeeding player being able to make him forfeit one. When any player has paid into the pool his five coins or counters, his chance of winning the game is lost, and he retires, the pool eventually becoming the property of the person whose stock holds out longest. No person may play out of his turn, but every one must *snip* or *snap* when it is in his power. The cards must sometimes be dealt four or five times before the game is decided; but when the players are reduced to two or three in number, only thirteen cards are dealt out to each.

Snipe.—This is a bird which is a great favourite with the sportsman. Several kinds are known, all belonging to the natural family *Scolopacidæ*. The common snipe (*Scolapax gallinago*) is a native of this country, but is more frequently found in Scotland and in Ireland. It builds a slight nest of a little hay or dead meadow grass, and lays four pale



SNIPE.

greenish eggs, having a few spots of brown at the thickest end. The food of the snipe consists of worms, snails, slugs, and insects; it frequents moist marshy spots, and in winter is to be found where rushes grow near running water. The number of common snipes in England is largely augmented by flocks that visit us from more northerly Europe. The jack snipe also visits this country, so also does the solitary snipe, but both are somewhat rare.

Snood. (*See* HAIR-NETS.)

Snow is one form of frozen water, which is produced in the upper strata or cloud-region of the atmosphere. It consists of ice in beautiful delicate crystals, radiating from the centre and forming stars of six points. The appearance of the snow crystals differs considerably, but they will all be found to conform to this one system. The modifications are probably influenced by the amount of moisture in the air, the rate of freezing, and the presence or absence of wind at the time of their formation. There are usually so many interstices in the snow-

flakes that they are very light, and therefore snow falls very gently, unless driven by the wind. On high mountains, and in the Polar regions, where the snow attains a great depth during the winter months, the lower layers become pressed together by the superincumbent weight, and the snow then assumes the form of solid ice. When snow falls upon a house-top it is desirable to have it cleared off, as the upper portion may be melted while the gutters are still choked with an accumulation of snow; and the surface water in such case is not unlikely to find an escape through the roof, to the discomfort of the inmates of the house.

Snow (in Cookery).—In winter-time clean snow may be employed instead of the beaten whites of eggs for making frying batter, such as is used for fritters of meat or fruit. The snow, like the eggs, must be stirred lightly into the batter just before it is to be used.

Snowball Plant. (*See* GUELDER ROSE.)

Snowdrop.— This (the *Galanthus nivalis* of botanists, belonging to the natural family *Amaryllidaceæ*) is a shrubby plant, growing in



SNOWDROP.

thickets in various parts of Europe, chiefly in woods. It blossoms in February or March, the flowers being white, drooping, and having their inner segments of a greenish colour.

Snuff.—Tobacco in powder, often scented and otherwise manipulated in the manufacture. Its use is known, and its varieties are numerous. Owing to the frequency with which it is adulterated, a law has been passed prohibiting the admixture of some ingredients altogether, and of others except in certain proportions. Medicated snuffs have been invented, and have in some cases been popular; but they should only be used under professional advice, though it may be stated that an occasional pinch of snuff will sometimes stop a fit of sneezing by helping to clear the nostrils of something which irritates them. (*See* SNUFF-TAKING.)

Snuff-boxes.—These have been made of every material of which they well could be made; not only of gold and most other metals, but of ivory, horn, wood, papier-maché, &c. Their forms and ornamentation have been equally diversified. Some are real works of art and of great value, being often wrought of gold, and set with diamonds and other gems. These usually find their resting-places in the cabinets of wealthy collectors of curiosities, or in public museums.

Snuff-taking. — Advice on this subject may be reduced to a very small compass. The habit of taking snuff exists in all possible degrees, but is probably not injurious on a limited scale. When, however, it assumes such proportions that a man is seldom without a snuff-box in his hand, and is incessantly applying snuff to his nose, it may be considered objectionable on sundry accounts. Such a one is apt to be slovenly, and to scatter his snuff over his beard and clothes, and sometimes his voice becomes singularly unmusical. Perpetual snuff-taking acts upon the olfactory nerves, and weakens the sense of taste as well as that of smell, and other injurious consequences follow, sometimes of a very grave description. Finally, excessive snuff-taking often degenerates into a mere habit almost without enjoyment, and is disagreeable to those who are in company with the persons who take it.

Snuffers and Trays.— In olden times, before gas was invented, and when candles were of much greater importance than they are now, snuffers and trays were considered indispensable additions to household furniture. In the houses of the rich, where the candlesticks were made of silver and were highly ornamental, the snuffers and trays were made of the same metal, and were designed to match the candlesticks. In some old families, specimens of these may still be seen, but they are preserved more as curiosities and as relics of past ages than for use. Commoner kinds were made of tin and Japan ware. Since the invention of gas and other contrivances for artificial illumination, snuffers have been very little needed, especially as so many of the candles now manufactured require no snuffing.

Snuffless Candles. (*See* CANDLES.)

Soap Liniment.—This is popularly known as opodeldoc (*which see*).

Soaps.—Soap is the name commonly given to the soluble salts produced by the action of caustic alkali upon neutral fats. Every one knows that if fat and water are shaken together they will appear to mix for a time, but that if the mixture is allowed to rest, the fat will gradually separate and rise to the surface of the water. If, however, a quantity of caustic soda or potash be added before the mixture is shaken, the three bodies will mix readily enough and form a milky liquid. The soda and potash are alkalies, and if they were added in sufficient quantity and the mixture were boiled, a soapy fluid would be produced which would be, in fact, a solution of soap. From all accounts, soap appears to have been used for about two thousand years. The Romans considered it a Celtic invention, and, according to Pliny, it became known to them through their conquest of Gaul. In the Hebrew Scriptures there is a substance mentioned named *borith*, and this in the

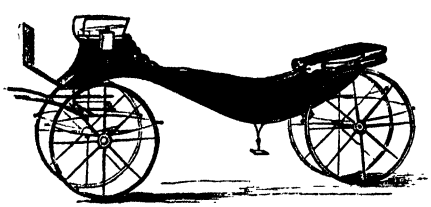
English version has been rendered soap; but many scholars are of opinion that it should have been potash. We may be sure, however, that the process of washing was much more difficult before soap was invented than afterwards; and from an allusion in Homer we gather that the ancients used to wash their clothes by pressing them with their feet in water, and this custom still prevails among savage tribes. The fats principally employed in the manufacture of soap are beef and mutton, tallow, horse-grease, lard, fish-oils, bone-grease, and kitchen refuse. Lard is not much used in Europe for the purpose, as is is too dear, but it is extensively employed in the United States for making soap. Vegetable oils of differents kinds have been used at one time or another for the same thing, among the principal of which may be mentioned the oils of nuts, almonds, palms, hemp-seed, rape-seed, cocoa-nut, beech-seed, &c. The alkalies used for making soap are soda and potash. The cleansing power of soap depends upon the quantity of alkali which it contains; for although pure alkali would be injurious both to the skin and to the fabric, it is when combined with fatty acid milder in its action, while its cleansing properties are still retained. Therefore the greater the quantity of fatty acid there is in the soap, the better it is. Soap that contains but a small quantity of water is very hard and will not make a lather easily. If, on the other hand, there is too much water, the soap wastes. Ordinary soaps are of two kinds—soft and hard. Potash is the alkali used for soft soap, and soda for hard soap. The latter, therefore, is the more employed. *Soft soap* contains an excess of alkali, and this it is that makes it so cleansing. When it is made of pure materials, potash and olive oil, it is used as a cure for skin diseases. This soap is of a yellowish-white colour, has a pleasant odour, and is of the consistence of thick honey. The common soft soap, however, is made of coarse fish-oils and potash. There are many varieties of hard soaps, and the variations depend upon the materials used in their preparation. Yellow soap, mottled soap, and curd soap are the kinds most used for household purposes. *Yellow soap* is made from tallow, palm oil, and caustic soda. A certain proportion of resin is added to give it lathering properties. This soap has been pronounced by many authorities to be better than any other for the skin. Sir William Fergusson used to recommend that it should be well rubbed into the joints as a remedy for rheumatism. It must, however, be the *best* yellow soap that is used in this way. Common yellow soap which contains too much resin and too little tallow is injurious and irritating to the skin. *Mottled soap* is made of coarse tallow and refuse kitchen stuffs. Its mottled appearance is imparted to it by mixing a solution of iron with it just when it is taken out of the copper. The object of doing this is to show that the soap does not contain too large a proportion of moisture, since if much water were present the colouring matter would sink to the bottom of the mass and remain there, instead of being diffused throughout. Consequently mottled soap does not lather so freely as yellow soap, and it is considered economical. *Curd* or *white soap* is the purest soap of commerce. It is made of tallow, to which a small proportion of olive oil is added to impart softness. It enters into the composition of many fancy soaps. The toilet or fancy soaps are very numerous. *Windsor soap* is made of olive oil and ox tallow; what is called *French Windsor soap* is made of lard mixed with palm oil; *common Windsor soap* is nothing but curd soap perfumed with mixed scents; *brown Windsor soap* is common Windsor coloured with burnt umber. It is supposed to be, and was originally, white soap that had become brown with age. *Glycerine soap* is made of lard, with almond oil, palm oil, and nut oil, to which glycerine is added. *Honey soap* has no honey in it. It is made of curd soap, palm oil soap, and olive oil soap melted together, and scented with the essential oil of citronella. *Almond soap* is made from almond oil. *Spanish soap* is made of the best olive oil, soda, and water, with a little colouring matter. (*See* CASTILE SOAP.) *Marseilles soap* is the same kind of thing, but stronger. *Floating soap* is a very elegant toilet soap. It is made of good oil soap and water melted together, and beaten till it is quite light and double its original volume. *Naples soap* is made from olive oil and potash. *Cinnamon soap*, *rose soap*, *musk soap*, *orange-flower soap*, and *savon au bouquet* are all superior soaps, scented with various perfumes and named after their prevailing scents, and coloured with a variety of tints. *Palm oil* or *violet soap*, as it is often called, is made of palm oil pleasantly flavoured with violet. *Pearl soap* is made of lard, and beaten when cold, a little at a time, till it "pearls" or masses together. *Transparent soap* is made by dissolving white soap in spirit, and allowing the preparation to stand for a while, when the clear portion is taken up and poured into frames. The aromatic and colouring ingredients are added while it is in a soft state. This soap does not lather well. The preparations called *medicated soaps* contain active ingredients, and are used for medical purposes. Among them the only kind that should be used internally is the *white soda soap*, or medicinal soap as it is called, which is the very purest Castile soap. In its less pure forms this soap is known as Alicante, Venice, or Spanish soap. It is used to make pills of a gently aperient nature. Pills made of medicinal soap and carbonate of soda are of great use in gout, and in certain forms of gravel. *White soap* is an antidote also to certain mineral poisons. *Carbolic soap*, *tar soap*, *petroleum soap*, *chlorinated soap*, and *terebene soap* are all disinfecting soaps. Of these, chlorinated soap is one of the most powerful agents known for preventing contagion by contact. Carbolic soap also has great disinfecting powers. It is useful for washing the linen of fever patients, and also for cleansing an infected chamber. The ordinary carbolic soap is too strong for personal use, but there is a variety, called carbolic toilette soap, which is specially intended for this purpose. Terebene soap is a very pleasant and powerful disinfecting soap. The liquid which is its active principle is obtained from the juice of the long-leaved pine. When exposed to the air it volatilises, and not only makes an offensive smell by its own odour, but

develops ozone in the air, which rapidly oxidises and destroys the malodorous emanations. *Iodine soap*, *mercurial soap*, and *sulphuretted soap* are excellent for skin diseases. In addition to these, the principal soaps, there are *arsenical soap*, used in stuffing birds and small animals, and *black soap*, used by farriers. For the sake of economy, soap should be purchased in quantities. The reason of this is that it hardens by keeping, and so does not melt away so rapidly when it is used. Household soap is sold in bars, each one of which contains about three pounds of soap. These bars should be cut into convenient-sized pieces with thin twine, as it will by this means harden better throughout than it would do if left in the bar. The pieces must then be put in some place where they will dry and harden gently without being exposed to the air. If dried quickly, the soap will crack and break when it comes to be used. There is a curious but by no means uncommon plant called soap-wort (*Saponaria officinalis*), or fullers' herb, that is to be found growing wild in hedges, fields, and thickets in England and various parts of Europe. It flowers towards the end of summer, and gives forth an oppressive odour. The peculiarity of this plant is that its juice forms a lather in water, and that the leaves, when rubbed, may be used as soap. It is said that the ancients made use of it for cleansing purposes.

Soapstone is so named because it feels greasy to the touch, and is soft enough to yield to the finger-nail. Its mineralogical name is steatite, and it is a hydrated silicate of magnesia, a very infusible substance. Hence it is used for lining furnaces, and in making some kinds of gas-burners. The application of a little powdered soapstone is very useful in enabling one body to slip readily over another, and thus diminishing the friction.

Socage.—A tenure by a certain or determinate service, as distinguished from tenure by chivalry or knight service where it was precarious and uncertain. Common socage is the ordinary tenure in this country, the exceptions being gavelkind and Borough-English (*which see*).

Sociable.—A kind of phaeton with two seats facing each other. These vehicles are generally hung low to the ground, so as to be easy of access, consequently they are much



SOCIABLE.

used by invalids and elderly people. They are frequently made without doors, and had rather gone out of fashion, but of recent years have been much used again, those of the later make being straighter in construction and built of squarer form than those of former years, which were curved.

Social Gatherings.—A name familiarly applied to friendly meetings of a somewhat informal character. It might be extended to a conversazione, but we doubt whether it correctly characterises the fashionable assemblies of aristocratic people in the fashionable season. Social gatherings of a less ostentatious description are held by private families to celebrate some happy event in family history, and the attendants are then either relatives or friends in the proper sense of the word. The arrangements for these involve refreshments, and the time is generally devoted to conversation, with occasional music, singing, and other recreations befitting a drawing-room. Social gatherings are common in connection with churches, schools, and other public institutions. Here also refreshments are provided, and sometimes amusements, but commonly there is a meeting attached, at which speeches are made, and, not seldom, appeals for contributions in favour of some object of a benevolent character. It would be difficult to give directions for the getting up of social gatherings, whether private or more public; nor is it very necessary, as in general the parties to whom the task is intrusted, and who are acquainted with the circumstances, have zeal and ingenuity equal to the occasion. The great thing is to provide for the wants and comfort of the party, and to order things so that there need be no complaining, and that there may be a reasonable amount of suitable enjoyment.

Socialism.—Absolute equality in the distribution of the physical means of life and enjoyment. It is employed in a somewhat different sense on the Continent—not necessarily implying communism, or the entire abolition of private property, but applied to any system which requires that the land and the instruments of production should be the property not of individuals, but of communities or associations, or of the government.

Socks. (*See* STOCKINGS AND SOCKS.)

Socks (for Shoes).—These are usually hand-made, knitted in wool, worsted, or silk, and formed in the shape of a slipper, without the flap over the instep.

Soda is a term applied indiscriminately in common intercourse to the hydrate, carbonate, and bicarbonate of soda. These compounds will be found described under their several headings. The metal sodium decomposes water readily, and cannot be kept exposed to the air, on account of its affinity for oxygen; but it enters into combination with many other elements, forming very valuable compounds. For some of the most important of these, *see* ALKALI; CHLORIDES; GLAUBER'S SALTS; NITRATES. The *hyposulphite of soda* is used in photography, as it possesses the power of dissolving many of the salts of silver which are insoluble in water, but only acts upon those portions which have not been affected by the light. The *manganate of soda* dissolved in water forms a green disinfecting fluid. *Stannate of soda* is used by calico-printers,

under the name of tin-prepared liquor, as a mordant for fixing certain colours. The *potassio-tartrate of soda* is used in medicine as a purgative. The *solution of chlorinated soda* of the pharmaceutist forms a disinfecting fluid. When exposed to the air it gradually evolves chlorine, to which circumstance its special value is due.

Soda-water, properly so called, consists of one to three drachms of carbonate of soda dissolved in a pint of water, and highly charged with carbonic acid gas. It is often a valuable remedy, but should not be used as an ordinary drink in any quantity. What is usually sold as soda-water contains no soda at all, but is pure water rendered sparkling by the same gas being forced in at a pressure of six to eight atmospheres. It is an agreeable and harmless beverage. (*See also* AËRATED WATERS; CARBONIC ACID GAS.)

Sofa.—Sofas are now largely abandoned in favour of couches, which are smaller, lighter, and otherwise more convenient pieces of furniture. A sofa should be solid without being cumbrous, and it is usually more or less ornamented with carved work and richly upholstered in various materials, such as printed linens and cottons, plain and damask silks, silk and woollen damasks, brocatelles, reps, horsehair cloth, leather, and woollen fabrics.

Sofa Bedstead and Bed.—Sofas are sometimes so made that they will readily serve as an occasional bed for one person; and others are constructed so that parts of them, concealed during the day by being hinged and folded up to fit into a recess under the seat, can be brought out at night to form a larger couch, the bed and bed-clothes being kept ready for use in the before-mentioned recess.

Sofa Covers.—Unless these are made to fit exactly they will not wear satisfactorily, for any undue strain on the material, such as must arise when the cover is not precisely the same size or shape of the sofa, is sure to cause a rent sooner or later; moreover, covers which do not fit are a disfigurement. Exact measurements should be taken with a tape measure, and the cover should be cut larger than required, for it is impossible to ascertain the precise size until the pieces are put together. Chintz, cretonne, and such-like materials should be lined with white calico; the lining should be tacked to the cover, and then be fitted on the sofa and pinned together with many pins. Afterwards the pieces are joined together with strong thread and small stitches closely put together. If the cover has a distinct pattern, this should be taken into consideration; thus, it should be contrived that a bunch of flowers or a stripe appears in the centre of the seat and back of the sofa. Glazed brown holland, bound with white or coloured braid, will make useful covers, and these look especially well during the summer season.

Sofa Cushions and Pillows. — The former are made round or square, according to fancy. Round cushions are generally called Turkish cushions; their covers are fastened in the centre of each side. The square cushions should agree in size with the sofa for which they are intended. Ornamental covers of many kinds are employed; these should be suitable to the character of the room in which they are placed. For a bedroom or invalid sofa, covers of sprigged white muslin, with frill of the same edged with lace, look the most suitable; an under cover the prevailing colour of the room, of silk or of batiste, gives a smarter appearance. Sofa pillows are long, round, and hard, and are not supplied with the modern couches. They are usually made by the upholsterer, and are covered with the same material as that on the sofa; the cover is gathered together and fastened in the middle at each end, which fastening is concealed by a large button or ornament of that description.

Soft Soap. (*See* SOAPS.)

Soft Water.— The difference that exists between hard water and soft water is that the amount of mineral matter is contained in a much greater degree in the former than in the latter; and it is the absence of mineral substance in soft water that renders it so well adapted for all domestic purposes. (*See* RAIN.)

Soirée.—An evening party which in its origin indicated that the entertainment would be merely that of conversation, although it is now applied to gatherings at which cards, dancing, singing, and various other forms of amusement are introduced.

Soldering is the process of uniting metals by metallic cement, the solder used being easier of fusion than the metal to be soldered. *Soft solder* consists of equal portions of tin and lead melted together, and then poured into moulds specially made for this purpose. *Hard solder* is made with eight parts of copper and one of zinc, the copper being first melted in a crucible, during which operation the zinc is also heated. When the copper is melted the zinc is thrown hot into it; the crucible is then covered, and the whole well shaken together. After two or three minutes the metal is poured out through the twigs of a birch broom placed over a proper vessel filled with water; by this process it is divided into small grains, and after being well washed is ready for use. In soldering, the surfaces of the metal to be joined must be scraped and rendered very clean; they are then brought close up to each other, and in order to properly secure them, one workman holds them and another lays a little resin about the joint, to defend the metal, while soldering, from oxidation. The heated solder is then poured on the joint to be soldered, and is smoothed and finished by rubbing it about with a heated *grozing-iron*, and when complete it is filed or scraped off and made even with the joint. That portion of the *iron* which is heated must be made of copper. The metals to be united may be either the same or dissimilar, but the uniting metal must always have an affinity for both, consequently the solders must be selected in reference to their appropriate metals. For instance, tin plates are soldered with an alloy consisting of from one to two parts of tin with one of lead; pewter is soldered with a more

fusible alloy, containing a certain proportion of bismuth added to the lead and tin; iron, copper, and brass are soldered with spelter, an alloy of zinc and copper in nearly equal parts; silver sometimes with pure tin, but generally with silver-solder, an alloy consisting of five parts of silver, six of brass, and two of zinc; zinc and lead with an alloy of from one to two parts of lead with one of tin; platinum with fine gold; gold with an alloy of silver and gold, or of copper and gold.

Sole.—The sole (*Solea vulgaris*) ranks next to the turbot in point of excellence among our flat fish. It is caught in great abundance on the British coasts, and may be obtained in good condition almost all the year round. The soles of the western shores are, however, much superior to those taken on the northern shores. The finest specimens are found at Torbay, and frequently weigh eight or ten pounds a pair. The flavour of the sole greatly depends upon the nature of the ground where it is reared, and upon the bait on which it feeds. The colour of the ground also influences its colour. Small-sized soles that are caught in shallow water on the coasts are better in flavour than the large fish. It is said that soles were much sought after by the ancient Greeks, on account of their light and nourishing qualities.

Sole Corporation.—One person and his successors, who are incorporated by law, in order to give them some legal capacities and advantages, particularly that of perpetuity, which in their natural persons they could not have had—as the sovereign, bishop, parson, &c. (*See* CORPORATION.)

Solicitor.—The term now applicable in all the courts of justice to the legal practitioner, *i.e.*, the person who conducts or manages legal business in such courts. Solicitors have to serve an apprenticeship of five years, unless they be graduates of the universities, in which case three years' service is sufficient. The stamp duty on articles of clerkship is £80; it was formerly £120. They are deemed officers of the several courts in which they are admitted to practise, and as such are under the immediate and summary control of such courts. They have to pass several examinations before the Incorporated Law Society, which is appointed Registrar of Solicitors. There is, first, what is called the preliminary examination, which is an examination in general knowledge, and it must be satisfactorily passed before they are qualified to be articled. Secondly, there is the intermediate examination, which occurs about midway in the service of articles, and is partly in general and partly in legal knowledge. Having passed this and served the remainder of their term of articles, they have lastly to pass the final examination, which is an examination in five branches of legal knowledge and practice. This is not the place to enter into the various rules and regulations to which they are subject throughout their practice. The Acts relating thereto are the 6 & 7 Vict. c. 73; the 23 & 24 Vict. c. 127; the 33 & 34 Vict. c. 37; the 37 & 38 Vict. c. 68. The 34 Vict. c. 18, repeals their disqualification to act as justices of the peace except in the county in which the solicitor shall practise.

Solitaire.—A game for a single player (as is implied by its name), played on a round board, on the upper surface of which are thirty-three holes. In each of these holes is a glass marble, and the game is commenced by the removal of any one of these marbles from the board. The player then moves any other marble separated by one from the vacant hole into it, taking away from the board the marble passed over as in draughts. The object of the game is to remove in this way all the marbles except one, which should be left in the hole vacant at the commencement of the game. There are several methods of achieving the desired result, but a beginner will find success anything but easy, and unless he proceeds upon certain general principles, failure is almost certain.

Solomon's Seal.—The name given to a flower found growing wild only in Scotland. It is the *Polygonatum officinale* of the botanist, natural family *Liliaceæ*. This is the real Solomon's seal; but there is another plant belonging to the same genus, namely, *Polygonatum multiflorum*, which is also known by the same name.

Solstice.—The two periods of the year when the sun is at the greatest distance from the equator are called the summer and winter solstices, because then the sun appears to remain for a time almost stationary in the heavens, so far as its noon-day altitude is concerned. To residents in the northern hemisphere the summer solstice occurs when the sun enters the first point of Cancer, because then it has attained its greatest altitude; and the winter solstice when it enters the first point of Capricorn, as it is then at its lowest. These periods, therefore, correspond to midsummer and midwinter. To the inhabitants of the southern hemisphere the positions are, of course, exactly reversed.

Soluble Glass.—If quartz or flint be reduced to powder, and then fused with four times its weight of carbonate of potash and soda, it forms a glass which is soluble in water; and from this solution a gelatinous hydrate of silica can be obtained by treating it with hydrochloric acid. If this gelatinous substance be once allowed to dry, it cannot be dissolved again in water. From this soluble glass, silica can be separated in a state of the greatest purity. Soluble glass is used in fresco-painting.

Solutions.—Solid bodies, when dissolved in water, ether, benzine, or other liquids, are said to be in solution, the liquid being termed the solvent. Some substances are readily soluble in one or more of the above-named liquids, while they are not affected at all by the rest; and some, again, are only soluble on the application of artificial heat. In most cases the solvent will dissolve up more of the solid if the temperature is raised, so that a thoroughly saturated warm solution will very generally deposit some of the dissolved body on cooling, either in the form of crystals or otherwise. Advantage is taken of this in the manufacture

of many chemicals, such as alum. In pharmacy, the term solution is applied to those inorganic substances which are dissolved in water, the most important of which are the various preparations of soda, potash, and ammonia, alum, the nitrate of silver, the acetate of lead, and the chlorides of barium, calcium, and mercury.

Solvents.—A solvent is the term applied to any liquor, or menstruum, which will dissolve solid bodies, and is derived from the Latin *solvo*, to dissolve. Water is the great universal solvent for a large number of neutral vegetable products and saline bodies, as gum, sugar, salt, sulphate of soda, &c. For resinous bodies, alcohol is the solvent; caoutchouc being insoluble in alcohol, its solvents are naphtha, oil of turpentine, and ether. Heat is sometimes essential to give the solvent its power: hence certain salts dissolve in water while it is hot, but become solid again, in the form of crystals, for instance, as the solvent grows cold. The solvents used for removing paint and varnish are the several alkalies, alcohol, or spirit of wine, and essential oils. Carbonate of ammonia may be safely used for removing paint or discoloured varnish on old paintings, if it is sufficiently diluted with water and removed directly it has done its work with pure water and a clean sponge. Wet fuller's earth may be used for removing the dirty upper surface of paint. Oil of turpentine is a solvent for oil paint; oil of lavender is a more powerful solvent. Putty may be softened with salad oil when fresh. When it is too hard for this, a very good solvent may be made with potash and soft soap.

Somnambulism. — This word, which literally means "sleep-walking," is so applied as to include all the forms of dreaming in which people walk, talk, or otherwise exert themselves while asleep. Dr. Abercrombie regards the practice of talking or even conversing in sleep as the first degree of somnambulism. In this state words and connected sentences are uttered, and sometimes replies are given to what is spoken by others in the sleeper's ear. The second degree is walking, and in that a person will get out of bed, take up a lighted candle, and speak audibly and coherently; he will sometimes get out of a window, walk upon a parapet, climb to the roof, and perform other exploits which he would shudder at attempting if awake, and will return safely to his room. Extreme cases are on record in which a man has gone down to his stable, saddled and mounted his horse, has gone to his ordinary work, played music, composed verses, sung, &c. The phenomena belong to dreams, of which they are an exaggerated form. As in dreaming, the mind is concentrated upon its own impressions, but the bodily organs are more under the control of the will; so that the individual acts under the influence of his erroneous conceptions, and holds conversation in regard to them. He is also to some extent susceptible of impressions from without through his organ of sense; not, however, so as to correct his erroneous impressions, but rather to be mixed up with them. When the somnambulist awakes, he is either unconscious of what has happened, or remembers it only as a dream.

Somnolence. — This is a condition of sleepiness or drowsiness (*which see*). The term is derived from the Latin *somnolentus*, signifying "sleepy."

Sonata. — A musical composition for a solo instrument. The old sonatas of Corelli, Purcell, and others, for the violin, were simply small movements in the old song or canzonet form; but the term sonata—now more popularly connected with the compositions of that name for the pianoforte—has grown to be synonymous with the highest development of form in musical composition. The pianoforte sonata, of which we have many noble examples by Beethoven, usually consists of four movements:—(1) Allegro; (2) Andante; (3) Minuet, or Scherzo; (4) Allegro (or Presto) Finale. But it is not only this grouping together of movements which constitutes the sonata; it is the internal construction of the first movement which makes the "sonata" form. This form may be roughly described as follows:—First theme bold and not too lengthy, and in the key of the piece; second theme cantabile, in the dominant of the piece; then developments of both subjects, culminating in the return of the first subject, followed quickly by the second theme, now transposed into the *tonic*, a brilliant coda bringing the movement to a conclusion.

Sonnet.—A short poem of a circumscribed formation, and having but one central idea. In length it is restricted to fourteen decasyllabic lines, and there is a special arrangement of the fourteen rhymes. The sonnet is of Italian origin, and, as earliest known, consisted of two groups of eight and six lines respectively, a distinct pause in the sense occurring between the eighth and ninth lines. The first eight lines, called the octave, had only two rhymes between them; the first, fourth, fifth, and eighth having the one rhyme, and the second, third, sixth, and seventh the other. The six lines, known as the sestette, had but two rhymes between them, usually recurring in alternate lines. The most finished sonnets of the present day follow the Italian model, some laxity being, however, allowed in the sestette, which often contains three rhymes. Since the days of Wyatt and Surrey, who first wrote English sonnets, writers have allowed a great diversity in the arrangement of the rhymes, Shakespeare's sonnets consisting merely of three quatrains and a couplet, the rhymes being thus seven in number. As an instance of the formation of this particular kind of poem, Wordsworth's "Sonnet on the Sonnet" may be cited:—

"Nuns fret not at their convent's narrow room;
And hermits are contented with their cells;
And students with their pensive citadels:
Maids at the wheel, the weaver at his loom,
Sit blithe and happy; bees that soar for bloom,
High as the highest peak of Furness Fells,
Will murmur by the hour in foxglove bells.
In truth, the prison, unto which we doom
Ourselves, no prison is: and hence to me,
In sundry moods, 'twas pastime to be bound
Within the Sonnet's scanty plot of ground;
Pleased if some souls (for such there needs must be),
Who have felt the weight of too much liberty,
Should find brief solace there, as I have found."

Soot consists of charcoal and other pulverulent matter deposited by smoke. That from wood is characterised as pungent, nauseous, and bitter, and contains some sulphate and carbonate of ammonia, an empyreumatic oil, a fixed alkali, and an insipid earth; that from coal contains, in addition, some bituminous matter. Considerable quantities of soot are employed in the manufacture of sal ammoniac, and also by dyers for imparting a fawn colour to wool. The principal advantage of soot is when used as a manure for cold, moist, and clayey meadows and pastures, as it is of a warm, ameliorating nature, affords nourishment to grass, destroys noxious insects, protects the crop from chilling rains, and prevents the growth of moss. The quantity used for this purpose varies in different counties from fifteen to forty bushels per acre; but it ought to be strewed on the land during winter and in calm weather, so that the subsequent vernal rains may wash it into the soil; for if its distribution be delayed till the end of February or the beginning of March, the great heat then evolved will affect the tender shoots of the grass, and occasion a temporary check to its vegetation. Care should always be taken to see that the soot is genuine, as chimney-sweepers frequently mix finely-sifted coal ashes with it, in order to increase the bulk; but this fraud may easily be detected by its grittiness and uncommon weight.

Soporifics. — This word is synonymous with hypnotics (*which see*).

Sorcery, or Magic.—The power which some persons were formerly supposed to possess of commanding the evil one and the infernal spirits by skill in charms and invocations, and of soothing them by fumigations. Sorcery is therefore to be distinguished from witchcraft, as the latter art consisted not in commanding evil spirits, but by compact with the one evil. By 9 Geo. II. c. 5, no prosecution shall for the future be carried on against any person for witchcraft, sorcery, enchantment, or conjuration, or for charging another with any such offences. Persons pretending to use witchcraft, tell fortunes, or discover stolen goods by skill in any occult or crafty science, are punishable by imprisonment. By 5 Geo. IV. c. 83, s. 4, persons using any subtle craft, means, or device, by palmistry or otherwise, to deceive the people, are rogues and vagabonds, and punishable with imprisonment and hard labour.

Sore Throat.—This is an affection which varies in intensity from simple relaxation to malignant ulceration or gangrene. Sore throat is one of the most ordinary accompaniments of a common cold, and when of this character is best treated by inhalations of hot water, by the application of hot linseed or bran poultices to the throat, and by confinement for a day or two in a room, the temperature of which should be kept uniformly warm, but not exceeding 66°. A Dover's powder (from ten to fifteen grains for an adult) at bedtime, followed by a saline aperient in the morning, will expedite the cure. (*See* CATARRH.) Sore throat is also an important symptom in scarlet fever, diphtheria, quinsy, clergyman's sore throat, &c., and will be found alluded to under these headings.

Sorrel.—This is sometimes called the sour dock, and is well known, growing mostly by the sides of dykes and fences. It is the *Rumex*



SORREL.

acetosa of the botanist, natural family *Polygonaceæ*. It is common all over Europe; and a decoction is sometimes made of its leaves, and used as a fever drink.

Souchong. (*See* TEA.)

Soufflés.—The delicacy and admirable lightness of a well-made soufflé render it generally a very favourite dish. When properly made it is delicate in flavour, nourishing, and ornamental in appearance. It is of the utmost importance, however, that it should be served hot; indeed, it should be placed upon the table the very instant it is taken from the oven, the success of the dish depending in a great measure upon the attention paid to this point. Soufflés may be greatly varied in composition; the ingredients may consist of all kinds of farinaceous substances, and the flavourer may be vanilla, orange-flower, or anything else that is liked, but the process of manufacture is the same in all soufflés. Eggs, milk, and flour are the constituents of soufflés, as of batter; though, unlike batter, the yolks and the whites of the eggs are added separately to the mixture. Soufflés are now a fashionable dish; they are very often served at large dinners, and are generally handed round after the removes in the second course.

Sounding Board is a board placed over a pulpit or platform to reflect the voices of public speakers, and so cause them to be heard to greater advantage. The shape is generally flat, and placed horizontally over the speaker's head, but sometimes it is a concave parabola which extends partly over and partly behind the speaker.

Sounds are due to undulations of the air which affect the ear, and by it are communicated to the brain. The phonograph (*which see*) affords an interesting illustration of the vibrations to which sounds are due. The department of physical science which deals with the laws

and properties of sound is called acoustics, from a Greek word signifying "pertaining to hearing." Sound travels through cool dry air at the rate of about 1,100 feet per second. The temperature and dryness of the air have some effect upon the velocity, the rate being slightly accelerated by an increase of heat; but all sounds, whether loud or soft, whether of high or low pitch, travel at the same rate. Liquids and solids also convey sound. Thus a diver under water will hear sounds which come from a very great distance; and the men in one part of a coal mine will hear through the coal the blows of the picks of their fellow-miners in another part of the workings. A simple illustration of the conveyance of sound by a solid is as follows:—Apply your ear to the end of a long pole or plank of wood, and let another person draw his finger-nail across the other end of it; the noise of the scraping will be distinctly heard at the further end, even though not loud enough for the operator himself to hear at arm's length. The loudness or intensity of a sound diminishes with increased rarity of the air; the alteration is quite perceptible to Alpine climbers and aeronauts; and if the air is exhausted under the receiver of an air-pump, it is found that sound cannot be propagated at all. The least sound can now be made quite loud by means of a novel piece of apparatus called the microphone (*see* TELEPHONE), just as the microscope renders the most minute objects visible to the eye. The pitch of a sound varies according to the rapidity of the vibrations which produce the undulations of the air; and it is only within certain limits that the human ear can appreciate their effect, and so experience the sensation of sound. Some persons' ears are much more sensitive to very rapid vibrations than those of others, and therefore can hear sounds of such high pitch as to be absolutely inaudible to many. The lowest bass note of the organ, given by a thirty-two foot open pipe, consists of sixteen complete vibrations in a second; the same note nine octaves higher consists of eight thousand one hundred and ninety-two vibrations in a second. These are usually regarded as the extreme limits of musical sounds: those slower than sixteen produce a painful sensation; those several notes above the higher limit are very audible, though difficult to distinguish with any accuracy. A note two octaves higher, which will be given by thirty-two thousand seven hundred and sixty-eight complete vibrations of the air, is about as high as will produce any impression upon the human ear, and may therefore be considered as the limit of hearing.

Soup-ladles. (*See* LADLES.)

Soup-tureens.—Soup-tureens and soup-plates are included in the number of pieces provided for ordinary dinner services. They are made to correspond with the rest of the articles in form, design, and colour.

Soups.—Soup is a decoction of flesh in water, flavoured with vegetables, and seasoned with salt and spices. It is both an economical and wholesome preparation, affording nourishment to the system, and at the same time acting as a restorative to the exhausted appetite. This renders it peculiarly suited to the place usually assigned to it at the commencement of a repast. No one who has noticed how those who sit down to a meal faint and weary, quickly regain their wonted good temper and serenity after liquid nourishment has been administered to them, can doubt that soup is the best of all preliminaries to a good dinner. For a long time an unreasonable prejudice existed against this form of food in England amongst the middle classes, but this is, fortunately, gradually disappearing. Frenchmen, on the contrary, have the highest appreciation of the value of soup as an article of diet, and on the Continent it is most extensively used. Napoleon I. expressed the general opinion when he said, "It is soup that makes the soldier." This coincides with the remark of Sir John Sinclair, which was that "the greatest heroes of antiquity lived on broth." Carême, the great French *chef*, went farther than this, for he is reported to have said on his death-bed, "Why should war be waged on soup? I cannot understand a dinner without it. I hold soup to be the well-beloved of the stomach." And another authority declared that "soup is to dinner what a portico is to a palace, or an overture to an opera. Not only is it the commencement of the feast, but it gives an idea of what is to follow." Soups have been divided into three classes—clear soup, thick soup, and purées. Clear soups are bright and thin, while thick soups are of the consistency of cream; and in purées the thickening ingredient has been passed through a tamis, or sieve. Maigre soups are soups made without meat. They are usually thickened and made agreeable by the addition of a preparation called a liaison. It has been calculated that there are over five hundred different kinds of soup, but this number is obtained by according a special title to every variation of combination. Thus, clear gravy forms the basis of a large number of soups. The introduction of a different ingredient furnishes the occasion for a special and distinctive name. Macaroni, vermicelli, nouilles, barley, rice, sago, tapioca, Julienne soups, and many others that might be named, consist only of clear gravy soup with the distinguishing ingredient added. According to a rule which has met with very general acceptance, light soups are chosen when the ménu is a comprehensive one; heavy soups are suited only for small dinners. When soup constitutes the principal dish, as it frequently does in dinners where economy needs to be studied, it should be as nourishing and satisfying as possible. The stock for soup is best made the day before it is wanted. One reason for this is, besides the convenience of the arrangement, that by this means the fat can be easily removed from it, as soup should never be greasy. If soup is kept in a cool place, in clean earthenware vessels, it will not spoil in a couple of days even in summer-time. It should, however, be looked after, and in hot weather it should be boiled up every day. It is useful to remember that soup in which vegetables have been boiled, or that to which cream or milk has been added, will not keep nearly so well as will the liquor from which these ingredients are absent. The excellence of soup depends to a great extent upon its flavour, and it is in the

careful introduction of the flavouring ingredients that the skill of the cook is displayed. When the exact quantity required is not known from experience, aromatics and spices should be thrown in, a small portion at a time, and more added if required. Salt especially should be put in judiciously, for a soup that is too salt is relished by no one. Salt needs to be thrown into the stock from the commencement, because it helps the scum to rise; but the quantity that is just right at the beginning may be greatly in excess when the liquid has been reduced by boiling. The stock itself flies off in steam, but the salt remains.

Soy.—There are numbers of people who are under the impression that the sauce known by this name is made from black beetles. This suspicion has arisen from the appearance of the soy bean from which the sauce is made. It is something like our kidney bean, only black, and the bean has suggested the idea of a black beetle. When genuine, soy ketchup is agreeable in flavour, thick, and of a clear brown colour, and it is used as an accompaniment to fish and other articles of diet. It is made by boiling the beans until soft, and then mixing them with an equal quantity of wheat or barley roughly ground. After the mixture has been kept for a few hours in a warm place, and allowed to ferment, it is covered with salt, the quantity of salt used being equal to the other ingredients. By long keeping it becomes brighter and clearer.

Spa.—The name of a place in Belgium, famous for its mineral springs. The word is, however, common as a designation for any place where there are mineral waters, as Leamington Spa, Cheltenham Spa, &c.

Span.—A measure of length equivalent to 9 inches, or a quarter of a yard. It is a natural measure, being, as implied by its name, the distance between the tips of the thumb and middle finger when they are stretched out to cover as much space as possible. (*See* Weights and Measures.)

Spangles.—These are small plates or bosses of shining metal, usually tin, covered with gold or silver, in which holes have been pierced for the passage of the needle and thread which is to attach them in their place. Spangles are used chiefly for the decoration of theatrical dresses; they also serve to embellish embroidery, for which purpose two kinds are employed, the flat and the concave. The latter are the only kind admitted into church embroidery. The price of flat spangles averages half a guinea per ounce; that of the concave is a couple of shillings more.

Spaniels.—Independent of the pet spaniels, such as the King Charles' and the Blenheim (*both of which see*), there are several varieties of this very useful dog, trained to assist the sportsman in finding game:—1. *The Irish Water Spaniel.* This dog stands about twenty-one inches at the shoulder, with large long pendant ears, round well-developed forehead, elegantly-formed sharpish muzzle, and a comical appearance of face; the body is everywhere adorned with long crisp ringlets, and though the face is bare, a few ringlets hang over the forehead, forming the top-knot. Even the legs should be well covered with curls. The colour is liver, red, or dark mahogany. 2. *The Clumber Spaniel* is a long, heavy-looking dog, short on the legs, strong in muscle, white in colour, with pale orange markings, and the coat straight, abundant, and silky. The head is large, heavy, and foolish-looking, but the eyes are deep set and thoughtful. 3. *The Sussex Spaniel.* A dog from 30 lbs. to 35 lbs in weight, of a beautiful golden-liver colour, with long heavy head, dark brown nose, and well-developed nostrils; the mouth is large, and the lips rather long and hanging. The legs are rather short, and the body very strong; the coat short and close. 4. *The Norfolk Spaniel.* Colour liver and white, but at times black and white; the legs and nose white, and with freckles of brown. They are shaped like the Sussex, but usually bigger. 5. *The Cocker Spaniel.* This spaniel forms the connecting link between the larger or field spaniels and the toys, such as the Blenheim and King Charles', with which, indeed, they are often crossed. In appearance it is somewhat similar to the Sussex. 6. *The English Water Spaniel* stands about nineteen or twenty inches at the shoulder. The colour is always liver and white, with a distinct collar of white; and the dog is the only spaniel (except the Irish) on which a curly coat can be tolerated.

Spanish Black.—A pigment obtained by the charring of cork.

Spanish Brown.— A species of earth used as a pigment, having a dark reddish-brown colour, which depends upon the sesquioxide of iron.

Spanish Chestnut. (*See* Chestnut.)

Spanish Ferreto.—A pigment of a rich reddish-brown colour, which is obtained by calcining copper and sulphur together in closed crucibles.

Spanish Flies. (*See* Cantharides.)

Spanish Fowls. (*See* Poultry.)

Spanish Lace. (*See* Lace.)

Spanish Mahogany. (*See* Mahogany.)

Spanish Nuts.—The best hazel nuts that are imported to us come from Barcelona, in Spain, and are known by the name of Barcelona or Spanish nuts. (*See* Nuts.)

Spanish Onions. (*See* Onions.)

Spanish Red.—A pigment of an ochreous red, resembling Venetian red, but rather warmer and yellower in tint.

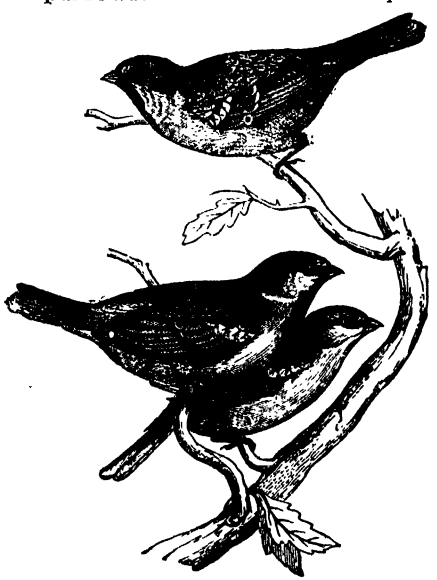
Spanish White.—Originally a white earth obtained in Spain, and employed as a pigment. It is chiefly applied at present to an impalpable powder prepared from chalk by pulverising and repeated washings.

Spanish Wines.—The wines of Spain and Portugal are very numerous, and include both white and red varieties. The best known of the white wines is sherry. There are also sweet wines, which are luscious and full of body, and amongst these the principal

are Malaga, Taxarette, and Rota Tente. The last is used as a sacramental wine. Excellent red wines also come into the market, of which Tarragona, Valencia, and Val de Peñas deserve special mention. Although it is scarcely to be expected that these wines should supersede the German or Bordeaux wines, they tend to cheapen port wine. Spanish Catalan, too, both red and white, is highly esteemed when it can be obtained pure. It is warm and fruity, and moreover very cheap. It is used in some of the hospitals. All the Spanish wines, however, that are sent to this country are more or less fortified with alcohol. Besides the wines already mentioned, there are Spanish light wines, which are not largely exported. One of these, Montilla, possesses a remarkable fulness and delicacy of bouquet.

Spar.—A mineralogical term applied to certain kinds of crystals which break into cubic or prismatic fragments with smooth surfaces. The crystallised quartz which is common in metalliferous lodes is also called spar by the miners. Calcareous spar, needle spar or arragonite, and Iceland spar are all varieties of crystallised carbonate of lime. The last-named is valued on account of its possessing the property of double refraction. Fluor spar is the fluoride of calcium; it is common in Derbyshire, and is therefore often called Derbyshire spar. The purple kind is made into vases, which are very handsome; the yellow variety is rarer, and is generally used for making ornamental articles of smaller size. Heavy spar is the sulphate of baryta. Bitter spar is a crystallised dolomite. Lead spar, or cerussite, is a carbonate of lead.

Sparrows.—There are two kinds or species



HOUSE SPARROWS.

of this well-known bird found in our country—the house sparrow and the tree sparrow. What is called the hedge sparrow is in reality not a sparrow at all. The sparrow is found in every portion of the Eastern hemisphere, and is a constant attendant on civilised mankind. Its attentions, however, are as a rule not much relished, owing to the destruction it often commits in the garden and fields. The house sparrow builds in holes, eaves, or in deserted chimneys; the tree sparrow, as the name implies, builds in trees at some considerable distance. The nest of the latter is very large, made of hay, straw, and rubbish, and lined with an immense quantity of feathers. This sparrow is distinguished from the house species by its being chestnut in the head and having a black patch on the cheek. It is the *Passer montanus* of the naturalist; the house sparrow is the *Passer domesticus;* and both belong to the natural family *Fringillidæ.*

Spasm.—This is the term usually applied to certain muscular contractions occurring at intervals, which are sometimes attended with considerable pain. Sneezing, coughing—especially as it occurs in croup and whooping cough—vomiting, the griping of colic, cholera, cramps, stricture, &c., are examples of spasm. The term is also frequently applied to distension of the abdomen caused by flatulence, as well as to the pain which occurs during the passage of irritant matter along the bowels.

Spasmodic.—This term is used medically to signify a tendency to spasms. (*See preceding paragraph.*) Popularly it has become synonymous with the expression of "by fits and starts."

Spatterdashes.—A kind of covering for the legs made of cloth or coarse linen waxed over and buttoned tight, by which the wet is kept off. Of late years they have been superseded by gaiters and leather leggings.

Speaker.—The chairman, or spokesman, of the House of Commons. He is elected by the House from amongst its members, subject to the approval of the Crown, and holds office during the whole sitting of the Parliament in which he is elected, *i.e.*, until a dissolution takes place. His salary is £6,000 a year, with a furnished residence. At the end of his official career he is usually rewarded by a peerage and a pension of £4,000 for two lives. He is a member of the Privy Council, and ranks after barons. His duties consist in reading to the Sovereign petitions or addresses from the Commons, and delivering in the royal presence, whether at the palace or in the House of Lords, such speeches as are usually made on behalf of the Commons; to manage, in the name of the House, when counsel, witnesses, or prisoners are at the bar; to reprimand persons who have incurred the displeasure of the House; to issue warrants of committal or release for breach of privilege; to communicate in writing with any parties when so instructed by the House; to exercise vigilance in reference to private bills, especially with a view to protect property or the rights of individuals from encroachment or injury; to express the thanks or approbation of the Commons to distinguished personages; to control and regulate the subordinate officers of

the House; to entertain the members at dinner in succession at stated periods; to adjourn the House at four o'clock if forty members be not present; to appoint tellers on divisions. The Speaker abstains from debating, unless in committee of the whole House. As chairman of the House, his duties are the same as those of any other president of a deliberative assembly. When Parliament is about to be prorogued, it is usual for the Speaker to address to the Sovereign, in the House of Lords, a speech, recapitulating the proceedings of the session. Should a member persevere in breaches of order, the Speaker may "name" him (as it is termed), a course uniformly followed by the censure of the House. In extreme cases the Speaker may order members or others into custody until the pleasure of the House is signified. On divisions, when the numbers are equal, he gives the casting vote, but never otherwise votes. (*See* PARLIAMENT.)

Speaking, Public.—Some men have a natural aptitude for public speaking, which enables them without regular study and training to express their ideas in appropriate language and in an effective manner. In ordinary cases, however, the best public speakers owe much to the discipline they have undergone. Perfect success requires a combination of good qualities, both natural and acquired, such as a clear and powerful voice, capable of modulation; readiness of utterance; a copious and suitable vocabulary; skill in composition of sentences, in choice of epithets, comparisons, and illustrations; an evident sympathy with the subject spoken of, and a complete acquaintance with it. Thus, perfect public speaking is the highest oratory, and includes all that is involved in such terms as composition, elocution, rhetoric, and even reading. Its styles vary of necessity, one manner being appropriate for the pulpit, another for the bar, a third for Parliament, a fourth for popular gatherings on public questions, and a fifth for the general who harangues his soldiers. Even on festive occasions a skilful speaker will have an advantage over the unskilled; and it may be remarked in general that every man should endeavour to express himself correctly and suitably whenever he is called on to utter his sentiments, privately or publicly. The speaker who is only intent upon his object, and neglects both matter and manner, will never speak well. A good rule would be to have a definite aim, to be well acquainted with the subject, to select the most important facts, arguments, and illustrations, and to speak as well and as earnestly as possible. Expression has been called the whole of oratory, but, if so, it includes all that has been indicated.

Speaking-trumpet. — An instrument consisting of a metal tube, which has a mouthpiece at one end and gradually widens to the other end. By means of it the intensity of speech is increased, and spoken words can be conveyed to a considerable distance in a particular direction. It is very useful on board ship in windy weather, as it enables an officer on deck to give orders to men at a distance, whether on deck or up in the rigging. Sir Samuel Morland is usually credited with the invention, about the year 1670.

Speaking-tubes.—It had been long observed that sound could be conveyed for a long distance through tubes, but no practical use seems to have been made of the fact until about 1813, when it was turned to account in a popular exhibition. Subsequently the use of speaking-tubes became very common. They can be made of metal or of gutta-percha, and may be carried from one part of a large building to any other. At each end is a mouthpiece, fitted with a whistle. When a person at one end wishes to give a message to somebody at the other, he takes out his whistle and blows into the mouthpiece, and this sounds the whistle at the other end, so inviting attention. The speaking then proceeds in the usual way, each speaker uttering his words into the mouthpiece and listening for the response. This contrivance saves time and trouble, and might be more generally adopted than it is in private houses. The tubes may have joints, curves, and angles, but no faults, as a small hole anywhere interferes with communication.

Spearmint. (*See* MINTS.)

Special Case.—Where on a trial a difficult point of law arises, the jury, instead of finding a special verdict, are often directed to find a general verdict for the plaintiff, subject to the opinion of the judge or the full court on what is termed a special case—*i.e.*, a written statement of all the facts of the case drawn up by the counsel and solicitors on both sides, under the superintendence and subject to the correction of the judge. The Court afterwards decides the point of law, and the verdict is ultimately entered according to such decision. By 3 & 4 Wm. IV. c. 42, it is provided "that where the parties in an action or issue joined can agree on a statement of facts, they may, by order of a judge, draw up such statement in the form of a special case for the judgment of the court without proceeding to trial."

Special Constable. (*See* CONSTABLE.)

Special Jury. (*See* JURY.)

Special Licence. (*See* MARRIAGE.)

Specific Gravity. (*See* GRAVITY, SPECIFIC.)

Specific Performance of Contracts.—By the common law, every executory contract to sell or transfer anything is treated as a merely personal one, and if left unperformed by the party, the only redress or remedy is an action for damages—thus allowing the party the election either to perform his contract or to pay damages. But courts of equity have deemed such a course in many cases wholly inadequate for the purposes of justice, and they have not hesitated to interpose and require from the offending party *an actual performance* of what he cannot, without manifest fraud or wrong, refuse—as, for instance, the carrying out of the sale of a particular estate, which the other party has contracted to purchase, and for the loss of which pecuniary damages might be no adequate compensation. Where, however, damages will give full compensation, the Court will not, as a general rule, interfere; the very ground of

this jurisdiction being the inadequacy of the remedy at law.

Spectacles. — The general intention of spectacles is to aid the sight under a variety of conditions. In cases of defective vision, the principle upon which they act is explained under the heading of LENSES; and we need only repeat here that for long-sighted persons the glasses are more or less convex, and for short-sighted subjects more or less concave. Glasses of various tints are worn when the eyes are suffering from certain affections, and in such cases no magnifying power is needed. In all cases of defective sight it is best to be advised by an optician as to the precise kind of glasses which should be worn. Spectacles are said to have been invented in the thirteenth century, but no great improvement was made in them until modern days. The frames and glasses are now made lighter and in more elegant forms, especially those mounted in steel, which when complete often weigh less than a quarter of an ounce. For common kinds the lenses are of glass, but in others they are of rock crystal, called "pebbles," which are less liable to scratch, but in other respects are probably no better than those of the finest glass.

Spectral Illusions. — This subject is touched upon in the articles on APPARITIONS and HALLUCINATIONS, and the reader may also turn to what is said under the heading of OPTICAL DELUSIONS. The belief that the souls of the departed can and do appear to the living is ancient and wide-spread; and some who do not share that belief may be conscious of appearances which correspond with those asserted by believers in actual apparitions. Scientific men generally say that visible spectres are in all cases illusions, or at any rate are never the souls of the departed dead. There are physical conditions in which such appearances occur, as in delirium tremens, disorder of the digestive functions, &c. In certain mental states the same may happen, as when a man is terror-struck by the consciousness of some great crime, or is mentally agitated from other causes. The subjective reality is no proof of an objective existence; and this will be allowed. But while many instances well authenticated can be scientifically explained and rationally accounted for, there are some which defy solution. Occasionally, no doubt, imposture has played its part, whether subsequently detected or not, and this is an element which must be taken into consideration. Further, it is known that by means of chemical and other scientific combinations spectral appearances can be produced. In nature itself we have such things as mirage, the spectre of the Brocken, and other manifestations. These, however, are not what we intend by spectral illusions, the actual occurrence of which is all that is here taken for granted; that these can often be accounted for is unquestionable, and it is equally certain that their recurrence has been prevented by the restoration of the ghost-seers to health.

Spectroscope.—The spectroscope is an instrument for examining and measuring the spectrum produced by passing a beam of light through a prism, and by which means spectrum analysis (*which see*) is conducted. There are various forms of the instrument, according to the nature of the operations for which they are intended. The essential portions are, the prism to break up the light, a telescope tube closed at the end, with the exception of a fine slit to let in only a narrow beam of light, and another telescope for the observer to look through. In order to measure the distances between certain definite portions of the spectrum, or the angle of refraction, there must be also a micrometer scale, or a graduated circle upon which the observing telescope turns. The light passing through the slit is directed upon the prism, which occupies the central position in the instrument, and then the telescope is brought into line with the ray as it emerges from the prism. Sometimes a series of prisms is employed in order to give great dispersion. For examining the spectra of the heavenly bodies, the spectroscope has to be adapted to the astronomical telescope. Another adaptation enables the spectra of microscopic objects to be observed.

Spectrum Analysis.—A mode of investigation which has come into operation within late years, and which has already rendered great service to science. It had been known previously that certain incandescent substances exhibited definite bright bands when the light emitted by them was examined through a spectroscope; and it was also known that in the solar spectrum there were always to be seen certain dark lines. Messrs. Kirchoff and Bunsen, of Heidelberg, connected these two facts, and showed that the dark lines were due to absorption by the same elements which produce the corresponding bright lines. This led to researches into the constitution of the sun and other heavenly bodies, and gave a great impetus to the investigation of the terrestrial elements also. By comparison of the lines in these various spectra, many of the elements (in particular, hydrogen, sodium, potassium, magnesium, iron, chromium, nickel, &c.) are found to exist in the sun and its atmosphere; hydrogen, sodium, and magnesium in some of the fixed stars; hydrogen and nitrogen in some of the nebulæ; and carbon—most probably in combination, as hydrocarbons — in some of the comets. By this means additional information is derived as to the physical condition of these bodies; and even an estimate of their motion towards or from the earth can be made. Spectrum analysis has also led to the discovery of five new elements—cæsium and rubidium, thallium, indium, and gallium. These substances are only found in such minute quantities that they would probably have escaped detection by the ordinary chemical processes of investigation for years to come; but anomalies in the spectra of bodies examined in this way set the chemists on the alert, and the new elements have since been separated. To show how sensitive this test is for some bodies, it may be added that the one-thousandth part of sulphate of didymium dissolved in water will give the spectrum characteristic of didymium, though the solution itself is perfectly colourless.

Speculation.—By a commercial speculation we mean the investment of capital in some

enterprise or commodity, the returns for which are uncertain. Speculations are either wise or foolish: wise when they are based upon certain ascertained facts and well-grounded calculations; foolish when these elements are wanting. The most successful speculators have been those in whose transactions the really speculative quality has been a minimum, and who have been prudent calculators. Such persons do not send coals to Newcastle, nor ice to the Arctic regions; they do not build houses with no prospect of inhabitants, nor buy estates in the heart of Africa. It would be endless to enumerate all the forms which speculation assumes, and all we need do here is to advise ordinary people not to incur risks the nature of which they do not understand. Speculation is a necessity of modern trade, and all investments in stocks and shares are more or less speculative; but prudence will lead to such inquiry as shall reduce the uncertainty to a minimum in the great majority of instances, or, as in sending out a valuable ship and cargo to a distant port, provide against contingencies as far as possible by suitable insurances. If a man gives five pounds for something, say for a picture, and expects to get five hundred for it, he speculates, and will most probably not gain much by his bargain. Large returns are oftener the result of calculation, and even of good fortune, than of hap-hazard speculation.

Speculation (Game).—A game at cards, played with a complete pack, each card ranking as at whist (*which see*). Each player places in a pool a certain number of counters, varying from one to three, and the dealer double the number paid by the others. Three cards are then dealt round to each player, and an additional one is turned up to decide the trump suit; this last card the dealer may sell to any one desiring to purchase it, either before or after it is turned up. The highest trump card dealt out takes the whole pool, but the cards must be turned up in a particular manner. The eldest hand, *i.e.*, the player next the dealer, turns up the uppermost of his three cards, then the next player one, and so on; should any card turned up be a trump of higher value than the dealer's turn-card or than any other previously played, the owner is at liberty to sell it to the highest bidder, the price given for it of course varying with its rank and the value of the pool. When a card is sold it is handed to the buyer, who places it before him, and does not turn any of his remaining cards till a higher trump appears, his left hand neighbour becoming elder hand, and turning the next card. In this way the play goes on till all the cards are turned, when the holder of the best trump takes the pool. Players must on no account look at or expose their cards before playing, but must retain them before them on the table. When a high trump is turned up, sufficient time for its sale should be allowed before another card is discovered. Players turning knaves or fives of any suit other than trumps are mulcted for each in a penalty of a counter, which goes to increase the pool. The game is sometimes a little varied by dealing a spare hand, which is not to be looked at till all the hands are discovered; should it contain a higher trump than any turned up, the pool remains for the next deal, and the contributions of the players are added to it, thus doubling its amount.

Speech, Impediments of.—These arise from various causes. Some are due to disease, as, for example, paralysis or softening of the brain; this is called aphasia, a condition in which the sufferer either does not speak at all, or uses the same monosyllable for everything. Some impediments, again, arise from malformation of the mouth, throat, or larynx, as in cleft-palate, &c. Others, as stammering, appear to be due to nervousness or habit, and can be frequently cured by talking very slowly and deliberately.

Spelt.—This is the name given to the *Triticum spelta*, or German wheat, belonging to the natural family *Graminaceæ*.

Spelter is native impure zinc, its component parts being lead, copper, iron, arsenic, manganese, and plumbago. Zinc has never been found in Europe in a state of purity, and it was long before a method was discovered of extracting it from its ore. Henkel pointed out one in 1721; Von Swab obtained it by distillation in 1742; and Margraf published a process in the "Berlin Memoirs" in 1746. The ancients were acquainted with a mineral to which they gave the name of cadmia, from Cadmus, who first taught the Greeks to use it. They knew that when melted with copper it formed brass; and that when burned a white spongy kind of ashes was volatilised, which they used in medicine. This mineral contained a large proportion of zinc, and yet there is no proof remaining that the ancients were acquainted with that metal.

Spencer.—The form of this garment was originally that of a coat without skirts; it was worn as an overcoat by men, and was called by this name owing to its adoption by an Earl Spencer, who lived in the reign of George III. Spencers were worn by children some thirty years ago; they were high, close-fitting garments, fastened at the back, and with close sleeves to the wrist. They were made in black or coloured silk.

Sperm Candles.—Spermaceti is the solid portion of the oil of the sperm whale obtained by filtration. In the process of preparation for candles it is hardened and whitened by pressure, and refined by a weak alkaline lye. A little wax or paraffin is added, to prevent crystallisation. Sperm candles possess a high illuminating power, and notwithstanding their high price, a considerable trade is done in them. They are frequently adulterated with stearic acid or hard white tallow. (*See also* CANDLES, CHOICE AND CARE OF.)

Sperm Oil is the liquid portion of the fat of the cachalot, or sperm whale. The head of this fish is exceedingly large, and forms about one-half of the entire bulk of the animal. It weighs on the average about thirty-five tons. On the upper part of the head and the right side of the nose there is a triangular-shaped cavity, made not of bone, but of a strong ten-

dinous integument, and called the case. In this the whalers make an opening, and take out the contents with a bucket. The substance which it contains is in a semi-fluid state, and consists of spermaceti and oil. It hardens in cooling. The oil is separated from the solid matter by filtration and pressure. In composition this oil differs but slightly from common whale oil. When in a crude state it contains a small proportion of a peculiar oil named phocenine, which imparts to it a very disagreeable taste and smell. The impurities are removed by adding to it chloride of lime and oak-bark, and afterwards agitating it with sulphuric acid. Sperm oil is much purer than train oil, and burns away without leaving any charcoal on the wicks of lamps. It becomes semi-solid at 45° Fahr. Some of the larger whales have been known to yield twenty-four barrels of spermaceti, and from seventy to a hundred barrels of oil.

Spermaceti.—This is obtained from the head of the sperm whale, and is purified by filtration and pressure. Spermaceti occurs in white crystalline cakes, has very little smell or taste, and appears to be composed of an acid called palmitic acid, and a substance resembling glycerine called ethal. It is now used externally only, in the form of spermaceti ointment and blistering paper. The former consists of spermaceti five ounces, white wax two ounces, and almond oil about a pint, and makes a mild and soothing application for simple sores and chaps.

Sphinx.—A mythological creation, often represented in ancient Oriental sculpture, and sometimes in that of modern Europe, as an architectural ornament. The figure shown in



SPHINX.

the accompanying illustration is that of an Egyptian sphinx. The Greeks gave the sphinx wings, and occasionally it has the head of a hawk or of a ram.

Spice-box.—The spice-box is made of tin, and is divided into compartments, so that the different kinds of spices can be kept together and yet separate. The nutmeg is generally put in the centre in a box which forms the grater.

Spices have been used in all ages and nearly all climates. They were always highly valued, and regarded as acceptable presents even to a king. Thus we are told that the Queen of Sheba presented spices to King Solomon in great abundance. Spices are almost all produced in hot countries, and when used in cold countries they must be imported. They have been thus used from very ancient times. They have long been valued amongst ourselves; and in early times the spicery was a special department of the Court, and had its appointed officers. Spices were rare and costly in the fourteenth century, and were not in general use, although they were rather extensively imported from the Levant. Chaucer and Wiclif mention cinnamon or canella; mace (or, as it was then called, macys), cloves (or clowe), pepper, ginger, cubebs, grains of Paradise, nutmegs, caraway, and spykenard de Spayn are specially noted in the recipes, and certain compounds of spices, as allspice, were used as powder douce and powder fort. Spices owe their fragrancy and pungency to the essential oils which they contain. They are obtained from different parts of plants, and the greater number of them come from the East Indies. The chief spices are nutmegs, mace, allspice or pimento, cloves, pepper, cinnamon, vanilla, ginger, cassia, cardamoms, and caraway seeds, all of which are noticed under their respective headings.

Spices, Adulterations of. (*See* ADULTERATIONS OF FOOD, &c.)

Spiders have been well described as powerful insect friends of man, for they, more than any other family, serve to check the too rapid multiplication of insects. The species are very numerous, but they are found most abundantly, as well as of the greatest size, in tropical countries. The distinguishing features of the family are the spinnerets by which the web is spun. These are small protuberances placed at the tail end of the abdomen, and pierced with a number of minute holes like the rose of a watering-pot; and liquid threads are pumped out through these which combine to form one thread of the web. This liquid is a kind of glue, which dries as soon as it is exposed to the air, and which is so elastic that it is erroneously supposed the spider can draw it back into its abdomen. The number and shape of the spinnerets vary according to the kind of the spider. Spiders differ very much in their habits, but they all subsist chiefly upon insects. There is one variety, however—the bird-catching spider—which is capable of making small birds its prey. They are exceedingly voracious, and in their search for food often devour the members of their own species. It is said that it is by no means unusual for the females, which are much larger than the males, to devour the latter. Spiders are capable, too, of long abstinence from food. Mr. Blackwall mentions the case of a female spider which survived after being for eighteen months corked up in a phial without food. This period exceeded the usual duration of most spiders' lives, which is believed to be about twelve months, although individual spiders

have been known to live four years. Spiders are very pugnacious, and in their fights they often lose one or more of their limbs; but these will grow again. Some kinds are beautifully and brilliantly coloured, but the variety best known to us—the common house spider—is very unattractive in appearance. Spiders kill their prey by means of a poisonous venom which they possess. The bite of large spiders is injurious and painful to man, and has been known to produce inflammation, swelling, fever, and even death itself. Various efforts have been made to utilise the spinning powers of spiders, as well as the silk which they secrete. Textile fabrics have been made of their webs, but they have only served as articles of curiosity. A very interesting account has been published of the efforts of an ingenious Frenchman, M. Bon, of Languedoc, who in the beginning of the last century succeeded in manufacturing some stockings and gloves of spiders' silk. The silk was grey and had a good appearance, but it was not equal either in lustre or durability to the silk of the silkworm. According to a report that was drawn up concerning it by order of the Royal Academy of Paris, the thread of the spider was eighteen times weaker than that of the silkworm, and great difficulty was found in obtaining a quantity sufficient to operate upon. The silk bags containing the eggs only were used for the purpose, and it was calculated that 27,648 female spiders were required to make one pound of silk, and the ferocity of the insects was an insurmountable obstacle to the collector. Some thousands of spiders were put together in cells containing from fifty to two hundred each, but these were soon reduced to one or two in each, the rest having been killed and eaten by the survivors. Spiders and their webs have also been supposed to possess valuable medical properties. The web is certainly most valuable for stanching wounds, but whether it is useful when taken internally is another question. However that may be, there are at this day many low-lying districts in the west of England where the spider's web is rolled into a pill and swallowed as a specific for fever and ague; while in Mexico a spider powder is made by pounding spiders, then washing the product in spirits of wine, macerating it for a couple of weeks in the alcohol, and filtering it. This preparation is taken as a cure for leprosy.

Spigot and Faucet.—Faucet is the pipe inserted in a cask for drawing liquor, which is stopped by a spigot.

Spike, Oil of.—This is an oil obtained from spike lavender (*Lavandula spica*). It is often called foreign oil of lavender; it differs from the true oil in being of a more greenish hue, and in possessing less fragrant properties. Its principal use is in painting, but it is also used to adulterate the genuine oil. This latter is obtained from the flowers of the *Lavandula vera*, and is much used in the manufacture of perfumes, as well as in making the tincture of lavender, which is of great use in medicine.

Spikenard, or Nard.—This (*Nardostachys Jatamansi*) is a plant much valued as a remedy for a number of diseases, and for its fragrant perfume. It has been known and held in great esteem from the very earliest times.



SPIKENARD.

It is supposed to be the nard of Scripture. It grows principally among the Himalayan Mountains, but has also been brought from Austria to Egypt, where it is used for perfuming baths, &c.

Spiles are small wooden pegs inserted in the vent-hole of a cask of liquor, and more frequently termed vent-pegs. They are about two inches in length, tapering from the base, which is usually about the size of a fourpenny-piece, to a fine point.

Spills.—These are used by economical people in lieu of matches or wax lighters. A supply of spills should be kept in every room and hall. They should be neatly made of writing-paper, and if possible the writing should be concealed within the folds. The most expeditious mode is that of folding straight slips of paper into narrow even folds; these spills, or alumets, as they are often called, are the most easily ignited. Another form is made by taking a long narrow slip of paper, and rolling it between the finger and thumb into a hollow conical tube; this can be made more ornamental by pinching the tube in diverse ways. The making of spills is an excellent employment for little children. Flat strips of cedar-wood are sold for spills, which give a fragrant odour when lighted. Spills are objected to by some persons on account of the tinder which falls on the floor or drops on the burners of gas or lamp.

Spinach.—This vegetable, which consists of the leaves of the *Spinacia oleracea*, is supposed to be a native of Western Arabia. It was unknown to the ancient Greeks and Romans, but the Moors carried it with them into Spain, and thence it gradually spread over the rest of Europe. It was first cultivated in England about 1568, for it is noticed in "Turner's Herbal" of that year as "a herb lately found and not much in use." It is a favourite and wholesome vegetable, and is laxative and cooling, though it does not afford much nutriment. It contains much nitre; and it is a singular fact that the

water drained from boiled spinach is capable of making as good match-paper as that made from a solution of nitre. Spinach needs to be picked carefully, and washed in several waters before it is used. Growing so near the ground as it does, it contains an amount of grit and earth which is most objectionable if not removed. After the stem is developed, the leaves become bitter, and are unfit for use. This bitterness is discernible also in dry weather, or when the spinach is grown on poor soil. When young and tender it requires but little water to boil it, the moisture which adheres to it after washing being very nearly sufficient. If it is ripe and strong, more water is needed, but still not much. The water that is put with it should be boiling and slightly salted. For the table the leaves are usually boiled, and mashed either with butter, gravy, or cream. The juice is also employed to tinge various dishes green. There are several varieties of spinach. The round-leaved or smooth-seeded spinach is the most succulent, and is very generally preferred for spring and summer sowing. Prickly-seeded or triangular-leaved spinach is the best for winter. There is an intermediate variety, called Flanders spinach, which is often used for both winter and summer. It is very hardy, and is esteemed for the large size of its leaves. New Zealand spinach is a variety introduced from New Zealand. It is a close-growing plant, and valuable for summer uses. It should be planted in the hottest and driest ground that can be given to it, for drought and heat are the conditions that favour its growth. The soil for spinach should be light and thoroughly pulverised. Summer spinach should be planted in a rich moist loam, and in a situation as moist and shady as possible. Prickly spinach should have a light and fertile but dry soil. It is very important to sow thinly; half an ounce will be found sufficient for a bed five feet wide and twelve feet long. As the seed is very hard, it is a good plan to soak it in water for a few hours before using it, as this will make it germinate more quickly and grow stronger. It is so cheap to buy that it is scarcely worth while to save it. As soon as it comes up, and the leaves are large enough for use, the spinach should be thinned; and this should be done frequently. If the thinnings cannot be used they must be wasted, but as soon as possible the plants should be a foot apart. They should spread almost flat upon the ground, and if properly cared for will yield large quantities of fine spinach by nipping off the tops only. If liberal supplies of liquid manure are given to summer spinach, it will be greatly improved thereby, and this manure may be of the most fertilising description. Sparrows and other birds are exceedingly fond of spinach, and sometimes commit great depredations upon it. The crop is also frequently destroyed or injured by the obnoxious black grub of the daddy-long-legs. To prevent this, before the sowing the soil should be dug up and sprinkled lightly with salt. There are many substitutes for spinach, and among them is the orache, or mountain spinach. This plant is of Eastern origin, but it was introduced into Europe earlier than spinach, and was a great favourite with the Greeks and Romans. It is highly esteemed as a vegetable in France. The leaves have a slightly acid flavour. The Romans used the leaves of the mallow as a substitute for spinach, and these are still used in some parts of France, Italy, and Lower Egypt. The young shoots or tops of the common stinging-nettle are not unlike spinach when properly boiled and dressed; and the same may be said of the tender tops of the gourd or pumpkin-vines. Their removal, however, is likely to decrease the production of fruit. The common fathen, or good King Harry, is also excellent for the same purpose, and it is to be found in abundance on rubbish-heaps. And finally the young leaves of the mangold, or white beet, may be cooked in the same way, although they possess a slightly earthy flavour.

Spindle.—The distaff and spindle were for many ages and in many countries the only apparatus used for making thread and yarn; nor are they quite obsolete even at the present day. The distaff has already been described in an article on the subject. The spindle appears in many forms, but is usually a piece of stick nearly a foot long and tapering at the ends. In using it the spinner, or rather spinster, stuck one end of her distaff in her waistband; from the wool or flax, &c., at the other end a few fibres were drawn out and attached to the spindle, which was then spun round with the right hand, and by its revolution twisted the thread. The spindle was kept twining in the air till it reached the ground, when it was taken up and the thread wound about it. The same process was repeated until either the distaff was exhausted or the spindle was full. The invention of the spinning-wheel changed all this, and the spindle as part of it twisted the thread, which was wound by the motion of the machine on to a reel or bobbin. The spindle in modern spinning forms part of a complicated apparatus, the productiveness of which is enormous.

Spindle-tree.—This is one of the many names given to the *Euonymus Europæus* of the



BRANCH OF SPINDLE-TREE.

botanist. It is found abundantly in England in hedges and copses, but is of no great height

unless cultivated, when it becomes quite a tree; its leaves are elliptic, lanceolate, and serrated, its flowers a greenish-white, and its fruit clusters of beautiful red berries. The latter are poisonous, however, and the flowers have a fetid odour. It is sometimes called the dog-wood, because a wash used to be prepared from it for curing mange in the dog. It was also called louse-wood, the berries having been used for the destruction of vermin in the hair. The wood is used by musical instrument makers, and for making skewers, toothpicks, &c.; hence the name prick-wood, or prick-timber, by which it is also sometimes known.

Spine, Ailments of.—These constitute a very large class, as they include not only those ailments which affect the bony columns, but also the spinal cord and its membranes. Under the first of them, viz., the bones of the spinal column, may be mentioned:—1. *Spina bifida.* This is a tumour with which infants are sometimes born, and is due to a defection in the formation of one or more of the vertebral bones, which allows the membranes of the cord at that part to become distended with fluid. It is a condition fraught with the greatest danger, and although cases occasionally occur in which, from adhesive inflammation, connection between the cord and the tumour may be cut off, and thus render the latter harmless, and even when this has not taken place, though it may happen that, in very exceptional circumstances, the sufferer may live to be old, still in most instances this tumour terminates fatally. The only treatment possible is to support and protect the tumour from pressure by suitable appliances. Cases have been cured, however, by puncturing the tumour with a fine needle, and allowing the fluid to escape drop by drop; but this has only been done as a last resource, when every other hope of saving life has ceased. 2. *Curvature of the spine.* This may be angular, when it is generally the result of scrofulous inflammation and subsequent destruction of some portion of bone; or it may be lateral, viz., curved to one side or the other. The latter form of curvature is very common amongst girls at the age of puberty, and appears to be due to weakness of the muscles and ligaments of the spine incidental to some extent to that period of life. It does not necessarily indicate the strumous constitution, though often associated with it. Lateral curvatures admit of great alleviation, if not of absolute cure, by the application of modern appliances, which include a process of stretching, now resorted to with considerable success, in which the patient is suspended, and in time straightens the spine by his or her own weight. Fresh air, good food, and iron are necessary in this condition. 3. *Caries and Necrosis.* Either or both of these may occur to the bones of the spine, and are usually associated with what is called spinal abscess. When the latter appears in the thigh it is called *psoas abscess.* This disease usually precedes angular curvature. In common with other bones the spine may be the seat of fractures, dislocations, sprains, &c., which, owing to their great importance in this region, require all the skill and attention that can be bestowed upon them. With regard to diseases of the spinal cord and its membranes, those most important will be found described under the heading of CEREBRAL AFFECTIONS, with which they are essentially most closely allied.

Spinel.—A gem consisting of an aluminate of magnesia, with the addition sometimes of silica, iron oxide, or chromium, to one or other of which its various colours are due. Some varieties are transparent, others are opaque. The spinel ruby of the lapidaries is scarlet; the balas ruby rose-red; the rubicelle is orange-tinted; almandine ruby is violet; sapphirine is of different shades of blue; pleonast is black; chlorospinel is grass-green. It is much prized by jewellers, and is often sold for the Oriental ruby. The finest specimens come from the East Indies. (*See* ALMANDINE; CEYLONITE.)

Spinning.—By this process fibres of wool or of cotton are straightened, smoothed, and formed into one continuous thread. The original method was the simple contrivance of spindle and distaff (*which see*). The supply of thread obtained by this means was but a scanty one, and as the demand increased proved insufficient, for by it but one thread was spun by the spinner. The spinning-wheel, spinning-jenny, and mule-jenny severally quickened the process; and thus at the present time, by the valuable help of improved machinery, as many as eighty threads can be spun by one spinner. By this means the fibres are opened and cleansed, rendered soft and filmy, and are twisted and wound on reels. All this is done with astonishing rapidity by machinery, and with but little aid from the spinner, whose work principally consists in supplying the material and taking it away when finished.

Spinning-jenny.—By this contrivance it became possible for a spinner to spin eight threads at once; heretofore two only at a time were practicable. The inventor of this machine, which was introduced in the year 1764, was a Lancashire cotton spinner, Hargreaves by name. It is commonly supposed that the name of jenny is a Lancashire corruption of engine. The spinning-jenny was succeeded fifteen years later by the mule-jenny, a machine capable of executing more work than its predecessor.

Spinning-wheel.—This was considered to be an improvement on the slower movements of spindle and distaff. In this instance the spindle was put into a frame, and the wheel was driven by the hand or foot of the spinner. In some cases the wheel was provided with two handles and two spindles, a distaff being placed between, so that two threads could be spun at the same time. A set of spikes projected from the roller, which disentangled the fibres. This invention first appeared at Nuremburg in the year 1530.

Spirit-flasks are bottles used for carrying spirits, and intended for the use of huntsmen, pedestrians, and travellers generally. They are fitted with a tin cup, into which the spirit can be poured; and the cork is made to screw on tightly, so that there is no danger of any leakage. Spirit-flasks are usually of a small

size, as they are intended to be carried in the pocket.

Spirit-lamps.—Lamps in which spirit is burned instead of oil are used in chemical experiments. They are preferable, because burning spirit does not deposit soot upon the vessels with which it comes in contact, and also because the energy given out by the burning of the liquid is expended in heat rather than light. Alcohol, or wood-spirit, is the fuel used; and stoneware wick-holders are to be preferred to those of brass, for the latter become greatly heated and frequently split the glass. It is stated that "an effective spirit-lamp may at any time be constructed out of a vial, having a glass tube passing through the cork, a cover being formed from a test-tube inverted over the wick, and fitting with moderate tightness on the superior extremity of the cork." Spirit-lamps are frequently used at table to keep dishes hot, or in delicate culinary operations, when valuable vessels are employed for the purpose.

Spirit-level. (*See* LEVEL.)

Spirit, Methylated. (*See* METHYLATED SPIRIT.)

Spirit Varnish. (*See* VARNISH.)

Spirits. (*See* ALCOHOLIC DRINKS; LIQUORS, SPIRITUOUS.)

Spirits, Adulterations of. (*See* ADULTERATIONS OF DRINK.)

Spiritualism.—This name has been given to certain metaphysical systems, according to which whatever is real is spirit, soul, or self, and the material world a succession of notions, whether impressed upon the mind by the Deity or produced by the mind itself. Spiritualism is also the name which is given to a system which professes to hold direct communication with the spirit world. Its adherents maintain that in certain conditions the souls of the dead can be brought and made to manifest themselves in many ways, pre-eminently through the agency of persons called mediums. In some cases it is said the spirits actually become embodied or materialised, and appear in visible tangible forms. When present, whether seen or unseen, they are alleged to be capable of doing and saying most extraordinary things. Traces of similar beliefs and practices are found in antiquity, but the system now spoken of originated in America in about 1848. It has undergone many modifications and developments, and reckons many zealous disciples in the world. That remarkable phenomena have been witnessed is not denied by unbelievers, nor do they always feel able to account for them, while denying the theory of the spiritualists. Some have assigned the manifestations to imposture of the most skilful description, and in various cases have proved them to be so. Others ascribe them to animal magnetism, others to a so-called psychic force peculiar to certain individuals, others to Satanic agency. A discussion of the subject would be foreign to the intention of these pages, and we can only suggest the question whether any one of the theories propounded is by itself sufficient to explain all the phenomena.

Spit.—The iron prong on which meat is roasted. In olden times dogs were kept to turn the spit; and it is said that a water-wheel was occasionally applied for the purpose, the water from which formed a stream in the kitchen, which served as a reservoir for live fish. Now-a-days the spit is usually turned by means of a bottle-jack, which is wound up with a key like a watch, and turns very regularly till it has run down.

Splinters, To Extract.—These, when small, may be squeezed out, or extracted with a pair of forceps. If large, an incision must be made over the splinter, and after extraction the wound should be well syringed with tepid water. Small particles, as steel filings, for instance, which frequently lodge in the eye-ball, may often be removed by sweeping a soft camel's-hair brush over the surface of the eye; if this fails, the forceps must be resorted to. It is desirable to apply water dressing or a poultice when splinters have been removed, in order to obviate the tendency to inflammation.

Splints.—In domestic economy, splints are thin strips of wood, and are used for lighting tapers, gas, &c. In surgery, splints are usually pieces of wood applied to fractured limbs to support them. These are carved to the shape of the limb, are lined with padding when used, and are kept in position by bandages. Besides wood, other substances are employed for splints, as pasteboard, gutta-percha, wire gauze, perforated zinc, straw, &c.

Split Rings.—Rings used for holding keys, attaching watches, seals, &c., to chains, and for other purposes. Some are split all round, and others only in part. They are made of gold, silver, steel, brass, &c., and their modifications are too numerous to be described in this work.

Sponges are creatures of very low organisation, and a good deal of difference of opinion has existed as to whether they belong to the animal or vegetable kingdom. Naturalists appear now, however, to be agreed that they belong to the animal kingdom. They consist of sarcode, or gelatinous flesh, connected and supported by a kind of horny and elastic framework of diversified form and arrangement. The mass is a cellular fibrous structure, and is traversed by a number of canals, through which the currents of water pass which supply the creature with its necessary nourishment. The water enters by minute pores, and flows into larger vessels (*oscula*), from which it is finally discharged. In some sponges the water passes out by a single orifice; in others the orifices are numerous. The water flows in through the pores and escapes by the oscula as long as the sponge remains alive. It has been calculated that there are not less than 250 varieties of sponge, of which fifty-six kinds are found on the British coast. Of these, only three kinds are met with in commerce, two species being brought chiefly from the Levant, the third from the West Indies. The trade in sponges is a considerable one, and is carried on by the Turks and the inhabitants of the Bahama Islands.

Smyrna is the chief market for the Turkey sponge, and quantities, varying from 100,000 to 500,000 lbs., are annually imported from that city. The average value of sponges collected in Turkey and Greece is from £90,000 to £100,000 annually. West Indian sponges are also collected in large quantities, and about 215,000 lbs. are annually sent to England; but they are large, coarse, and comparatively valueless, and seem to be imported for no other purpose than to deceive the inexperienced. Sponges are obtained by diving. The diver takes in his hand a three-cornered piece of stone, with a hole at one corner, through which a cord is fastened which is attached to the boat. By means of this he guides himself to the places where the sponges are growing; he tears them off, puts them under his arm, pulls the cord, and is hauled up again. The Greeks of the Morea do not dive, but obtain their sponges by means of a pronged instrument; but sponges thus obtained are injured and sell at a low price. The sponge when collected, and when imported also, contains many impurities, especially sand. Some of this can be removed by beating and shaking them, and frequently to prepare them for the market they are soaked in dilute hydrochloric acid. Sponge thus treated, then rinsed in cold water afterwards, or water with sulphurous acid, is called *bleached sponge* or *white sponge*. It has a good appearance, but acid is injurious to sponge, and deteriorates its quality. Sponge is sold by weight, and when it is full of sand it of course weighs heavily. Many disputes arise in consequence between the small importers and the wholesale purchasers, and the right to beat the sponge, the number of minutes to be employed in doing so, and even the length of the stick used for the purpose, lead very frequently to much wrangling. The sponges employed for domestic purposes are valuable on account of their power to imbibe fluids. The best—those which are brought from the Levant—are known as toilette sponges and honeycomb sponges; the latter are the coarser, the cheaper, and the more solid of the two. Sponges are useful in surgical operations, both to remove blood and check hæmorrhage. *Burnt sponge* was formerly much used as a remedy for scrofulous complaints and goitre. It was made by heating the cuttings and fragments of sponge in a closed iron crucible till they were black and friable, then leaving them to cool before exposing them to the air. They were taken either in water or in the form of lozenges. Burnt sponge owed its virtue to the presence of iodine and bromine, and these are now administered in other ways.

Sponges, To Clean.—Sponges that have become slimy and unpleasant to the touch should be allowed to lie for some hours, or even a day or two, in water in which a large lump of common soda has been dissolved. The water should be changed frequently, and each time the sponge should be squeezed and pressed with the hand. Sponges should never be wrung; it breaks their fibres and injures their elasticity. They should be squeezed dry, and, unless it is absolutely necessary, soap should not be used with them. Soap very soon spoils a sponge; and when the two must be used together, the sponge should be squeezed in warm water and rinsed in cold water before it is put away. A new sponge should be lightly beaten, and soaked in clean cold water for some hours before it is used. The water should be renewed once or twice during the time.

Spongio-piline.—A composition consisting of shreds of wool and sponge with an india-rubber back, so that while the inner substance retains heat and moisture, the waterproof back prevents their escape. It is used in surgery for fomentations and poultices, and is recommended as both cleanly and convenient for such purposes.

Sponsors.—Persons who make promises for others; especially godfathers and godmothers at baptisms. The Church of England requires two godfathers and one godmother for every male child baptised, and for every female one godfather and two godmothers. By the Twenty-ninth Canon, no parent can be godfather for his own child; and no one can become sponsor before receiving the Holy Communion. In actual practice some of the regulations are dispensed with.

Spools.—These are thin reels either of wood or metal which have knobs at each end. Their use is for winding on threads, either for weaving purposes or for supplying the under thread to sewing machines.

Spoon-drippers.—In large establishments where a number of cooking spoons are in use at the same time, spoon-drippers are articles of very great convenience. They are made in different sizes, accordingly varying in price, and consist of a number of bars, upon which the spoons are laid when taken from the pan. In making confectionery, or such dishes as are very delicately flavoured, spoon-drippers are very useful, as they facilitate the practice of devoting each spoon to a special purpose.

Spoon-warmers.—These useful articles are made both of earthenware, electro, and silver. They are made in fanciful shapes, and each is provided with an opening only large enough to admit a large spoon. The warmer is filled with boiling water, and placed on the table by the side of the hot joint, and in it the gravy spoon is kept when not in use. Metal spoon-warmers retain the heat longer than those made of earthenware.

Spoons.—The word spoon is of Irish origin, and taken from the word *sponog*. The shape and size of spoons vary according to the use to which they are appropriated, and they are usually made to correspond with forks and other articles of plate. The spoons formerly given at christenings were called apostle-spoons, because one of the apostles figured at the top of the handle. Sometimes twelve spoons, representing the twelve apostles; sometimes four, representing the four evangelists; and sometimes only one was presented. It is still customary to present a silver spoon at christenings, though the apostolic handle is no longer retained. At a very early period of our history spoons seem to have been almost the only aid

to the fingers for eating purposes. The ancient Greeks used spoons at meals, whilst amongst the ancient Egyptians spoons were made shell-shaped, of glass, stone, marble, wood, shell, and ivory. They were handsomely carved.

Sporadic.—This is the term applied in medical nomenclature to the occurrence of certain scattered cases of disease affecting only a few, and these, it may be, widely separated from each other. Sporadic diseases are to be distinguished from endemic and epidemic diseases, in the former of which a greater number of people are attacked in one locality, and in the latter a still larger number of people and a wider area.

Spores, or Sporules, is a name used by botanists to designate those minute organs in flowerless plants from which new plants of the same kind spring. They are thus to a certain extent seeds.

Spotted Lace and Nettings.—In former days spots were worked on lace and nettings with needle and thread; this is now done by the aid of machinery. Spotted lace is not so expensive as any other kind of lace, because no design is required, and the simple pattern can be quickly executed. Owing to its simplicity, lace of this description should be chosen when required for the dress of little children. Spotted nettings are used chiefly for veils, and for the crowns of women's caps. These small specks are said to have a beautifying effect when worn over the face; and for other purposes net of this description, having more substance, is more lasting. Nettings are also spotted with chenille, which gives a pretty, soft effect; they are also spotted with beads. The latter are not serviceable, because the weight of the beads tears and wears away the net.

Sprained Ankle.—This is a very common accident, the treatment of which will depend upon the amount of injury. As a rule, the tendons and ligaments of the ankle-joint are only violently stretched, and although the pain may be severe, it will soon yield upon the application of some such lotion as Goulard's water, with spirit added (one ounce to the half pint of lotion); or if this does not relieve, by repeatedly fomenting the part with hot water or hot poppy water; a bandage and rest are essential. If the injury has been more severe, and the throbbing and pain indicate inflammation, two or three leeches will often afford great relief. In doubtful cases of fracture or severe sprain it is always better to treat the accident as if it were a fracture, and to apply suitable splints and bandages; the part should also have complete rest. (*See* Broken Bones.)

Sprains.—These occur most frequently in the neck, back, and joints, especially the ankle, knee, shoulder, and wrist joints, and are the result of violent stretching, and sometimes rupture of the muscular fibres, tendons, or ligaments of these parts. Sprains are followed by a feeling of faintness and pain, and subsequently by swelling and discoloration. They are best relieved by either hot or cold applications, according to the feelings of the patient, by the occasional use of leeches in certain cases, by saline aperients, and by rest. (*See preceding paragraph.*)

Sprats.—The sprat (*Harangula sprattus*, formerly *Clupea sprattus*) is a small fish of the herring family, which is found abundantly on many parts of our coasts, and especially on those of Norfolk, Suffolk, Essex, and Kent. It very much resembles the herring, but is of a smaller size, being only six inches long when it has attained its full growth. In flavour it is quite equal though different to the herring, and it contains an immense quantity of fat. It has been declared by some that the sprat is the young of the herring, but there appears to be no foundation for the statement. Sprats are sold at a cheap rate in London, and they are very popular with the poorer classes. When gutted, coloured, and pickled, they are frequently sold for anchovies; and they are dried also, and in this condition are extensively sold as food. In Scotland they are called "garvies," and under this name are sold abundantly both in Edinburgh and Glasgow. The "kilkies," too, which are brought from Riga and other ports on the Baltic, are really sprats cured with spices; and many of the boxes of sardines which are brought to market are really filled with sprats.

Spray.—Fluid that has been reduced to fine spray is extensively used in surgery for disinfecting, refrigerating, and healing purposes. The modes of operation differ, but the simplest apparatus employed for forming and diffusing the vapour is called a spray producer. Spray has become more and more popular among medical men, because it affords the best known means of bringing topical applications to bear upon diseased parts. When the throat and the bronchial tubes are affected, fluid that would at one time have been introduced in the form of a gargle is broken up into spray, and without any difficulty is brought into direct contact with the part to be treated. Spray is also most useful in impregnating the air with anti-septic vapours, to prevent infections and purify the atmosphere of hospitals, &c. (*See also* Ether Spray; Gargles.)

Spray-work.—Sprays of leaves and fronds of ferns can be represented in exact delineations on smooth jean, on cardboard, and on wood, by a very simple process. The first act is that of selecting perfect specimens; these should be gathered when dry, and then placed between sheets of blotting-paper, and subjected to pressure for four-and-twenty hours. The sprays are then laid on the material they are designed to ornament, and held in place by small pins. Indian ink, marking ink, or sepia, according to choice, is rubbed in a saucer until quite thick; a fine-bristled tooth-brush is dipped into it, and then rubbed gently to and fro across the large teeth of a dressing-comb. This causes the ink to spirt and splutter in all directions; only the parts covered by the sprays remain unmarked, and when these are taken off a faithful representation is discovered. Taste requires to be exercised in the arrangement and shading of the leaves and fronds. The centre of the group should be the darkest, and the shade should be gradually softened to the edge. The sprays

should be taken off at intervals, in order to give variety. Thus some will be darker, others lighter, and those which remain to the last will leave a white impression. Wood is the easiest and cardboard the most difficult material to work upon. The tops of tables, boxes, and cases can be thus ornamented. The worker should wear a bib, and place the work on large sheets of paper during the operations.

Sprig.—A brad, or nail without a head. In nautical phraseology it means a small eye-bolt which is ragged at the point.

Spring Balance.—This is a spiral spring used in locomotive engines in connection with weighing, balance, index, and pointer. It is attached to the end of a lever, which adjusts the pressure.

Spring Guns. (*See* MANTRAPS AND SPRING GUNS.)

Spring Mattress.—Within the last few years the use of the spring mattress has become very general, and as regards comfort and cleanliness this article is no doubt preferable to the mattress that is simply made of wool or hair. Metallic springs are equally placed beneath the hair filling, and by means of these the mattress is always firm, light, and comfortable. It is advisable, however, that an additional mattress should be placed on the top to prevent unequal pressure on the springs. The extra mattress may consist of horsehair, wool, or of three or four coarse blankets slightly quilted together; and to obviate a difficulty often met with by the mattress sinking at the head and also at the feet, a bolster filled with flocks should be placed at each end to make the extremities equal with the centre. In some instances, in addition to the spring mattress, a feather bed is supplied; but this plan, though adding to the warmth, is not considered so conducive to health as the use of the spring mattress alone.

Spring Water.—Rain that has fallen from the clouds and percolated through the earth is the original source of all spring water. The loose soil and gravel absorb the rain, which sinks through them until it reaches some impervious strata beyond which it cannot escape; then it makes its way along until it comes to rents or fissures, through which it makes its way to the surface in springs. Spring water is generally regarded as possessing in a remarkable degree all the qualities which recommend water to the eye and the palate. It is clear, sparkling, and of a uniform temperature all the year round (about 50° Fahr.). Very frequently, however, it contains mineral impurities in a greater or less degree, because the water as it filters through the earth becomes charged with the earthy salts. The most common impurities which belong to spring water are carbonate, sulphate, and muriate of lime, muriate of soda, and iron. When the water is impregnated with saline matters until it is hard it is not good for drinking purposes. It often proves injurious to those who use it exclusively, and horses particularly dislike it. When, however, it is soft—that is, when it is comparatively free of saline matter—spring water is the best and most desirable water that can be, both for drinking and for domestic purposes, such as brewing, washing, &c. Some springs possess an extraordinary quantity of mineral salts; they are then called mineral waters. Some waters have salts of a peculiar character; thus Epsom waters contain sulphate of magnesium, and chalybeate springs contain carbonate of iron.

Springs, Door. (*See* DOOR-SPRINGS.)

Sprouts, Brussels. (*See* BRUSSELS SPROUTS.)

Spruce (also called Spruce Beer and Dantzic Spruce).—An old-fashioned beverage which is named from the essence of spruce used in its composition. The essence is made by boiling the young shoots or young cones of the spruce fir in water, and evaporating the decoction to the thickness of treacle. Spruce beer is either white or brown. For white, take seven pounds of loaf sugar, and dissolve it in four and a half gallons of hot water; when at blood heat, stir in four ounces of essence of spruce; add half a pint of good ale yeast, and mix thoroughly. In summer this will ferment rapidly, but in winter requires to be kept warm. After fermenting, draw off the liquor, wash the cask very clean, and replace the liquor in it, when it will ferment again. The beer may then be bottled, but the corks should be wired down and the bottles laid on their sides for a time. As the beer becomes brisk and lively the bottles may need to be set on end, but not for long, as the contents may become flat; they must therefore be laid on their sides again. The brown spruce is made in the same way, but with treacle for sugar, and is not so good. Powders for spruce beer are thus made:—Mix one hundred grains of white sugar, twenty-four grains of sesquicarbonate of soda, and ten grains of essence of spruce, and put them in a blue paper; in a white paper put thirty grains of tartaric or of citric acid. Dissolve the powders in separate glasses of water, mix, and drink the produce while in an effervescent state. Dantzic spruce is imported in small casks, and is frequently of very poor quality, or even only a spurious imitation.

Spruce Fir.—The name of a valuable timber, of which there are several kinds. The Norway spruce is a noble tree, sometimes one hundred and eighty feet high, with a straight stem and horizontal branches. Though found in several countries, it is not a native of Britain. It yields wood, resin, turpentine, tar, and lamp-black; and even the bark is utilised for tanning, baskets, cordage, &c. The timber is known as white Christiania deal, or Dantzic deal. One valuable variety is the red Norway spruce, and another is the white spruce, which grows in North America, as also are the black spruce and the hemlock spruce. Not to mention more, there is the Himalayan spruce, which, though large, does not yield timber of great value.

Spy-glass is the term which was given in former years to the telescope used on board ship. It is ordinarily defined as "a small telescope;" but there is no particular optical instrument made which is dignified by this appellation, and the word is now chiefly used by children.

Squab.—A large flat cushion, thick and bulky, which is generally made for a particular kind of sofa, viz., one which has a bread seat, and is often made to fit into the corner of a room.

Squab Pie.—Strictly speaking, this is a pie made of "squabs," or young pigeons, though the name is usually given to a pie made of mutton, apples, and onions. It is a Cornish dish. In the "Art of Cookery" we are told:—

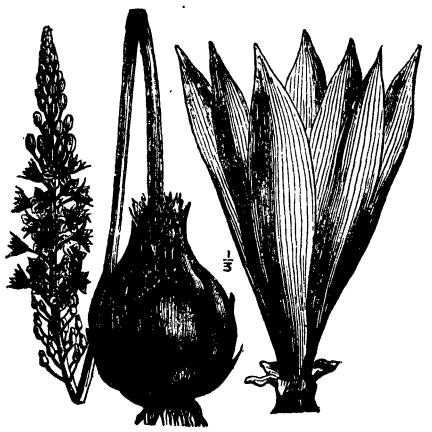
"Cornwall squab pie, and Devon white-pot brings,
And Leicester beans and bacon, fit for kings."

Square Nettings.—When squares of netting are desired for anti-macassars, &c., it is necessary to begin at one corner with one stitch, and to increase the size gradually by increasing the number of stitches methodically at each side until the required width is reached, at which point the number of meshes must be gradually decreased until one stitch remains. By this plan the meshes, or holes, appear square, whereas if a row the required length or width of the work had first been made, the holes would have appeared in diamond form, and as thus would not have looked so well when a pattern was darned upon them, nor could they have been so easily darned.

Squeezers, Lemon. (*See* LEMON SQUEEZER.)

Squibs. — Small fireworks, consisting of cylinders of paper filled with explosive material, primed at one end and pinched in at the other, so that shortly after being lit they explode with a loud report. The best squib composition consists of one part of charcoal mixed with eight parts of meal powder. For priming squibs a fuse composition should be used, consisting of meal powder four parts, saltpetre two parts, sulphur one part.

Squills (in Medicine).—This is the dried and sliced bulb of the *Scilla maritima*, belonging to the natural order *Liliaceæ*, a plant growing



SQUILL PLANT.

on the shores of the Mediterranean. Squill is largely used in medicine both as a diuretic and expectorant, and is very serviceable in certain forms of chronic dropsy, chronic bronchitis, &c. It appears to be composed of two principles, scillitine and skuleine, the former of which possesses the diuretic and expectorant properties of the drug; the latter is an irritant poison. The preparations of squill are:—1. *Vinegar of squill.* This consists of bruised squill two ounces and a half, dilute acetic acid a pint, proof spirit one ounce and a half. The dose is from ten to forty drops. 2. *Oxymel of squill.* This consists of vinegar of squill a pint, and clarified honey two pounds. The dose is from twenty drops to one tea-spoonful. 3. *Compound squill pill.* This is prepared from finely-powdered squill, ginger, hard soap, ammonia, and treacle. The dose is from five to ten grains 4. *Pill of ipecacuanha with squill.* This consists of Dover's powder, squill, and ammoniacum in powder, and treacle. Twelve grains of this pill contain one grain of opium. The dose for an adult is from five to ten grains. 5. *Syrup of squill.* This consists of vinegar of squill a pint, refined sugar two pounds and a half. 6. *Tincture of squill.* This is prepared by maceration and straining from bruised squill and proof spirit. The dose is from ten to twenty drops.

Squinting.—A well-known defect of the eye, professionally styled *Strabismus*. There are two marked varieties, the convergent and the divergent. In the convergent the patient directs his eye or eyes towards his nose, and in the divergent the gaze is outward towards the temples. Each of these may be single or double, according as one or both eyes are affected. A person afflicted with divergent squinting is vulgarly described as "cock-eyed," and one who is suffering from convergent squinting is in like manner called "cross-eyed." The causes are various, and may be either constitutional, symptomatic, or the results of infantile ailments. Its presence in children whose nurse or one of whose parents has it is not uncommon. The treatment of it is an important part of ophthalmic surgery, and it may or may not be curable by operations or other measures.

Squire. (*See* ESQUIRE.)

Squirrel.—The common squirrel is called by naturalists *Sciurus vulgaris*, and belongs to the family *Sciuridæ*. In the wild state it lives



SQUIRREL.

in the woods, building its nest in high trees of dry leaves, twigs, and moss. In spring-time the female brings forth four or five young ones.

When domesticated, the squirrel makes a charming pet. The cage in which it should be kept may be made from an ordinary box, and it ought to be large and roomy—not less than six feet long by five feet high. It is made of wire-work in front, has a sleeping berth or box inside, and a door behind to clean out the cage and feed the squirrel. The wheel to the cage is not only quite unnecessary, but very cruel. The edges of the cage must be covered with tin, to prevent the little animal from gnawing it. If properly cared for, squirrels become very affectionate, and can be taught many tricks. Their food should consist of nuts, fruit, acorns, fir-tree cones, milk, and bread and milk.

Squirrel Fur.—Grey, white, black, and red are the different varieties of this fur, and of these the grey, which is of a bluish hue, and known as *petit gris*, is the most highly esteemed. It is obtained from the Siberian squirrel, large numbers of which are captured for the sake of their fur. The white fur—the under part of the animal—is used for the lining of cloaks. For this purpose it is very suitable, being particularly light in weight. The average weight of a cloak lining is about twenty-five ounces.

Stable Helps and Stable Boys.—The stable-boy assists the coachman and groom, under whose direction he is occupied in cleaning out the stables, cleaning the horses, washing and cleaning the harness and carriages, and making himself generally useful. He may be in the house, when he may have not only wages, but clothing, by agreement. The stable help or helper is subordinate to the regular stable servants, and his duties are similar to those of the stable-boy. He may be hired by the week, live off the premises, and have no clothes allowed him; or he may be boarded in the house, and have wages and clothing like a groom. When families travelled, the help was sometimes taken either as postillion or outrider.

Stable Linen. (*See* LINEN, STABLE.)

Stable Requisites.—Besides the stable linen, a list of which will be found under the heading of LINEN, STABLE, the necessaries of a stable should include brushes for harness (three kinds), spoke-brushes, water-brushes, dandy-brushes, horse-brushes, and bit-brushes; curry-combs and trimming-combs; coach-mops, birch and heath brooms, scissors, pickers, oil-cans, leathers, sponges, stable-forks, wheelbarrow, measures for corn and other kinds of food for horses, a lantern, and a jack for raising the carriage-wheels when being cleaned. (*See* HORSES.)

Staff, Military.—In general, a body of experienced officers, who superintend the movements of the troops with which they are associated, thus securing combined, efficient, and also harmonious action. What is called the general staff comprises a field-marshal commanding-in-chief, with head-quarters in London, a lieutenant-general commanding-in-chief for Ireland, and the generals of the military districts of the United Kingdom and the Colonies, each having his subordinate staff. A similar principle is adopted for India. Other forms of the staff are the personal staff of each general officer; the garrison staff of officers in fortresses and garrison towns; the civil or departmental staff of officers, who attend to the daily requirements of troops; the recruiting staff; the pensioner staff; the volunteer staff; and the regimental staff. In the navy, also, there is the staff of a fleet, which includes the chief officers of several departments. In all cases the staff is a kind of directing council.

Stag's Horn.—These are often employed as useful ornamentations in halls, passages, and smoking-rooms, where they serve as pegs for hats, or as a receptacle for riding-whips, caps, and different paraphernalia belonging to men. The horns are polished, and sometimes additionally embellished by being tipped with silver or gold. The head of the animal bearing its antlers is occasionally mounted, and looks specially well if placed on a background of cloth. The horns above alluded to are not possessed by the young stags, which for the first year have mere knobs, and later have long, pointed horns: these increase in length and bulk each year, and in due course branches, or antlers, begin to shoot forth.

Stains.—Information respecting dyes and stains for bone, ivory, leather, paper, parchment, wood, &c., will be found under the latter-named headings.

Stains, To Remove.—*Port-wine stains* should be covered thickly and at once with salt. The articles should then be washed as soon as possible in boiling water. Wine stains may also be removed by holding the article in milk as it is boiling on the fire. Recent *fruit and wine stains* on linen will usually yield to the action of hot water and soap. When they are obdurate, the articles should be put for a minute or two in a liquid made of one spoonful of spirits of salt to two of water. This will discharge all stains that are not metallic. *Stains arising from weak acids and acidulous liquids* will usually yield to ammonia or spirit of hartshorn, or sal volatile may be applied to them. Fruit-stains upon white and fast-coloured cottons may be removed by using chloride of soda. The place should first be cold soaped, then touched with a camel-hair brush or feather that has been dipped in the chloride. It should then be rinsed immediately in cold water. Slight stains made with syrup or jam should be rubbed with a cloth that has been dipped in lukewarm water. It should then be pressed between folds of clean linen. *Stains upon mahogany.* (*See* MAHOGANY.) *Ink-stains.* (*See* INK-STAINS.) *Stains upon marble chimney-pieces and hearths* should be covered with a paste composed of a pint of strong soap lees, half a pound of pearlash, and as much whiting as is required. The paste may remain on the marble for some weeks, and should be washed with a flannel and cold water and soap. Afterwards the marble should be polished with a dry flannel. *Stains of marking ink* should be soaked in a solution of chloride of lime, or else rubbed with the tincture of iodine, then rinsed in either case in a solution of ammonia. *Stains arising from alkalies or alkaline liquors* will disappear on the application of a little lemon-juice—that is, if the colours

are not destroyed. *Stains upon silk* should be rubbed gently with a linen rag that has been dipped in a mixture made of one ounce of essence of lemon and half an ounce of oil of turpentine. *Stains upon cotton.* (*See* COTTON, TO TAKE STAINS FROM.) *Fruit and ink stains may be removed from the hands* by immersing them for a few minutes in cold water, to which either a few drops of oil of vitriol or oxalic acid has been added, or even a small quantity of chloride of lime. The hands must be rinsed well with cold water, and not touched with soap for some hours after the stains have been removed by the two first of these substances, or they may return. *Stains upon leather.* (*See* LEATHER, TO CLEAN.) *The majority of medicine stains* may be taken out of silver spoons by being rubbed with a rag dipped in sulphuric acid, then washed in soap and water. *Egg-stains* on spoons should be rubbed with salt moistened with a little cold water. (*See also* GREASE, TO REMOVE.)

Stair-carpets.—In providing stair-carpets, the best Brussels carpet will be found to be the most economical, because the most durable. With proper care this will last a long time, and will also retain its fresh bright appearance. When Brussels cannot be obtained, a carpet with a soft texture should be chosen, as the hard carpets wear out quickly. In length, stair-carpets should measure a yard longer than is needful for each flight of stairs, so that when they are taken up for shaking they may not be put down in exactly the same position as they were before. The creases should be moved by placing the whole length of carpet a little higher or a little lower than before; the adoption of this precaution will make the carpet wear as long again as it would do by the usual method of exact measurement. In many houses the stair-carpets correspond in colour and pattern with the carpets in the rooms and hall, and the effect thus produced is much more agreeable than when colours and patterns are chosen indiscriminately. In sweeping stair-carpets, a soft brush should be used.

Stair-rods.—The brass rods used in laying down stair-carpets vary very much in length and thickness. The length must be regulated by the width of the stairs; the thickness is simply a matter of taste. Rotten-stone, finely powdered and mixed to a paste with sweet oil, imparts a high polish to stair-rods.

Staircase.—In most houses the staircase is the first object that meets the eye upon entering the front door, and it plays an important part in the appearance of respectability that is attached to a house. Broad, high staircases are of course much handsomer than narrow cramped ones, though necessarily the construction must greatly depend upon the size of the house. In some cases, however, the builders of medium-sized houses, in order to secure an extra room, have left so little space for the staircase, that its narrow, ugly appearance has given an air of inferiority to a house which would otherwise have been regarded as roomy and commodious. It is only reasonable to suppose, too, that a house with a broad, lofty, and light staircase, that is well supplied with movable windows and ventilators, must be more conducive to health than a narrow, close staircase. The furnishing of a staircase is as much a matter of consideration as the furnishing of any of the apartments. The floor, when not consisting of tesselated pavement, may be covered with carpet matching the stair-carpet, or with oil-cloth or kamptulicon, care being taken that the floor and the wall do not form an ugly contrast. Pictures, statues, brackets, flowers, and ornaments of various kinds may be tastefully distributed, so as to give to the whole a cheerful, pleasing effect.

Stalactites.—Limestone caverns through the roof of which water percolates will generally be found to be hung with pendants of carbonate of lime, and the floor of the cavern will also be more or less covered with a sheet of the same material. The pendants are stalactites, and the crust below stalagmite. They are formed by the water dissolving out the carbonate of lime, and becoming thoroughly saturated with it, so that on coming in contact with the air of the cavern the water on evaporating leaves the mineral deposit behind. The form of the deposit will vary very much according to the rate at which the water percolates, and according to the form of the roof. In some places the water will run down the sides, forming a kind of curtain of stalactite; at others, where it drops slowly, it will form a long pendant, gradually tapering towards the floor; at others, again, where the drops fall more freely, a conical mound of stalagmite will rise upwards from the floor to meet the pendant, thus forming, if it ultimately joins, a narrow-waisted column. The pendants have a radiated structure, and the sheets which cover the sides are fibrous, while the layers of successive deposition are usually distinct, making the substance appear banded. It is often nearly colourless, or varying from pale straw colour to yellowish or reddish-brown, according to the colour of the rock through which the water has percolated. Some specimens take a fine polish, and form an ornamental stone for inlaying or mosaic work. Many caverns in limestone districts are well worth visiting, as the stalactites and stalagmite present a beautiful effect when illuminated, as they are more or less translucent. Those in the Hartz mountains, and also at Adelsberg, are celebrated for their extent and beauty.

Stalagmite. (*See preceding paragraph.*)

Stammering. (*See* SPEECH, IMPEDIMENTS OF.)

Stamp Albums.—Books made for the purpose of preserving stamps. (*See* POSTAGE-STAMPS, COLLECTING, &c.)

Stamp Duties.—To give them validity, the law requires that Government stamps should be attached to a large number of private documents, for the affixing of which stamps certain sums called stamp duties must be paid. The value of these stamps varies with the nature of the document or the pecuniary amount of a transaction. Thus a receipt stamp for any sum of £2 and upwards costs one penny, while the stamp connected with the probate and administration of a will may cost thousands of pounds. Where adhesive stamps

are allowed, the person required to cancel them must write across them his name or initials, or the name or initials of his firm, together with the date of writing. The penalty for neglecting to use a receipt stamp is £10.

Stamp Office.—An office where Government stamps can be procured or affixed, and where in some cases allowance is made for spoiled stamps. The principal stamp office is at Somerset House.

Stamps, Collecting. (*See* Postage-stamps, Collecting, &c.)

Stamps, or Stamping Apparatus.—Some of these are engraved like a seal and fitted with an upright handle; the engraved end is simply pressed upon a pad saturated with suitable ink, and then applied to the paper, &c., to be stamped. A self-inking stamp is in common use, and is far preferable. In cases where an impression in relief is required, a small hand-press with an engraved steel die is employed, and is sufficient for stamping envelopes, note-paper, &c., either plain or in colours. For some purposes a more powerful press is in use. As stamping apparatus has to be purchased, it is not necessary to go into descriptive details. Instructions for use must be obtained of the makers or vendors.

Stamps (Postage, Receipt, Bill, &c.).—Stamps required for the postage of letters and parcels, and for other branches of the post-office department, are adhesive, and are supplied by all postmasters. Adhesive stamps are also provided for receipts, agreements, bills of exchange, promissory notes, policies of insurance, protests, transfers, voting papers, and warrants for goods. These must be of the proper value and kind, and must be cancelled in the mode referred to in the article on Stamp Duties. In a great number of cases the stamp must be impressed by the proper authority. Those required for a cheque-book are supplied by the banker; some can be procured on blank paper from law stationers, and others have to be separately affixed, which when a lawyer or professional person is employed, as usually happens, will create no difficulty.

Stanchions.—These are small pillars of iron or wood used to prop the decks of ships, support awnings. The upright iron bar between the mullions of a window, &c., is also called by this name.

Standard Gold and Silver. (*See* Gold; Silver.)

Standard Weights and Measures. (*See* Weights and Measures.)

Standish.—A name compounded of stand and dish, signifying an inkstand, the first being the receptacle for the pen, and the latter for the ink. The word is used by Swift:—

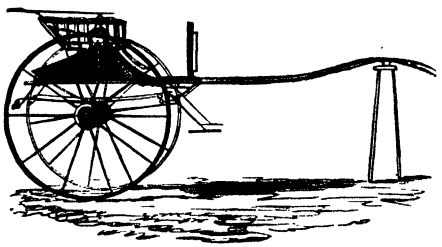
"I bequeath to Dean Swift my large silver standish."

Stands for Casks. (*See* Cask-stands.)

Stands for Dresses, Boots, &c.—An inexpensive and tidy-looking contrivance for the former can be constructed as follows:—A flat deal stand with a row of pegs placed across the top bar, an iron rod projecting from the two sides and passing across the front at some distance from the pegs. Two chintz curtains, made long enough to touch the ground, are suspended from the rod, and thus conceal the contents of the stand and protect them from dust. The curtains should have deep frills at the top, in order to hide the rod from view. These stands are best adapted for recesses, into which they should fit; they are then held steady by the projecting walls. Stands for boots are usually made of polished wood, and are oblong or circular, and low in form. The former have shelves, the latter interstices, for the reception of boots and shoes. Stands of this description should be placed in a down-stairs passage or closet in houses where there are children.

Stanfoil.—This is another name for tinfoil. Stanfoil is made of pure tin.

Stanhope.—This is a light two-wheeled carriage without a top, and is usually hung with two long side-springs, and two cross-springs under the body. Within late years they have been much in vogue with military men, who often call them "buggies;" but they



Stanhope.

differ from the latter (made principally for the Colonies and America) by having a boot under the seat. They are always exceptionally light in construction, with slightly curved shafts.

Stannary Courts.—Courts established in Devonshire and Cornwall having a special jurisdiction and practice for the administration of justice among the miners and tinners there. These courts are held before the Lord Warden and his deputies, by virtue of a privilege granted to the workers in the mines to sue and be sued in their own courts only, so that they may not be drawn away from their business by having to attend law-suits in distant courts.

Star-braid.—This is made of narrow white tape or cotton braid, which is folded into the form of stars, each fold being stitched in the centre, and very often this is ornamented by a little embroidered star of white or coloured crochet-cotton. This style of star-braid is very effective; it is easily made because, both sides of tape being alike, it can be turned backwards and forwards according to desire. This braid is very useful for the trimmings of cotton dresses, especially those worn by children.

Star-chamber.—An infamous tribunal, so called probably for the following reason:—Before the banishment of the Jews under Edward I., their contracts and obligations were

denominated in our records starra, or starrs, from a corruption of the Hebrew word *shetar*, a covenant. When the Jews were expelled from the kingdom, the room wherein the starra were deposited was applied to the use of the king's council sitting in their judicial capacity. This was a court of very ancient origin, but new modelled by Statutes passed in the reigns of Henry VII. and Henry VIII., consisting of divers lords (spiritual and temporal), being privy councillors, together with two judges of the Courts of Common Law, without the intervention of any jury. Its jurisdiction extended legally over riots, perjury, misbehaviour of sheriffs, and other notorious misdemeanours, contrary to the laws of the land. Yet this was afterwards (as Lord Clarendon informs us) stretched to the most arbitrary purposes; for which reason it was finally abolished by the Long Parliament in the year 1640 (Statute 16 Chas. I. c. 10), to the general joy of the whole nation. There is in the British Museum (Harl. MSS. Vol. I., No. 126) a very full, methodical, and accurate account of the constitution and course of this court, compiled by William Hudson, of Gray's Inn, an eminent practitioner therein. The Star-chamber differed from all the other courts of law in this—the latter were governed only by the common law or immemorial custom and Acts of Parliament, whereas the former often admitted for law the proclamations of the king in council, and grounded its judgment upon them. The abolition of this tribunal was therefore looked upon as a great victory over regal authority.

Starboard.—The right side of a ship, looking in the direction of her motion. "On the starboard" is all that is on the starboard side, however distant. The corresponding word for the left hand is larboard (*which see*).

Starch is not simply the substance which is used in household economy for stiffening linen, but it is the most important of heat-givers or force-producers in human food. It is universally present in plants, and there is very little of our vegetable food that does not contain it in a greater or less degree. It occurs abundantly in the cereals (especially in rice, Indian corn, and wheat), in the seeds of leguminous plants (such as peas and beans), in the tuber of the potato, in the roots of arrowroot and tapioca, and the pith of the sago palm. Starch is a white, soft, glistening powder, which when pressed between the fingers gives out a slight peculiar sound that is well known to the initiated. When placed under the microscope it is found to consist of a number of little rounded transparent bodies called granules, which vary in form according to the plant from which they are derived. These granules are composed of bags, which contain the real starchy matter. Starch is insoluble in cold water, alcohol, and ether; it may, however, be almost completely dissolved in water at a temperature of 175° Fahr., and it then forms a gelatinous, pasty compound. Dilute acids induce a similar change in it. Iodine turns it a deep colour; and the knowledge of this fact affords an easy means of detecting the presence of starch, for iodine may be added to structures of doubtful character, and the starch is at once indicated. On the application of heat the colour disappears, but it re-appears on cooling. Commercially, starch may be divided into two classes—that which is used as food, and that used for manufacturing purposes. The first is found in arrowroot, tapioca, sago, cassava, semolina, and similar productions; the latter is prepared from wheat, rice, and potatoes. One of the commonest frauds practised upon the public is the admixture of inferior starch, as potato farina, with the superior kinds, such as arrowroot, &c. Starch is obtained from wheat and potatoes by grinding or rasping the substance, and washing the pulp thus produced continuously upon a sieve so long as the runnings have a milky appearance, because the milkiness is caused by the presence of starch granules. The milky fluid is drawn off, and the starch eventually settles to the bottom as a soft white powder, which after repeated washings is dried in the open air or by gentle artificial heat. Starch is composed of carbon, hydrogen, and oxygen only. It is the most concentrated and heat-giving of all the nutrients, but it does not furnish the materials for the building up of flesh or muscle. Dr. Lankester says:—"When we eat starch in sago pudding, arrowroot, or whatever form we are taking it, we take just so much fuel; and just as we heap charcoal on a fire, so we add starch to our body to keep up our animal fire." It is not to be supposed, therefore, that starchy foods can be taken as essential articles of diet. They are very good as additions to food which contain a larger amount of flesh-forming materials, but if they were given to the exclusion of nitrogenous substances, feebleness and disease would be the result of the diet. Wheaten starch is the only kind admitted into the Pharmacopœia. It is used as a remedy in cases of dysentery, diarrhœa, &c., or as dusting powder for skin disease.

Starching.—Although starching is a process that must, as a rule, be conducted upon the same general principles, there are so many different methods adopted that it is quite a rarity to find two laundresses who proceed exactly alike. There is, perhaps, no department of household labour in which the proverb, "practice makes perfect," is so applicable as in starching; for however many rules have been laid down, and however minute the directions given, the learner is sure to fail at first, until a certain amount of experience has been gained. For starch of ordinary stiffness the quantity generally allowed is two ounces of starch to one quart of water. For hot starch the dry flour is put into a basin, and mixed with a very little cold water until it is perfectly free from lumps; the proper quantity of boiling water must then be poured on, stirring the whole time. A good plan is to take the basin near the fire, so that the whole of the water that is poured in may be in a boiling state. Until sufficiently cool, the water should be kept stirred, to prevent a skin forming on the top, when the linen may be dipped into it. Each article should have the hot starch squeezed out of it, then just dipped in clear cold water and wrung dry. The things should then be spread out on a clean cloth, rolled up tightly, and allowed to

remain a few hours, when they will be ready to iron. Cold starching is a method that is becoming increasingly popular, though some old-established laundresses reject it as unworthy of notice. For cold starch, instead of boiling water, cold water is used; the articles are dipped into the starch, rinsed afterwards in cold water, just as they are with the hot starch, the only difference being that, instead of waiting an hour or two, the things may be ironed immediately. Many persons stir round in the starch a piece of wax candle, to give a smooth, shiny appearance to the linen, and to prevent the iron from sticking; but when the starch is good such precautions are unnecessary. What is known as *clear-starching* is used for "getting up" muslins and very fine thin materials. The process consists in dipping the articles, after being starched, two or three times in clear water, squeezing them, rolling them up in a clean linen cloth, and letting them lie for some time before ironing. Clear-starching was introduced into England in the reign of James I., and the first clear-starchers were Dutch women. Miss Anne Turner, a milliner, introduced into our country the French custom of using yellow starch for cuffs and bands. She trafficked in poison, and being concerned in the murder of Sir Thomas Overbury, was sentenced to death, when she appeared on the scaffold with a huge ruff. After her execution the absurd fashion of using yellow starch was abandoned.

Statement of Claim.—The mode in which a plaintiff begins his pleading in actions in the High Court of Justice, which has been substituted by the Judicature Acts for the former Bill in Chancery or Declaration at Common Law. By the Judicature Act, 1875, ord. 21, provisions are made for the practice in regard to statements of claim.

Statement of Defence is the form of pleading substituted by the Judicature Acts for the former pleas and answers. By the Judicature Act, 1875, ord. 22, provisions are made for the practice with regard to statements of defence in an action in the High Court of Justice.

Statics.—A branch of mechanics which considers bodies in equilibrium, *i.e.*, rigid bodies, and which investigates the relations existing between forces which produce equilibrium. It is therefore directly opposed to dynamics, which is the branch of mechanics treating of bodies in motion, and of forces not in equilibrium, but producing motion.

Stationers' Hall.—An institution which was founded in 1553 for the registration of printed works. The 5 & 6 Vict. c. 45, authorises in every case of copyright the registration of the title of the proprietor at Stationers' Hall, and provides that without previous registration no action shall be commenced, though an omission to register is not otherwise to affect the copyright itself.

Stationery is the term given to all writing materials, and includes every necessary article of the writing-desk.

Stationery Case. (*See* CASE, WRITING.)

Statistics.—Collections of facts, dealing with the political, social, and commercial state of the country, and consisting, among other things, of population returns; tables of births and deaths; longevity tables; returns of exports and imports, of trade, of shipping, of railways, of banks, of agriculture, of manufactures; particulars as to pauperism, crime, education, rates and taxes. The earliest statistics compiled, apart from rough calculations as to population, were what are now termed *vital* statistics, and were made for the purpose of calculating the rate of premiums for insurances, for annuities, &c. (*See* LONGEVITY; VITAL STATISTICS.) *Sanitary* statistics, *i.e.*, those relating to the health of the population of a country, have been found of the utmost value as a means by which to detect many influences injurious to life, and to afford a remedy; indeed, it is not too much to say that the higher average duration of life in recent years is largely due to the social and sanitary improvements effected as the result of statistical research.

Statute of Frauds.—This famous Statute, which was passed in the year 1676, is said to have been framed by Sir Matthew Hale, Lord Keeper Guilford, and Sir Leoline Jenkins, an eminent civilian. Lord Nottingham used to say of it that "every line was worth a subsidy;" and it has been said that, at all events, the explanation of every line has cost a subsidy, no Statute having been the subject of so much litigation. The main object of the Statute was to take away the facilities for fraud and the temptation to perjury which arose in verbal obligation, the proof of which depended on unwritten evidence. Its principal enactments are:—1. Parol conveyances, leases, &c., of land, unless put in writing and signed by the parties making the same, or their agents lawfully authorised in writing, shall have the effect of leases at will only, except in the case of a lease for not more than three years, reserving as a rent two-thirds of the annual value. 2. Grants and surrenders shall be by deed or writing, signed by the party granting or surrendering, or his agents authorised in writing. 3. No action shall be brought to charge an executor or administrator upon any special promise to answer damages out of his own estate; or to charge the defendant upon any special promise to answer for the debt, default, or miscarriage of another person; or to charge any person upon any agreement made upon consideration of marriage, or upon any contract, or sale of lands, or any interest in or concerning them; or upon any agreement that is not to be performed within one year of the making thereof, unless the agreement upon which such action shall be brought, or some memorandum or note thereof, is in writing and signed by the party to be charged, or some other person thereunto by him lawfully authorised. 4. All declarations and creations of trust of lands shall be in writing, except trusts arising by implication or construction of law. 5. Grants and assignments of trusts shall be in writing. 6. Lands shall be liable to the judgment, &c., of *cestui que* trust, and held free from encumbrances of the trustees; and trusts

in fee-simple shall be assets in the hands of the heirs of the *cestui que* trust. 7. The day of inquiry or judgment shall be entered upon the margin of the roll, and judgments as against purchasers shall only relate to such time. 8. Writs of execution shall find the property of goods only from the time of their delivery to the sheriff. 9. No contract for the sale of any goods, wares, and merchandise for the price of £10 or upwards shall be good, except the buyer shall accept part of the goods so sold and actually receive the same, or give something in earnest to bind the bargain, or in part of payment, or that some note or memorandum in writing of the said bargain be made and signed by the parties to be charged by the contract or their agents thereunto lawfully authorised. The Statute also contained important provisions as to the making, revocation, &c., of wills devising land, and as to nuncupative or verbal wills, &c., which have, however, been repealed by the Wills Act (1 Vict. c. 26).

Statute of Uses.—This celebrated measure was passed in the twenty-seventh year of the reign of Henry VIII., and was the means of effecting a complete revolution in the practice of conveyancing. To explain the object and scope of the Statute it is necessary to detail the circumstances which led to the interference of the Legislature. Before the Statute, a gift of land with livery of seisin (*i.e.*, the delivery of possession of it) were the only requisites to convey land from one person to another. This was the case at law, and no consideration was deemed necessary. But in equity, as practised in the Court of Chancery, it was laid down that if land were conveyed to one person for the benefit and use of another, the person to whom it was conveyed was bound to hold it for the benefit or use of that third person, although he might gain no advantage to himself by doing so. The effect of this doctrine was that not only were landowners able to convey away their land secretly, but the foreign ecclesiastics who then overran the country were by its means enabled to evade the Statutes of Mortmain, by obtaining grants of land to persons to the use of their religious houses. This state of things at length became intolerable, and from the secrecy of the dealings with property by means of granting the use, and the ease with which land could be conveyed away into wrong channels, such conveyances led to the "utter subversion of the common law of this realm." The Statute of Uses was therefore passed, which enacted that the person to whom the use was given should not have, as he had before, merely an equitable right to the land, but should also have the legal right and absolute possession. Thus, if land is conveyed to A. to the use of B., B., who before the Statute possessed only a right to the land, which he could enforce in the Courts of Chancery, now by the Statute is given what is called the legal estate, *i.e.*, lawful possession and ownership. It is a matter of legal history how, in course of time, the intention of the Statute has been frustrated, which fact is shown in all documents which take effect by means of the intervention of trustees.

Statutes of Limitation.—The several Acts of Parliament which prescribe the limits, or periods of time, within which actions must be commenced, are termed the Statutes of Limitation. These Statutes are principally the following:—(1) For actions on torts (*i.e.*, damage) and on simple contracts, the 21 James I. c. 16; (2) for specialities, the 3 & 4 Wm. IV. c. 42; (3) for suits by the Crown, the 9 Geo. III. c. 16; (4) for ejectment, &c., the 3 & 4 Wm. IV. c. 27. The Statute 37 & 38 Vict. c. 57 (the Real Property Limitation Act, 1874), reduces the periods prescribed by the above-mentioned Act of 3 & 4 Wm. IV. c. 27, in the case of recovery of land or rent to twelve years; or when the estate of the claimant is in remainder or reversion, six years from its becoming vested in possession; or when there is a disability, six years from its removal; and in the case of money charged on land or legacies, ten years, unless there has been an acknowledgment or payment of interest in the meantime. No advantage can be taken of the Statutes of Limitation in an action, unless the question be raised in the pleadings.

Staves.—This word is sometimes the plural of staff, and sometimes of stave. Among its various meanings a few may be noted. 1. Staves are short truncheons used by constables, less as a weapon than as a sign of authority. The staff of a local constable used formerly to have his name, &c., painted on it. 2. The five lines and four spaces for music. In the singular this is either a staff or a stave. 3. A short piece of music is rather colloquially styled a stave; a ditty. 4. The strips of wood used in making casks, each of which is a stave. The word in all its forms seems originally to have meant a strip of wood; hence the German *stab*, a staff. The Scotch also give the name of "stab" to a stump or pin of wood driven in the ground.

Stay-laces. — Those made of cotton, worsted, and silk are the three kinds; the first is the cheapest, the last the most expensive. Round laces or pieces of union cord, three yards in length, without tags, are chiefly used now that the necessity for tags is no longer felt, owing to stays remaining laced at all times.

Stays.—These are waistcoats made of jean, of satteen, and sometimes of silk; they are strengthened and stiffened by means of cord, whalebone, and steel busks, the latter forming a support for the chest of the wearer. Formerly stays were fastened up the back by means of laces; these still retain their place, but two busks are placed in front in lieu of one broad one, and on these fasteners are placed by which the stays are connected and opened. The price of stays varies considerably; a pair can be bought for a few shillings or may cost a couple of guineas. This depends upon the material and upon the labour expended, whether many slips of whalebone have been inserted, and whether much embroidery has been executed. Another item in the cost depends upon the stays being ready-made or made to order; when measurements are taken, charges are increased. Stays should be two inches apart at the back.

Steak Beaters and Tongs.—Tender and judiciously chosen steaks require no beating. Indifferent steaks may be improved by it. The steak-beater is an article with which most cooks are supplied, consisting of a flat piece of wood with a handle. Steak-tongs are very valuable little cooking utensils, made expressly for lifting steak or chops from the pan or for turning them from one side to the other. Nothing is more injurious to steak, or to any hot meat that is being cooked, than for a fork to be stuck into the fleshy part. In cases where tongs are not supplied and the use of the fork is the only alternative, it should be placed in the fat instead of the lean.

Steamers, Cooking.—The cooking pans known as steamers are made with the bottom of perforated tin, which fits closely into an iron saucepan below it. The raw materials are placed in the upper pan, and are cooked by the steam which rises from the boiling water in the lower one. Many cooks prefer the steaming process to that of boiling, as they think that greater lightness is secured to the food when steamed than when entirely immersed in boiling water. There is now an improved potato-steamer, which is made with a handle that can be drawn out when the potatoes are done enough, thus allowing the steam to escape, so that the heat from below dries the potatoes already cooked.

Stearine.—In commerce this substance is known as stearic acid; it is the solid portion of fats which is insoluble in cold alcohol. Stearine exists as a glycerine in most fats, but is especially abundant in the more solid kinds, such as mutton suet. It is a hard crystalline substance, perfectly dry, free from any greasiness, and with a somewhat pearly lustre. In the manufacture of candles it has been extensively used, its whiteness rendering it peculiarly adapted for the purpose. Its crystalline structure, however, presented a difficulty, for when cast in moulds it contracted on cooling and left spaces between the crystals. A little arsenic mixed with the stearine was found to obviate this difficulty; but this method is now abandoned, on account of the poisonous gas evolved by the combustion of candles thus made. The process now adopted is to mix a little wax with the stearine, and thus the desired effect is obtained.

Steatite. (*See* SOAPSTONE.)

Steel.—A compound of iron and carbon, being iron refined and hardened by fire. In the steel used for all ordinary purposes the proportion of carbon is generally about one and a half per cent., and rarely exceeds two per cent. Large quantities of steel are made from cast-iron, by removing a portion of the carbon from it in a reverberatory furnace (*puddled steel*), or in large vessels lined with fire-clay (*Bessemer steel*). Steel is not so malleable as iron, but it is much harder, is susceptible of a higher polish, and has a less tendency to rust.

Steel Colour.—A mixture of white and black, which produces a shade somewhat resembling the metal of that name. In silk fabrics there is a bright effect, which makes the likeness of the grey tint still greater to the metal which supplies the name.

Steel, Engraving on. (*See* ENGRAVING.)

Steel (Knife-sharpener). (*See* KNIFE-SHARPENERS.)

Steel Ornaments.—Steel is extensively used for ornamental articles, which may either be wholly of that material, or may only form a decorative portion. When finely cut and polished, steel ornaments are very beautiful; but they lose their brilliancy through the action of time, damp, &c., and their restoration is a too difficult work to be undertaken, except by professional hands.

Steel Pens. (*See* METALLIC PENS.)

Steel Pins.—Excellent pins for a variety of purposes are made of steel. For knitting, &c., they are often called needles. In old-fashioned brooches they are frequently seen where gold would now be used. Steel pins, in the ordinary sense of the word, are usually made with larger heads, more slender stems, and sharper points than those of brass; and they are much appreciated for fastening shawls, scarves, and other articles of dress and ornament.

Steel, To Clean and Preserve.—An ounce of camphor and one pound of hog's lard, skimmed, and mixed with as much black-lead as will give the mixture an iron colour, should be well rubbed on the steel, left upon it for twenty-four hours, and rubbed off with a linen cloth. Should valuable articles of cutlery be in question, they should be wrapped in zinc-foil or kept in zinc-lined boxes. Mr. Pepys states that he found a table-knife with a piece of zinc wrapped round it was preserved from rust, though soaked for a month in sea-water, while another knife not so protected was very much corroded. Scissor-sheaths and sword-cases should always be made of zinc. Another plan for preserving steel from rust is to give it a thin coating of caoutchouc, as it excludes the air and moisture; this may be removed by a brush dipped in warm oil of turpentine. A delicate coating of varnish is to be recommended for the preservation of arms, armour, or any choice articles in steel or iron, bookbinders' varnish being the best for that purpose, as it will not fill up the delicate tracery or chasing like coarser kinds. The following is a recipe communicated by M. Paynen to the Institute of France:—Plunge the steel into a mixture of one part of concentrated solution of the soda of commerce, and three parts of water.

Steel, To Colour and Gild.—Dip the steel object into some of the ethereal solutions of gold; then withdraw and allow the ether to evaporate, and a coat of gold will be produced on the surface which will remain upon it for a great length of time. To give a blue colour to steel, it should be finely polished, and then exposed to a uniform degree of heat. There are three methods employed to attain this end—viz., by a flame producing no soot, as that of spirits of wine; by a hot plate of iron; and, lastly, by wood-ashes. The last plan is the

best for fine work. The article should be covered over with them and carefully watched, and when the colour is satisfactorily produced the work is perfect; but it can be removed with dilute muriatic acid.

Steelyard. (*See* BALANCES.)

Steenkirk.—A steenkirk was a sort of neckerchief which was worn especially by gentlemen early in the last century. It was rather long, was thrown once round the neck and tied loosely, the ends being left free. It was named after the battle of Steenkirk, or Steinkirk, fought in 1692, when it is said the soldiers wore their neckcloths tied negligently about their necks.

Stem.—In botany, the stem is the ascending portion of the tree from the root upwards; the trunk, in fact, that gives off leaves or branches. We have also creeping stems, such as that of the strawberry, and stems that creep underground; these last are called rhizomes, and must not be confounded with the roots.

Stench Traps. (*See* DRAINAGE AND DRAINS; TRAPS, DRAIN.)

Stencilling.—A simple but useful process which is capable of extensive application. A thin plate, commonly of metal, has cut out of it the words, or ornaments, or other device which is to be reproduced. The pattern is so cut out that the stencil-plate does not fall to pieces, which is effected by leaving slight strips of the plate untouched. This plate is laid flat upon the paper, leather, textile, wall, wood, or whatever is to receive the pattern or inscription; a brush made for the purpose is then charged with the ink or colour, and rubbed over the cut-out portions. On removing it, the words or pattern will be found clearly represented on the surface intended to receive them. On a small scale the process is resorted to for marking books, linen, &c.; and on a large scale for ornamenting the plain surface of the walls of a schoolroom or other building in which effect rather than high art is a consideration. It is much to be recommended for work where rapid execution and the repetition of similar ornaments in distemper colours are required.

Stenography, otherwise called shorthand, of which one popular variety is named phonography, is the art of writing with rapidity, and usually in a condensed form. There are many systems, some of which are a combination of ordinary written characters with contractions, and others requiring a special set of characters. These last may be reduced to two—viz., that in which the symbols represent words and parts of words, as well as letters; and phonography, in which every sound is represented by its proper sign. It is not possible to discuss here the merits of the different methods, especially as it is found that reporters for the press use every sort, and, by skill and habit, with equal success. Without skill and constant practice, shorthand is not of much use, as persons who write it often cannot read it fluently. The word tachygraphy, meaning rapid writing, is sometimes applied to shortened modifications of ordinary longhand.

Step-chairs.—These are useful pieces of furniture, strongly constructed of oak or some equally suitable material, which are made in two parts, fitting one upon the other, to form either a chair or a pair of steps. They are particularly useful in libraries to reach down books from the upper shelves.

Steps and Step-ladders. — In shipbuilding, steps are huge pieces of timber into which the "heel" of the masts are fixed. The larger domestic steps used for window-cleaning, &c., are usually constructed with a framework hinged to them behind, which, when extended to a length regulated by a cord on either side, provides a support for the ladder-like steps firm and secure enough to hold the person who mounts them. The top is sometimes provided with a small tool-box for hammers, nails, &c. Steps of this kind are very useful in the garden when it is not desirable to place a ladder against the wall on which fruit-trees are growing or to injure the bark of standard fruit-trees. Steps of a shorter kind are made with a fixed stand.

Steps, Library.—Steps for the library differ mainly from the chair-steps and the small steps with a fixed frame already described, in being polished, and in other respects more carefully and ornamentally finished.

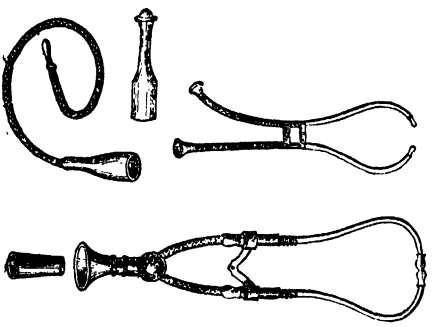
Stereoscope.—The name of this instrument is derived from the Greek, and its design is to combine two objects represented as seen from two slightly differing view-points, and thus obtain the effect of relief given by the two eyes, with which we see objects from points of view differing in the same way. It was invented by Professor Wheatstone, and made public by him for the first time in 1839. Some years after, photographs were substituted for the diagrams previously used, with an effect of the most startling and beautiful description, the amount of relief given being so perfect as to be completely deceptive. This was first done by Sir David Brewster. As now made, the stereoscope consists of a box, with a slide for receiving double photographs, taken at once in a camera having twin lenses, and provided with lenses set in eye-pieces, through which they are to be looked at. The photographs sometimes receive light from openings in the top of the instrument, and at other times, being transparent, the openings are closed, and they are seen by the light they transmit. The wider apart the lenses are with which the photographs are taken, the greater the amount of the relief obtained in the stereoscope; in some cases this amounts to distortion. Stereoscopes are sometimes provided with reflectors, which increase the effect, and lessen the probabilities of distortion or unnatural relief.

Stereotyping was first introduced in Edinburgh, by a goldsmith named William Ged, in 1725. In 1780 improvements in the process were made by Mr. Tilloch and Mr. Foulis. At a later date the process was applied in France for the multiplication of engraved blocks and printer's type. Various improvements were made from time to time by Clichée, Senefelder (the inventor of lithography), Professor Wilson, and others. The process consists of taking an

impression of type, or other hard objects, in relief in some material sufficiently soft to receive it, and of a consistence and character to retain it, a reverse of which is obtained by pouring into the impression melted metallic composition, and thus obtaining a copy in relief identical with the original.

Sterling.—The legal description of English standard coin. The word is said by Trench to be derived from Easterling, the pound or penny "sterling" in the Middle Ages having been a certain weight of bullion according to the standard of the Easterlings, a name given to the Eastern merchants from the Hanse towns on the Baltic.

Stethoscope.—This, as its name implies, is an instrument used by medical men in the examinations of the sounds of the chest, and is



STETHOSCOPES.

for various reasons acoustic, and otherwise more suitable for that purpose than the direct application of the ear. As will be seen in our illustration, stethoscopes present a considerable variety of structure.

Stew.—This is the simplest, the most wholesome, and the most economical mode of cookery there is. In it the meat is just covered with cold water, then heated, and kept simmering slowly, not boiling, till thoroughly done. The pan should be left partly uncovered, and the contents frequently skimmed. Stewing is neither so highly appreciated nor so skilfully conducted in England as on the Continent, and one reason for this has doubtless been that common cooking-stoves, as they have hitherto been constructed, have rendered it difficult so to regulate the temperature that the contents of the stewpan should be kept exactly at the proper heat—that is, at the stage known as simmering. The boiling-point being 212°, the stewing-point is often as low as 170°, and this is most easily maintained on the corner of a stove or on cinders. The improved ranges that are now in such general use will probably do away with all difficulty on this score, and it is therefore to be hoped that stewing will be more extensively and successfully performed than it has been. The small quantity of fuel which it requires should recommend it to the economical housekeeper, apart from any other consideration. When, however, a kitchen is not furnished with one of these modern stoves, the cook should place the stewpan on a trivet high above the fire, and should watch it constantly, and move it nearer to or further from the heat as occasion requires. Stewing places food in a condition highly favourable for digestion. There are a number of inferior pieces of meat, such as the shin of beef, for example, which, when properly stewed become perfectly tender and savoury, and make excellent dishes. A considerable portion of the nutritive matter passes, of course, into the gravy, but this is consumed as well as the solid material. If, however, the stewing process is not carried on gently, the meat will be dry, tough, and indigestible. A well-known physician has expressed the opinion that the action of the stewpan closely resembles that of the stomach, and that it is a great advantage when the first can be made to do some of the work which is often unduly assigned to the latter. The greatest cleanliness should be observed in all vessels used for stewing.

Steward.—1. A *house-steward* is the chief officer in a domestic establishment, and as such he is in many things the representative of his employer, and has the general control and management of the household. He hires, manages, directs, and discharges every kind of servant, superintends the ordering of provisions, keeps the accounts with tradesmen, and checks all bills which have to be paid. In many cases he has to receive money and to expend it, and must therefore be not only eminently trustworthy, but able to keep cash accounts. His office is called the steward's room; and sometimes he has an assistant, called the steward's-room boy, who goes on errands, and makes himself generally useful. 2. A *land-steward*, who has the general management of the estates of his employer, the collection of rents, &c. Sometimes he is called a bailiff; but there are cases in which the bailiff is a separate officer, who assists the steward, and is subordinate to him.

Steward, High. (*See* HIGH STEWARD.)

Steward's Room.—In large establishments where a house-steward is kept, a room or office is set apart for his use under the name of the steward's room. It is fitted up in accordance with his special duties.

Stewed Fruits. (*See* COMPOTES.)

Stewpans.—The ordinary stewpan differs from a saucepan in this respect, that it has a flat lid with a handle, which fits very closely into the pan, and thus prevents the escape of any steam. Like saucepans, stewpans are made in various sizes and of different materials. They are generally made with straight sides, and vary in price according to their quality. One great advantage of the stewpan is that the lid may at any time be lifted off without danger of burning the fingers, which with the common saucepans cannot sometimes be avoided.

Stick-lac. (*See* LAC.)

Sticking Plasters. (*See* PLASTERS.)

Sticks, Walking.—A large variety of sticks from all parts of the world are used for walking. Some have their bark on, and others have the bark entirely or partially removed;

some retain their natural colours, others are stained and varnished; some are mounted with metal of a more or less costly description, and have handles of ivory, bone, or other materials, and others are simply as they grew. The knobs and hooks in the latter case are usually portions of the root, and a top is commonly formed by bending it into the form of a hook. The woods in favour for walking-sticks are as follows: — The light-coloured *hazel*, which grows chiefly in the Highlands of Scotland and in Wales, and the darker-coloured from low-lying districts—the former being preferred; *whitethorn* and *blackthorn*, without the bark or with it; *briar*, which makes a very strong stick; mountain or common *ash*, which is smooth to the hand and does not irritate a tender skin.

Stiletto.—This is an Italian weapon, in the form of a small dagger, which is not edged, but is round and sharp-pointed. It is represented in miniature in the little instrument which forms one of the fittings of a work-box, and it is employed to make eyelet-holes either in dresses or in muslin and lace embroidery. The use of a stiletto is also required for piercing a material where an aperture is needed for the passage of cord or braid. A steel stiletto is necessary for thick material; an ivory one serves for muslin and lace-work. In all cases of the above kind the use of the stiletto is preferable to that of scissors, for the holes made by the latter must be ragged and jagged, whereas the stiletto makes a neat round hole.

Still. — This name is given to an apparatus for the distillation of liquids. The forms of stills and the materials of which they are made vary according to the purposes for which they are intended, some being elaborate and complicated, while others are perfectly simple. The most important are those employed for distilling spirituous liquors. The boiler which contains the liquid to be distilled is usually made of copper, and is set in brick-work over a furnace; a movable head, with a swan-like neck, is fitted into the top of the boiler; what is termed the worm is a coiled tube connected with the neck of the head, and this is kept constantly in a vessel of cold water called a refrigeratory. When the heat is applied, the liquid to be obtained rises in vapour into the head of the still, and passing down the worm is condensed by the refrigeratory, and drops into the vessel prepared to receive it. For highly volatile liquids a closed receiver is provided. According to Humboldt, the Arabians are to be regarded as the proper founders of the physical sciences, in the sense which we are now accustomed to attach to the term, and it is unquestionable that Europe owes its knowledge of the art of distillation to the Arabs. Rhazes, who was born in 860, and who was physician-in-chief to the great hospital at Bagdad, was the discoverer of absolute alcohol, which he obtained by distilling spirit of wine from quick-lime. He also prepared sulphuric acid. At sea, fresh water is frequently distilled from salt water for drinking purposes; indeed, nearly every large ship has a still fitted up before going a long voyage. The name of still is also given to an apparatus for extracting tar, &c., from wood.

Still-room.—The still-room in the old sense does not now exist. In the reign of Queen Anne it was quite a common institution for an English lady to have what was called her still-room, in which were distilled perfumes, such as rose and lavender water, and cordials intended to be used medicinally for the benefit of the family, or to be distributed charitably amongst the poor. Even at the present time, in some large establishments, the still-room is to be found, though very different in the arrangement of its work to that of old times. In modern still-rooms the tea and coffee are sometimes made that are needed for the use of the family.

Still-room Maid.—This title is still accorded in some establishments to the person who has the management and superintendence of various liquors, though the meaning now attached to the name is totally different to that given in olden times.

Stilton Cheese. (*See* CHEESE.)

Stimulants.—These are medicines which, when taken into the stomach, inhaled by the lungs, or injected into the bowels or skin, excite increased organic action and vital energy. They may be divided into:—1. *Vascular stimulants.* These are stimulants which act specially upon the heart and circulation, and include ammonia, alcohol in its various forms, aromatic oils, camphor, ether, chloroform, &c. 2. *Spinal stimulants.* These increase the function of the spinal cord. Strychnia, brucia, and cantharides are examples of this class. 3. *Stomachic stimulants.* These disperse flatulence, and allay pain and spasms in the stomach and bowels. Capsicum, ginger, mustard, and various aromatic oils belong to this class. For further information as to alcoholic stimulants, *see* ALCOHOL; ALCOHOLISM.

Stings of Insects. (*See* BEES, STINGS OF; BITES; WASPS, STINGS OF; &c.)

Stipendiary Magistrates.—Paid justices of the peace who have been appointed for several of the large towns and places in Great Britain. By 26 & 27 Vict. c. 97, provision is made enabling stipendiary magistrates to be appointed in boroughs of more than 25,000 inhabitants. They may appoint deputies. Stipendiary magistrates must be barristers-at-law.

Stippling.—This is a process for getting graduated tints, or softening their edges in painting and engraving by the use of irregularly shaped dots or touches. In house-painting, or over large surfaces, it is sometimes done by a dabbing action with the ends of a thick and somewhat short-haired brush.

Stitch (Pain in Side).—This is generally due to flatulence or muscular cramp. If from the former, a dose of sal volatile or a little brandy and water may be given, and subsequently a dose of Gregory's powder; if from the latter, the application of a mustard-leaf or poultice, or rubbing with a liniment composed

of equal parts of opodeldoc and camphor liniment, will afford relief. If rheumatic pains are present in other parts of the body, stitch may in that case be reasonably presumed to partake of the rheumatic character, and must be treated accordingly. (*See* RHEUMATISM.)

Stitches.—For embroidery work, crewel, chain or tambour, basket, satin, feather or coral, and long stitch are employed. For wool-work, Berlin or cross, tent, Irish, tapestry, leviathan, and velvet stitches are severally brought into use. In plain sewing, herring-bone, hemming, button-hole, seaming, running, and back-stitch form the variety.

Stock.—Any capital subscribed to public undertakings in optional parcels and not in fixed shares. Such capital is known as bank stock, railway stock, according to the undertaking for which it is subscribed.

Stock (Cookery).—Stock is but another name for broth before it is converted into sauces, soups, and purées. It may be made either of fresh meat or of the bones and trimmings of meat and poultry. Very excellent stock may be made of fresh bones broken up into small pieces and simmered gently for some hours, and also from the bones of dressed meat. These should never be thrown away until they have been thoroughly stewed. In a house where meat is constantly used, a good cook will never be without stock, even though not a penny is expended on meat for making it. When fresh meat is used for this purpose, it is better for being freshly killed. Stock that is to be used for miscellaneous purposes should not have vegetables or flavouring ingredients of any kind added to it until its use is decided upon. It will keep better if simply made than if vegetables and herbs are boiled with it. It should be very carefully and frequently skimmed. When done enough it should be poured at once into a perfectly clean earthenware pan, and should be left uncovered. It should on no account be allowed to cool in the saucepan. Before it is used, the fat which has risen to its surface should be taken off, and the liquor should be poured away from any sediment that may have settled at the bottom. A pan called a digester is excellent for boiling stock. (*See* DIGESTERS, COOKING; STOCK-POT.)

Stock-broker, Stock-jobber.—A stock-broker is one whose business it is to buy and sell stock for others. A stock-jobber one who buys and sells stock on his own account on speculation. In the transaction of business, stock-brokers and stock-jobbers are governed by certain usages and by rules framed by the committee of the Stock Exchange. (*See* BROKER.)

Stock-fish.—Fish that is prepared for use and for exportation by a salting and drying process is spoken of commercially as stock-fish. Although in the southern parts of Britain no considerable amount of fish is thus prepared, in the northern parts of the world large quantities of fish are cured and dried, and they are used not only in the countries which produce them, but they are exported to other countries. Dried cod, ling, and hake are well-known examples of the class.

Stock in Trade.—The sum-total of the wares or goods in the possession of a tradesman, and intended for sale. Sometimes the word "stock" alone is used.

Stock-pot.—English stock-pots are made of metal, tinned copper, tinned iron, or cast-iron. French stock-pots are mostly of earthenware. Earthenware is a bad conductor of heat; it is a long time in heating and a long time in cooling, so that when it is used the liquor comes to the boil very gradually, and can without any difficulty be kept simmering gently and continuously to the end. As the excellence of broth depends to a great extent upon the observance of these points, it is evident that the French pot has the advantage over the English one. Care and attention are, however, all that is required to regulate the heat even of metal stock-pots; and when a kitchen is fitted with a close range there can be no difficulty in the case, for the pot can be moved near or away from the heat as required. Whatever the stock-pot is made of, it should be kept scrupulously clean, or it is impossible that the stock made in it will be of a superior flavour. It should be washed and scoured, rinsed and dried, each time it is used, and should never be put away dirty. Besides this the stock should not be left in it off the fire. Some stock-pots have a tap fitted into them near the bottom. It is well known that soup should never be greasy, and as grease rises to the surface, by this simple mechanical contrivance stock can be drawn off perfectly free from grease. (*See* DIGESTERS, COOKING.)

Stock-taking.—The periodical reckoning of stock in hand, an essential proceeding preparatory to the drawing up of a balance-sheet or profit and loss account in any commercial concern. Stock-taking in many businesses affords the chief and most trustworthy check on the accounts, and in such cases it is advisable that it should recur at short intervals.

Stockholm Tar. (*See* TAR.)

Stocking Mending. (*See* DARN, DARNING.)

Stockings and Socks.—Cotton, merino, and worsted are the kinds which, as a rule, wear the longest. Lamb's-wool and silk are the most expensive and the least serviceable. Spun silk and Lisle thread are cool and pleasant for summer wear. Balbriggan stockings are considered to be an excellent kind; they are distinguished by having silk clocks, as that particular ornamentation is termed, worked on each side of the foot and ankle. Stockings and socks made by machinery cost the least money, but those knitted by hand are the warmest and often the strongest. Ribbed stockings are always more expensive than plain ones, whether made by hand or machine. They are preferable for children, because they are more likely to fit to the shape of the leg than those which are plain. Socks knitted with Scotch fingering for winter, and of eider yarn for summer, are the best for men's wear. The required size of foot can be ascertained by the hand being doubled, when the width measured round the knuckles will

be the length of the owner's foot. The most satisfactory colours for wearing and washing are white, grey, and mottled blue and white. The dye comes off dark blue in an annoying manner, soiling petticoats and shoe-linings; also, unless carefully washed, the colour soon fades. Brown dye has a tendency to injure materials; hence brown stockings and socks are not economical. Black requires careful attention when washed, otherwise it assumes a rusty hue. Narrow or medium stripes, or plain dark colours, give an appearance of smallness to the foot and ankle. It is the wisest economy to buy stockings of good quality, and steadily to resist the temptation of bargains and cheap prices.

Stocks (Funds).—A term used to denote the public funds or consolidated stock. When the public debt was first secured by parliamentary guarantee, the sum subscribed was denominated stock (*see* STOCK), and special sources of the national income were set apart for the repayment of interest and principal. In the course of time all these different stocks were consolidated into one, and termed consolidated stock, or consols. (*See* CONSOLS; NATIONAL DEBT; PUBLIC FUNDS.)

Stolen Goods, Receiving. (*See* RECEIVING STOLEN GOODS.)

Stomach, Ailments of.—These are of various kinds, as dyspepsia, cancer, ulcer, &c., and will be found described under their respective headings.

Stomach-pump.—This is an instrument which is used for cleansing the stomach of deleterious or poisonous matters which require immediate removal, and which cannot be got rid of by the natural process of vomiting. The stomach-pump consists of an elastic tube several inches in length, to one end of which is attached a small pump, to the other a smooth mouthpiece. In using it, the tube must be passed its whole length down the throat, keeping it well back so as to avoid the windpipe. When the stomach has been reached the pump can be used, and this must always be done carefully, for it the contents of the stomach do not come away readily, injury may be done to the stomach by continuing the pumping. In such a case it is advisable to inject warm water into the stomach, which can be easily done, as the stomach-pump is so constructed as to act either way. In most instances it will probably be necessary to repeat this process of injecting and evacuating two or three times before the stomach is completely cleansed. The caution as to avoiding the windpipe is especially necessary when the patient is insensible, as it has happened before now that the stomach-pump has been forced into the trachea, and its contents into the lungs.

Stomacher.—An ornamental front to a lady's dress, reaching from the neck to the waist. Sometimes the word is applied to a jewelled decoration worn in front; hence we read of "a diamond stomacher."

Stomachics.—These are medicines which appear to act directly upon the stomach, stimulating the appetite and improving the digestion. They are useful in most forms of dyspepsia. Calumba, gentian, quassia, the mineral acids, strychnia, iron, pepsine, quinine, &c., are examples of stomachics. It is not considered advisable to continue the use of stomachics too long, as by doing so the object for which they are taken may be defeated.

Stone.—This is a solid body, sometimes of considerable size and weight, which is found in the bladder and kidneys. It is formed from the aggregation of particles of gravel which have been precipitated from the urine. There are several varieties of stone, the most common being the lithic acid or gout stone. This is smooth, oval, and mahogany-coloured. Then there is the mulberry stone, so called from its resemblance to that fruit. This is dark red in colour and very rough. It is composed of oxalate of lime, and its presence in the bladder, from the nature of its formation, gives intense pain. Besides these there are stones of a mixed character, which need scarcely be described here. Stone is usually removed by the operation of lithotrity (viz., crushing), or by that of lithotomy (viz., removing it in one piece). (*See* GRAVEL.)

Stone, Artificial. (*See* ARTIFICIAL STONE.)

Stone Blue. (*See* BLUE, WASHING.)

Stone Colour.—This name is usually understood to signify a kind of pale yellowish-drab; but the term is a vague one, because there are many shades of this drab colour, and there are as great varieties in stones as in flowers or woods. The colour intended to be described by the term is that of the species of stone called sandstone.

Stone Steps and Floors, To Clean.—For ordinary cleaning, when stone steps or floors are in good condition they simply require washing with hot water and a clean flannel. Afterwards, if a white appearance is desired, they may be washed over with pipe-clay mixed in water, or with milk, which will impart a dark glossy colour to the stone. In order to remove grease from stone, it should be washed with an infusion consisting of potash and quicklime. If the stain be a very bad one, a little powdered hot lime may be put upon it before the infusion is poured on. In some places it is customary not to wash the stone often, but to dry rub it with a blue or grey stone, then wipe it with a coarse flannel, and sweep it. All grease-spots are thus removed, and the floor always has a clean, tidy appearance.

Stone, To Preserve.—The surface of stonework is, when certain materials are used, liable to decay; and sometimes the action of damp, heat, cold, &c., causes the surface to corrode and fret or crumble away, and the most delicate ornaments, as well as the general face of the building, lose their beauty and decay. In other cases there is what is called an efflorescence, of saltpetre, for instance, and the result is a dilapidated and ruinous look. Many efforts have been made to prevent or to remedy these evils. The simplest course is either to point

the stonework, or to coat it with hard cement; but this is open to many objections. For some kinds of stone, what is called water glass (*which see*) has been much resorted to; and a preparation called zopissa has been strongly recommended. Most of the articles used are, however, prepared by the proprietors, and their constituents are not known publicly.

Stone (Weight).—A weight in use in many European countries, and of very various values. In Great Britain the legal stone is equal to 14 lbs. avoirdupois, but for butchers' meat a stone of 8 lbs. is in common use. (*See* WEIGHTS AND MEASURES.)

Stones, Precious, and Gems.—Most of these, with their principal varieties, will be found described in this work under their various headings. Those of the higher class are correctly styled gems as well as precious stones, such, for instance, as the diamond, ruby, sapphire, emerald, topaz (Oriental), and amothyst (Oriental). In actual practice, however, it is customary to give the name of gem or precious stone to any coloured and more or less transparent stone of sufficient hardness to be used in the better sorts of jewellery. Among such are aquamarine, chrysoberyl, cat's-eye, spinel, and Balas ruby, the ordinary topaz, amethyst, emerald, and garnet; to which we may add the bloodstone, mocha stone, turquoise, and opal. Although used for personal ornaments, the name precious stone or gem is not given to such fossil substances as moonstone, lapis-lazuli, malachite, jet, jade, amber, and of course not to pearls and coral, though both are common in jewellery. The reader should also consult the articles ARTIFICIAL GEMS and GEMS for further details.

Stoneware.—The substance known by this name is a coarse kind of pottery, of which bowls, jugs, and common kitchen utensils are made. The composition consists of clay and flint. The clay is beaten in water and purified; the flint is ground, calcined, moistened, and then mixed with the former liquor, the proportions being regulated according to the various wares. The whole mixture is then dried in a kiln, and beaten, when it is fit to be formed at the wheel into dishes, plates, and bowls. These are baked, and the glazing of them is accomplished by means of common salt. The salt is thrown into the furnace in which the stoneware is being baked, where it is immediately changed into a thick vapour. In this form it adheres to the surface of the ware, and is thus converted into what is known as the glaze.

Stools are in use as rests for the feet, as seats in offices, for performers on musical instruments, and as low seats for children. Being easily constructed, they commonly figure in lowly cottages, and were once the more common pieces of furniture in homes of every kind. Foot-stools are of various kinds and shapes, and are usually of a decorative appearance. Office stools are usually strongly and somewhat heavily made, cushioned, and covered with leather. Music-stools are most commonly made to rise and sink by the aid of a screw, which also enables the performer to turn readily while on the seat; they are usually carved and otherwise ornamented, and sometimes have a box under the seat for the reception of music.

Stop.—A term used in banking operations to indicate bank notes, &c., the payment of which is stopped. The following explanation of the process has been given:—"When you receive bank notes, either those of the Bank of England or of country bankers, write your initials on the back of each note, and insert a memorandum in your pocket-book, or some other book, of the amount, number, place of issue, and date of each note. Should all or any of these notes be stolen, lost, or mislaid, immediately write to or call upon your banker, supplying the above information, and measures will at once be taken to *stop* or refuse payment of them." Such notes become "stop" notes; and it is easy to see how the principle applicable to notes is extended to cheques and other documents of the same class.

Stoppage in Transitu.—An unpaid vendor may, in case of his purchaser's insolvency, stop the goods sold *in transitu*—that is, on their way to him; but this right may be defeated by negotiating the bill of lading with a *bonâ fide* endorsee. The right of an allowed vendor to stop *in transitu* is to prevent the injustice which would take place if, in consequence of the purchaser's insolvency while the price of the goods was unpaid, they were to be applied in satisfaction of his liabilities, and so the property of one man disposed of in payment of the debts of another. This stoppage does not rescind the contract, but only places the vendor in the same position as if he had not parted with his goods, hence his right of lien on the part stopped is re-vested and no more. Stoppage *in transitu*, as its name imports, can only take place while the goods are on their way; if they once arrive at their destination, and come into actual or constructive possession of the consignee, there is an end of the vendor's right. The rule is that the goods are *in transitu* so long as they are in the hands of the carrier as such, whether or not he was appointed by the consignee, and also so long as they remain at any place of deposit connected with their transmission. But if after their arrival at their destination they be warehoused with the carrier, or even if they be warehoused with the vendor himself, and rent be paid to him for them, that puts an end to the right to stop *in transitu*.

Stoppers, Glass, To Remove.—If the stopper be firmly fixed by means of the salts contained in the bottles, it should by no means be jarred by a blow or a succession of slight taps, although it may sometimes be loosened by so doing, but add as much citric acid to water as will take it up, forming what chemists call a "saturated solution," and immerse the bottle in it. Vinegar will also answer the same purpose. In the former a citrate of ammonia will be found, and in the latter an acetate of the same. The bottle should be placed in a vessel of warm water, after standing for a short time in either of the above-named baths, when the stopper will soon be released. Another plan is to pass a piece of woollen cloth round the neck of the

bottle, and to pull the ends quickly backwards and forwards for a few moments, which method, by expanding the glass, may release the stopper —a result equally well attained by plunging the neck in hot water, and heating it for a short time. Sometimes a little sweet oil poured round the stopper will dislodge it. A very simple instrument made of boxwood, with a hole through it so graduated as to fit on to stoppers of various sizes, can be purchased at the shops of some chemists, by which a leverage can be brought to bear on a tightly-fixed stopper, and remove it without breakage if carefully applied.

Stops. (*See* PUNCTUATION.)

Store-closets and Store-rooms.—A store-room should be cool, dry, airy, and, if possible, large. It has long been proved by housekeepers that not only is it more convenient, but also more economical, to be provided beforehand with a stock of groceries and other articles for daily use; and the store-room is the place where such things are usually deposited. The coolest and driest part of the closet should be reserved for jams, pickles, syrups, &c. Biscuits and cakes should be put into tin boxes. Rice, tapioca, and sago must be kept closely covered, for fear of insects. Starch must be kept in a dry place, also sugar and sweetmeats. Salt must be kept in a wooden box; if put into a pot or earthenware vessel it will become damp. Soap is better bought in large quantities; it should be removed from the paper, cut in pieces, and allowed to dry and harden slowly. March is the best month for laying in a stock of tallow candles, as they will then have been made in the winter and will keep well. Coffee, unless unroasted, should not be kept in large quantities; unroasted, the berry improves with age, but roasted coffee, even when kept in tins, soon loses its flavour. Spices should be kept in tins, lemon-peel in glass bottles. Whole lemons for keeping should be purchased in June, when they are cheapest, and should be hung in netted bags. A distinct label should be placed upon every article, so that no time may be wasted in searching for what is wanted. The walls and edges of the shelves should be furnished with hooks, and a book and pencil should be provided, in which every article purchased may be entered.

Stores, Co-operative. (*See* CO-OPERATIVE STORES.)

Storey, or Story, is a set of rooms on the same floor. The storeys of a house are enumerated as follows, from the lowest upwards: basement, or underground storey; ground storey, or, as it is more commonly termed, ground floor, at about the level of the ground; first storey, usually the principal floor or storey; then follow second, third, and so on, the uppermost being designated garrets.

Storm Glass.—The storm glass, or chemical weather-glass, may be seen exposed for sale in some of the London shops, its most observable feature being a glass tube containing a more or less disturbed mixture of fluid and solid. The following is given as a common recipe for making a storm glass:—"Take two drachms and a half of camphor, thirty-eight grains of nitre, and thirty-eight grains of sal ammoniac; dissolve in nine drachms of water and eleven drachms of rectified spirit with a gentle heat. Put the mixture into a long glass tube, and close it with a brass cap with a small hole in it to admit air. Other accounts say the tube is to be hermetically sealed." The changes which the mixture undergoes are believed by some to forecast the weather, though the efficacy of the instrument seems to be somewhat doubtful.

Storm-warning.—This name is given to a signal intended to inform seafaring men that a storm or stormy weather is expected. The announcement is usually made by telegraphic communication to different ports and harbours. The approach of a storm is sometimes known by barometrical indications, and is sometimes known by telegraphic messages from places where a storm is raging. What is called the law of storms is so well understood that the speed at which they may be expected to travel, and the course they will most likely follow, can be ascertained. Hence it is that news of an approaching storm can be communicated from far distant places, and precautions be taken in good time.

Stoup.—A drinking vessel, in which sense the word is most used by the Scotch. The same word is employed to denote a basin for containing holy water in Roman Catholic churches.

Stout.—In London, Dublin, and elsewhere, the beverage known by the name of stout is extensively brewed. It is of the same nature as porter, though stronger, its chief characteristic being the large proportion of extractive matter that is present. Like porter, it has an agreeable freshness in drinking; it is dark brown in colour, and has a bitter flavour. The full body that it possesses, however, renders it unsuitable for many constitutions, though at the same time it has proved highly beneficial in cases of weakness and debility. (*See* PORTER.)

Stove-brushes.—In cleaning and polishing stoves it is necessary to be supplied with two or three brushes, each of which is to be devoted to one use only. A soft brush must be chosen for laying on the black-lead, and a harder brush for polishing. Sometimes it is difficult to get a proper polish to stoves, simply because the brushes have been made unfit for use by grease or some dirty matter that has adhered to the bristles. Any appearance of grease should be removed from the stove before the black-leading process is attempted, so that the brushes may be kept clean. It is impossible to obtain a high polish with a dirty brush. For cleaning the flues of stoves, and removing all superfluous soot and dust, a brush with a long handle that is made specially for the purpose should be kept in readiness. By means of this brush most of the flues and spaces in the ordinary stoves can be thoroughly cleared, and a free passage made for the air. It is very important that all who have the management of stoves should thoroughly understand the cleaning department, as it is impossible to bake and roast with comfort with a stove that is not regularly cleaned and kept in order.

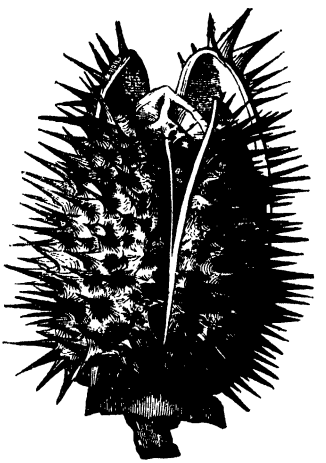
Stove-grates. (*See* FIRE-GRATES.)

Stoves are species of fireplaces so arranged as to enclose the fire and shut it out from sight. The most common kind of stove is an iron box of an oblong square form, intended to stand in the middle of a room. The air is admitted to the fire through a small opening in the door, the smoke being conveyed away through a narrow pipe or funnel. By this means a greater part of the heat produced by the combustion is saved; the radiated heat being thrown into the walls of the stove, they become hot, and in their turn radiate heat on all sides to the room. Another advantage is that, the air being made to pass through the fuel, a very small supply is sufficient to keep up the combustion, and the smoke being confined by the cavity of the stove cannot easily escape into the room, but passing off through a thin funnel of circuitous shape, parts with a great portion of its heat before it leaves the apartment. The Dutch stove consists of a cylindrical case of sheet iron, within and close to the bottom of which is a grating for holding the fuel. Under the grating there is an ashpit, and the interior of the stove has three openings—one to the ashpit, one for the introduction of the fuel, and one that leads to the flue. The objections to these stoves are that the air of the rooms in which they are used becomes dry and sulphurous, and consequently unhealthy. In the manufacture of Russian stoves—which are built in a massive style, and consist of a series of chambers, the lowest serving as the fireplace and the upper ones as flues—earthenware and brickwork are employed in lieu of iron, which have the effect of reducing the intensity of the heat in close proximity to the stove, and of retaining a certain quantity of heat after the fire is put out. There have been many inventions from time to time for reducing the intense heat near to metallic stoves, each one setting forth some special merit; but they all are constructed, more or less, on the following principles—that the air-hole by which the combustion is fed is as small as possible, and capable of regulation; that in an outer case there is a body of air to be heated, external to the stove itself; that the principle, compared with fireplaces, is eminently economical; and the chimney, or funnel, for carrying off the smoke and gases may be placed in any required direction. Gas-stoves are very similar in construction and effect to those already described, the difference being that the heat is produced by gas in place of fuel. Horticultural stoves are buildings erected for the purpose of preserving tender plants, which would otherwise perish from the moisture and coldness of our climate. These erections are usually divided into two classes—viz., *bark* and *dry-stoves*, according to the plan on which they are established. In the former case a pit is dug to the depth of three or four feet, that generally extends over the whole length of the hothouse, and is filled with fresh tanner's bark, in which the pots containing the plants are plunged. *Dry-stoves* are built of bricks in the form of flues, which are conveyed either beneath the pavement or attached to the back wall of the house, one being constructed above another, and returned six or eight times throughout the whole length of the building. In such stoves it is necessary to arrange the pots on shelves rising progressively. Their dimensions ought to be adapted to the number of plants to be preserved, the floor being elevated to a greater or lesser height above the surface of the ground, according to the natural humidity or dryness of the soil. The furnace may be placed either in the middle or at one end of the building, but it should in every case be adapted to the nature of the fuel employed.

Strabismus. (*See* SQUINTING.)

Strainers, or Drainers.—The strainers used in cookery are employed for the purification of liquids, and to expel moisture from solid substances; and no great success can be achieved in the art of cooking without the proper amount of sieves and drainers. The sizes vary from the vegetable drainer to the fine hair or wire sieves. The former of these are finer, though the latter are the stronger of the two. Wire sieves are intended for materials which could not be made to pass through a hair sieve. The gravy-strainer resembles a vegetable cullender in shape, only it is smaller and is more finely perforated. Jellies and blanc-manges are usually strained through flannel.

Stramonium.—This is a shrub or herb with a fetid odour which is sometimes found growing wild in waste places or on dunghills in our own country. The seeds, or an extract from them, are used in many cases of disease, as in neuralgia, sciatica, tic-doloreux, &c., to allay pain. It has also been used to soothe the pains of rheumatism. It is at times useful in



FRUIT OF STRAMONIUM.

cases of spasmodic asthma, in which the herb itself is smoked like tobacco. Patients, however, should remember that if the smoking of stramonium be made much of a practice of, it is apt to induce diseases more terrible even than asthma itself. On the whole, medical men know too little of the physiological effects of the drug to have any confidence in its good effects, although they are well acquainted with the evil.

Stranguary.—This is one of the symptoms of irritable or inflamed bladder, and is characterised by great pain and difficulty in making water, the latter coming away only in drops, and being often tinged with blood. The internal administration of cantharides (Spanish fly) is frequently followed by stranguary.

Strangulated Hernia. (*See* HERNIA.)

Strass.—A peculiar kind of glass, of considerable refractive power, which forms the basis of all modern artificial gems. M. Dieulefait, who thus describes it, says it was perfectly well known in the Middle Ages, and it was used for exactly the same purposes as it is used for to-day—for decoration and the counterfeiting of precious stones. It is distinguished from ordinary glass by the presence of about 50 per cent. of oxide of lead among its constituents. For imitating precious stones the strass is melted, and combined with such substances as will give the colour required. The product is cut and polished, and commonly passes under the name of paste. The diamond being colourless is of course imitated from pure strass, while a sapphire, which is blue, requires a certain proportion of oxide of cobalt.

Straw Bonnets, Hats, &c., To Clean.—The wire should be taken out, and then the dust should be thoroughly brushed out of the straw. After this it requires to be brushed with curd soap and water, and then rinsed with clear water. The straw is then dried in the air in a windy place, but out of the sun. While it is damp it should be bent the shape it is wished to retain. When dry, the wire is replaced, and some persons brush white of egg, previously well beaten to froth, over the straw, to make it glossy.

Straw Palliasse. (*See* PALLIASSE.)

Straw Plats.—That of Leghorn and Tuscany holds the highest place, being exceedingly fine and pliable. The former is platted in one piece, and therefore the shape of bonnet or hat cannot be materially altered. Tuscan plats, although flat and without ridge, are sewed together. These two are the most expensive straw plats, but they excel all others in beauty and durability. The Brazilian plat is all in one piece; it is executed in a species of grass, and is particularly light in weight. The fabrication of straw plat in England was not commenced until the seventeenth century. Bedfordshire is its chief seat, and the most noted plat is that known as the Dunstable. This is made of two split straws, which are laid together with the inside surfaces facing each other, for as the outer and inner parts of straw differ in colour and gloss, it is essential that the difference is not contrasted. The straw of which the best plats are made is the Red Lammas and the White Chittim; these kinds flourish best in light rich soil, such as that found in the midland and southern counties. The plat is made by women and children, who work in their own homes; it is done with great dexterity and rapidity. Immense numbers of English straw bonnets and hats are sent to all parts of the world; they may be obtained for a few pence when made of inferior straw. The English method of joining the plats is by placing one edge over the next, and thus forming a ridge; this, added to the thicker straw, makes the productions of this country heavier and more substantial than those from other lands.

Straw-work.—Various articles are made by amateurs with this material, for which purpose they buy bundles of nicely-prepared straws from the bonnet-makers, or from confectioners, who keep them for customers who imbibe sherry cobbler through straws. Very sharp scissors and a thin sharp needle are required for straw-work, or the straw will be split and spoilt. Small frames for photographs are pretty whilst fresh and not discoloured. The straws are cut the desired lengths, and five are placed side by side and stitched at the corners; a little clump of five is placed across each corner, and ribbon is tied round it and the two sets which meet at the corner. Straw baskets or ornamental covers for flower-pots are easily constructed: a piece of cardboard for the bottom and another for the top must be cut in the form of circles, and have corresponding holes of the same size and in equal numbers punched through the card. Pieces of straw are placed in the holes (if the latter are too large, a drop of gum on the straw will hold it steady); the straws should rise above the top rim of the cardboard. This may be further embellished by a narrow, bright-coloured ribbon, passed alternately over and under the straw palings; if a second row is put, the order of the ribbon's alternations must be reversed. Models of cottages are sometimes made; in these the straw is gummed on to pasteboard.

Strawberry.—The common wood strawberry (*Fragaria vesca*) is indigenous in all temperate climates. The products which have been obtained by cultivation from it, and from other species of the same genus, rank amongst the choicest and most grateful of summer fruits. Strawberries are mild, cooling, laxative, and slightly diuretic. They do not contain a large quantity of nutritive matter, and have more water in their composition than either gooseberries or currants. They are, however, exceedingly wholesome, and are unsurpassed for fragrance and flavour. They were formerly in great repute among physicians for gout, stone, and consumption. When rubbed upon the teeth, they whiten them by dissolving the tartareous incrustations. The grains, or seed-like pericarps, are not easy of digestion, and sometimes cause intestinal irritation. On this account some physicians have recommended that strawberries should be passed through muslin before being taken. It is supposed that this fruit has derived its name from the old English practice of laying straw between the rows in order to preserve the berries from rolling upon the wet ground. Strawberries are in season in June and July, although they are very usually produced by forcing much earlier in the season. They are eaten fresh as a dessert fruit, and a favourite jam is made from them. They are particularly delicious when eaten with cream, although the rich combination is a tax upon the delicate stomach. The Spaniards are accustomed to moisten this fruit with the juice of a sweet

orange, and the practice is one well worthy of imitation. Some epicures grate the zest of an orange over the strawberries, and this improves the taste greatly, especially when a little sugar is added also. The young plants of strawberries are produced by runners. The frequent renewal of the stock is to be recommended, because the plants are generally pretty well exhausted when the third crop has been taken from them. They need a rich firm soil, and must be regularly watered and looked after, for constancy is the quality most required in a grower of strawberries. According to the most usual practice, strawberries are planted in rows from eighteen inches to two feet apart. The finest fruit is said to be produced when the plants are kept quite distinct from each other; but this is not often done. The runners which are to be separated should be fixed upon as early as possible, and should be carefully pegged down to assist them in making a good root. When they are ready (and in order to decide when this point is reached both judgment and experience are required), they should be taken up carefully with a trowel and planted. When this is accomplished, they must be watered every two days for a week or two, after which time they should be supplied with liquid manure until they are strong. It has been said that the strawberry is like an alderman, for it must have good food and plenty. The plantations must be kept clear of weeds, but not a leaf must be cut off from the plants until they have been in the ground for six or eight months. During the frosts of winter a little litter should be spread over them to preserve them. About the time the blossom is expected, clean straw should be laid in straight bundles lengthways on each side of every row. These will form a kind of cushion, and prop the blossoms above the soil, so that the fruit will be quite clean when gathered. The flavour of the strawberries is greatly improved when they are thus treated. The varieties of cultivated strawberries are numerous, and new ones are continually coming into notice. The selection of sorts is a matter of importance, and a few good and favourite kinds are here given:—Black Prince, Keen's Seedling, British Queen, Oscar, Elton, Old Pine, Myatt's Eliza, Highland Chief, Carolina Superba, and Duchesse de Trévise. The following varieties are specially suited for forcing:—Sir Joseph Paxton, Eclipse, Marguerite, Prince Arthur, Leon de St. Laumer, Sir Harry, and Lucas. The Alpine strawberry is very different to other kinds. It is generally chosen for the cultivation of winter strawberries. It is more erect in its manner of growth than other strawberries, and the fruit, which is both red and white, and not very large, is very abundant. This strawberry is a native of Switzerland and Germany.

Strawberry Wine.—In making strawberry wine from fresh fruit, the strawberries are crushed, water poured upon them, and thus they are allowed to infuse for some hours; the liquor is then strained through a canvas bag, and the sugar and other ingredients added. A simpler mode of making strawberry wine is to mix the juice of strawberries with any good currant wine that has not been flavoured. The addition of a little brandy when bottling the wine or putting it into the cask will tend to make it sounder and more likely to keep good.

Streamer.—A long narrow ensign worn at the mast-head of a war-ship, &c. (*See* PENNON.)

Street Music. (*See* MUSIC IN STREETS, LAW CONCERNING.)

Strength, Loss of.—This is a condition which may be either temporary or permanent. When of a temporary character, it is usually due to one of the following causes—viz., (1) fatigue, (2) incipient illness of a serious character, as fever, pneumonia, &c., and (3) one of the results of such illness. When permanent, it most frequently proceeds from advancing old age or incurable disease. The treatment of loss of strength must, of course, depend upon the cause from which it arises. If from fatigue or overwork, rest is essential; if it is a harbinger of coming illness, then we can only wait until this has manifested itself, making some preparation meanwhile for the coming storm by relieving the bowels and promoting skin action. If it is the result of illness, it must be combated with pure air, good food, tonics, as iron, quinine, &c., and a liberal allowance of good wine, and in some cases spirits. (*See* DEBILITY.)

Strictures.—These are obstructions which occur in some one or other of the natural passages of the body. They are either temporary or permanent. When temporary, they are for the most part due to muscular spasm. One of the best examples of temporary stricture is that which occurs in the urethra, and which receives the name of spasmodic stricture of the urethra. This affection usually comes on quite suddenly, and is characterised by great straining and desire to make water, with inability, more or less complete, to do so, and by increasing pain over the bladder. It is best relieved by the warm bath, and by a full dose of opium. If these fail, the administration of chloroform and the passage of a catheter, or bougie, may be necessary. Permanent stricture is generally the result of the growth of some organic disease, as cancer, tumours of various kinds, &c., which in some exceptional cases may be relieved by surgical interference.

Strike.—A local term for a bushel, or 4 pecks. A strike also denotes in some places a dry measure containing 4 bushels, or half a quarter. A strike of flax is a handful, such as may be hackled at one time. (*See* WEIGHTS AND MEASURES.)

Strikes. (*See* DISPUTES.)

String-boxes.—Where string is much used and is in constant request, the use of a string-box is very convenient. The boxes are made in all sizes, suitable for either thick or thin string; they are round in shape, and are usually made in stained or polished wood. In the middle of the lid is a small hole, through which the end of the string is passed; the ball is placed in the box, and the lid closed. Economical housekeepers can generally supply themselves with string from that which is taken from the tradesmen's parcels as they

come to the house. A box or bag should be kept for the odd pieces of string, so that no search need be made for them when wanted.

String-course.—This is the architect's term for a projecting band or moulding running horizontally along the walls, round buttresses, and sometimes in the form of a dripstone over the windows.

Strychnia.—This is an alkaloid obtained by a very elaborate process from nux vomica. It is a most potent poison, but it also possesses very valuable medicinal properties. (*See* Nux Vomica.)

Strychnine.—This is the popular term for strychnia. (*See* Nux Vomica.)

Stucco.—This is a composition of white marble or other material in a powdered condition, mixed with lime or plaster. It is used for giving walls, &c., a smooth, stone-like surface, and is sometimes also used for floorings.

Stucco, To Paint upon.—Stucco resisting damp or moisture forms a suitable ground for painting in fresco. When used for out-door work, a clean even face is first secured with pumice-stone, and it is prepared with a thin painting of linseed oil and red-lead, or litharge. In the last coat of paint fine washed and sifted sand is often mixed to give a grain resembling that of stone.

Studs.—These are of many kinds, the more common of which are the following:—1. Large-headed nails or knobs fixed upon some sorts of work, mostly as ornaments. 2. A species of pin, partly sunk and partly projecting, the projecting part being used to hang something on temporarily. 3. Movable buttons, such, for example, as are employed for shirt collars and fronts. In constructing the last-named, the materials chosen are horn, bone, ivory, gold, silver, brass, and especially mother-of-pearl, and many more; they are often enriched with diamonds and other precious stones. In some the head screws on to the shank; in others the whole is of one piece. The variations are too numerous to be described in this work.

Study (Apartment).—As a rule, a study is the one room in the house that is regarded as private property. It is distinguished from the library, the dining-room, and all the other apartments, as belonging specially to the owner, where all studying, correspondence, and private business arrangements are transacted. It is usually fitted up with a writing-desk and table, to which are attached, or provided separately, a suitable number of drawers, to contain writing-paper, letters, private documents, or anything else of value. The room, though light and airy, should be in a quiet part of the house, so that when desired all noise may be easily excluded. The furniture of the room should be arranged comfortably, in order that ease may as much as possible accompany the working hours. An artist's studio must be situated so that the light may fall with proper effect upon his work.

Study in relation to Health.—Too much study is prejudicial to health. The brain, in common with other organs, requires rest, and if this is not given to it, serious results may follow. When such symptoms as constant or even frequently recurring headache, singing in the ears, dimness of sight, occasional confusion of thought, unnatural irritability, white sediment in the urine, &c., manifest themselves in any one who is excessively studying, it is evident that the brain is over-worked, and these warnings of evil to come must not be slighted. Study, to be healthy, should be regular, varied as much as possible, and always, when practicable, combined with a certain amount of physical exercise. (*See* Health, Care of.) It should above all things not unduly infringe upon the proper hours of rest, neither should it be pursued to excess by the aid of artificial light, especially gas, both of these being highly injurious, not only to the brain, but to the sight.

Stuffing Birds, &c.—This is an art, and a very pleasing one, that may be acquired by any one with patience and a little study. The first thing to be done is to carefully skin the dead specimen; if any of the larger animals, the skull should be cleaned but left entire; the horns, hoofs, &c., should also be left entire. The whole of the inside of the skin should then be thoroughly rubbed over first with a mixture of pepper, salt, and alum, and hung up to dry; it should then be done over with arsenical paste. For the setting up, the insertion of wires and stuffing, a few lessons from a taxidermist will be of great advantage to the amateur. In the placing of the stuffed animals in position, nature must be very carefully studied and imitated.

Stuffing for Cushions, &c.—Feathers, silk-cotton, and flocks of wool are generally employed for sofa cushions, the last-named being the least expensive. Bran is the best for toilet cushions; and for work-box cushions, shreds of Berlin or other wools, and ravellings of ribbons, form a suitable stuffing. Sofa cushions should not be quite filled, for this makes them hard, and also look uncomfortable; other cushions look better when the stuffing is tightly compressed and fills every corner. All cushions should be emptied every few years, in order to pull to pieces and make lighter the stuffing where necessary, and to take away the needles and pins which always contrive to push their way into cushions of a certain class.

Stuffs.—In this class are placed those materials made of worsted yarns, such as bombazines, paramattas, Norwich stuffs, English merinos, Russian cord, and others of a similar character.

Sturgeon.—The common sturgeon is called by naturalists *Acipenser Sturio*, and belongs to the family *Sturionidæ*. Although sometimes found about the mouths of our English rivers, it is much more common far north. The flesh, when fresh, is considered a great delicacy; the roe of the female is made into caviare; the fish is also salted and pickled for preservation. From the air-bladder of the sturgeon isinglass is made. There are two species of this fish found at the Solway, a blunt-nosed and a sharp-nosed, the latter being, however, the more common. Several species are found in the rivers of Russia.

Stuttering, or Stammering. (*See* SPEECH, IMPEDIMENTS OF.)

Stye.—This is a very painful pimple, partaking somewhat of the character of a boil, which makes its appearance on one of the eyelids, and causes considerable distress and discomfort. It is best relieved by hot fomentations and poultices, which cause it to suppurate. When this has occurred, the pain as a rule ceases. It is well to take some aperient medicine at the same time. If the stye is obstinate and does not suppurate readily, the pain continuing, it must be punctured.

Style, New and Old.—The reckoning of time by the Julian and Gregorian calendars—the former being the old style, the latter the new. As is fully explained under the heading of CALENDAR, there is now a difference of twelve days between the two styles. Russia is the only European country which continued to adhere to the old style.

Style, or Stylus.—An instrument with a metal point, somewhat like an ordinary pencil, and used for writing upon wax tablets in ancient times. A similar instrument is now sometimes employed in tracing and in writing, by means of prepared coloured paper laid upon white paper, which latter shows what is written. The same name is given to certain implements used by engravers and surgeons.

Styptics.—These are certain medicines and medicinal agents which, though they differ widely in their action and mode of application, are used to arrest bleeding. Ice, the actual cautery, alum, iron, gallic, sulphuric, and tannic acids, matico, &c., are examples of styptics. (*See* BLEEDING, TO STOP.) The term is derived from a Greek word signifying "to contract."

Sublimate, Corrosive. (*See* CORROSIVES.)

Subpœna.—A writ commanding attendance in a court under a penalty. There are several kinds, as :—1. *Subpœna ad testificandum* (to testify). The common subpœna, which is personally served upon a witness in order to compel him to attend the trial or inquiry to give evidence. 2. *Subpœna duces tecum* (to bring with you). This is also personally served upon any one who has in his possession any written document, &c., the production of which in evidence is required. The above subpœnas are also used in criminal proceedings. Four witnesses can be included in the same writ. There are in Chancery practice, besides the above, a subpœna to hear judgment; a subpœna for costs; a subpœna served upon an infant on attaining majority, to give him an opportunity to show cause against a decree; and a subpœna to name a solicitor. Three names only can be included in these writs.

Succedaneum.—A preparation used by dentists for stopping teeth.

Succession Duty.—A duty varying from 1 to 10 per cent., imposed by the Statute 16 & 17 Vict. c. 51 (which came into operation on the 19th May, 1853), amended by 22 & 23 Vict. c. 21, secs. 12—15, 24 & 25 Vict. c. 92, and 28 & 29 Vict. c. 104, secs. 53—64, chiefly upon real and leasehold estate, but generally in respect of all property (not already chargeable with legacy duty) devolving upon any one in consequence of any death. The duty has to be paid at the time the successor comes into possession, or into the receipt of the rents or income of the property; and, therefore, in the case of reversionary property, not until the same falls into possession by natural causes only. In case the reversionary property should devolve under several wills or intestacies before it falls into possession, a single duty only is payable, but that duty is to be at the highest rate of the several successions. If any succession is not wholly obtained by the successor in the first instance, the duty may be paid on the value of the part from time to time obtained, such value to be estimated as the property exists at the time it is obtained, and not at the time of the death. If the succession be a gross sum (not being real or leasehold estate), vesting at once in the legatee, then, whether the same be or not given over on a contingency, duty on the whole amount is payable all at once, with a right to be recouped any over-payment in case the gift over-takes effect; in which case the successor over becomes chargeable with the same, and at the higher rate, if his rate should be higher than that of the first legatee. But if the succession is not a gross sum, but an annuity for life or for years, then, whether the same be or not charged upon some other succession, and whether the same be or not given over on a contingency, duty is payable on the value of the annuitant's interest, calculated according to the tables of the Act, and is to be paid by successive annual instalments, such instalments being payable with the four first successive payments of the annuity itself, with a right to be recouped any over-payment in case the gift over takes effect; but in the case of a direction to purchase an annuity, or of a perpetual annuity, the duty is to be paid all at once on the value of the annuitant's interest, calculated as aforesaid. The following table shows the value, as settled by Act of Parliament, of a life income or annuity of £100 at every age from birth to 95 years. This value is of course the sum on which the succession duty of from £1 to £10 per cent. is to be calculated :—

AGE.	VALUE.			AGE.	VALUE.		
	£	s.	d.		£	s.	d.
Birth	1892	8	6	20 years	1729	9	6
1 year	1906	13	0	21 ,,	1719	17	0
2 years	1919	2	0	22 ,,	1713	1	0
3 ,,	1926	8	0	23 ,,	1706	16	6
4 ,,	1928	16	0	24 ,,	1700	11	6
5 ,,	1926	19	6	25 ,,	1694	0	0
6 ,,	1921	12	0	26 ,,	1686	14	6
7 ,,	1913	4	6	27 ,,	1677	5	6
8 ,,	1902	16	6	28 ,,	1667	1	0
9 ,,	1890	19	6	29 ,,	1656	1	0
10 ,,	1878	3	0	30 ,,	1644	7	6
11 ,,	1864	7	0	31 ,,	1632	0	0
12 ,,	1849	12	0	32 ,,	1619	0	6
13 ,,	1833	18	6	33 ,,	1605	4	0
14 ,,	1817	7	6	34 ,,	1590	9	6
15 ,,	1800	8	6	35 ,,	1574	17	6
16 ,,	1783	13	0	36 ,,	1558	9	6
17 ,,	1767	16	0	37 ,,	1541	10	6
18 ,,	1753	5	6	38 ,,	1524	0	0
19 ,,	1740	11	0	39 ,,	1506	1	6

ANNUITY TABLE (*continued*).

AGE.	VALUE.	AGE.	VALUE.
	£ s. d.		£ s. d.
40 years	1487 10 0	68 years	733 8 6
41 ,,	1468 4 0	69 ,,	705 4 0
42 ,,	1447 11 6	70 ,,	677 9 0
43 ,,	1426 2 0	71 ,,	650 8 0
44 ,,	1403 10 0	72 ,,	623 19 6
45 ,,	1379 14 6	73 ,,	597 7 6
46 ,,	1354 16 6	74 ,,	569 13 0
47 ,,	1328 2 6	75 ,,	541 0 6
48 ,,	1300 9 6	76 ,,	511 9 6
49 ,,	1271 19 6	77 ,,	477 17 0
50 ,,	1242 19 6	78 ,,	444 9 6
51 ,,	1213 17 0	79 ,,	412 9 6
52 ,,	1185 14 0	80 ,,	381 3 0
53 ,,	1157 17 6	81 ,,	350 14 6
54 ,,	1130 13 0	82 ,,	321 14 6
55 ,,	1103 18 0	83 ,,	292 10 0
56 ,,	1077 10 0	84 ,,	263 2 0
57 ,,	1051 10 0	85 ,,	234 18 6
58 ,,	1025 10 0	86 ,,	207 16 0
59 ,,	999 1 0	87 ,,	184 11 6
60 ,,	972 1 0	88 ,,	164 17 6
61 ,,	943 15 6	89 ,,	148 7 0
62 ,,	914 2 0	90 ,,	133 9 0
63 ,,	883 6 0	91 ,,	122 16 0
64 ,,	852 9 0	92 ,,	107 7 0
65 ,,	821 12 6	93 ,,	93 3 0
66 ,,	790 15 0	94 ,,	79 8 6
67 ,,	761 19 0	95 ,,	64 11 0

Succory.—Another name for chicory (*which see*).

Sucking Bottles. (*See* FEEDING BOTTLES.)

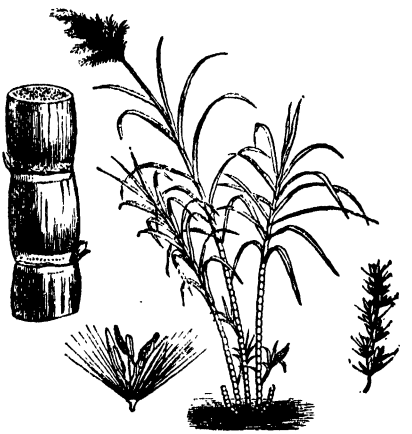
Suction-pump. (*See* PUMP.)

Sudorifics.—These are certain medicines and medicinal agents which increase the action of the skin, causing perspiration. (*See* DIAPHORETICS.) The term is derived from two Latin words which signify "to make sweat."

Suet.—The fat so well known in cookery by the name of suet is a kind of solid fatty tissue, which accumulates in considerable quantity about the kidneys of the domestic animals, especially the ox and the sheep. The flavour of suet is less marked than the fat in other parts of animals, and may be eaten by invalids when ordinary meat fat would be rejected, so that it is accounted one of the purest and most useful fats in food. It is unusually solid, and is especially fitted for culinary operations when mixed with farinaceous substances. Beef suet is better than mutton suet for food; it is considered more nutritious, and has a pleasanter taste. Mutton suet is extensively converted into stearine (*which see*), of which candles are made.

Suffolk Cheese. (*See* CHEESE.)

Sugar.—Although sugar is commonly regarded as a luxury, it is in reality a very valuable article of food; it is very rapidly digested, contributes largely towards force-production in the body, and likewise towards the formation and accumulation of fat. As a substance, sugar is to be found in the juice of many of the canes or grasses, in the sap of several forest trees, and in the roots of various plants. In tropical countries it is extracted from the sugar-cane, in China from the sweet sorgho, in North America from the sugar-maple, and in France from white beetroot. The ordinary sugar used in our country is extracted from the sugar-cane, which is raised so abundantly in our numerous colonies. Of the two principal varieties of sugar, the one is familiar to us as the produce of the sugar-cane, and the other as contained in grapes and other kinds of fruit. The former variety is characterised by the facility with which it crystallises, and by its intense sweetness of taste. It is distinguished by the generic term of crystalline or cane sugar. The latter variety, known by the name of glucose or grape sugar, is of inferior sweetness, and is imperfectly crystallisable. It is



SUGAR-CANE.

yielded abundantly in grapes, and is found also in many other fruits and vegetable articles. The various saccharine products in common use consist of one of these varieties, and in addition to these there are other sources whence sugar is derived. So numerous are these various sources, and so widely are they distributed, that there is probably no part of the globe where the inhabitants are not able to obtain sugar in one form or another. Sugar is found also in the blood, flesh, and secretions of animals, but more especially in milk. Milk sugar is used by homœopathists in making their globules. It is obtained by separating the curd from the milk, and evaporating the whey till it is ready to crystallise; after this the crystals of sugar are deposited on small pieces of wood. This variety of sugar is only moderately sweet, consequently its use is limited. When pure it is incapable of fermentation, but when boiled with dilute acids it is changed into a fermentable sugar much resembling grape sugar. Although, commercially, cane sugar is the best, sweetest, and most valuable of all sugars, it must not be imagined that sugar obtained from beetroot, maple, and other products is of little value. Until 1747 it was supposed that sugar could be derived only from the sugar-cane; but in that year a German chemist, of the name of Marggraf, discovered that it was a natural product of other vegetables, especially of the beetroot. Fifty years later the manufacture of beetroot sugar was commenced in Silesia, and much of the sugar now consumed on the Continent is obtained from this source. In France this variety is more largely produced

than in any other country, not only for home consumption, but for export to England. So much skill is displayed by the French in the manufacture of this sugar, and so efficient is the apparatus employed, that though it is not so sweet as cane sugar, it looks extremely well, and is now a very important and profitable article of commerce. Maple sugar, although very sweet, possesses other flavours besides those due to the sugar. It is obtained from the sugar-maple, a tree that abounds in North America, and resembles the sycamore-tree. One tree yields yearly from two pounds to six pounds of sugar. In order to obtain the sap from which the sugar is made, in the spring season holes are bored into the lower part of the trunk of the tree; through these the juice exudes, and is very easily collected into vessels. For the most part the sugar is prepared by the settlers in America for their own use, and is therefore obtained at small cost. The sugar contained in beer and porter, and known as malt sugar, is extracted from common barley. This grain contains so large a proportion of saccharine matter that by the process of malting the sugar is produced, and is a very important ingredient in the manufacture of ales. The commerce in sugar is prodigious and is rapidly increasing, though in some countries the demand for it is much greater than in others. America and Great Britain consume more in comparison than the other principal countries. Within late years great perfection has been attained in all kinds of sugar, the manufacture of which now forms one of the largest branches of human industry. London, Bristol, and Greenock are the principal seats of the refining trade. The object of refining is to clarify and decolourise, and this is usually effected by boiling the dissolved sugar with bullock's blood, filtering, and allowing the liquor to percolate through coarsely-grained animal charcoal. The clear liquid thus obtained is boiled in a vacuum-pan heated with steam, and then run off into conical moulds, where solidification occurs. The unsolidified portion, which constitutes treacle, is afterwards permitted to drain off, and loaf sugar is left. Crushed lump is simply inferior loaves crushed while still soft and moist, and packed in hogsheads instead of being left in the loaf form. The introduction of sugar to Europe appears to have been one of the results of the Crusades, and it was not introduced into England until the fourteenth century. In the middle of the sixteenth century a Venetian discovered the art of refining it. The first refinery of which any notice exists was one in Dresden as early as 1597, though at a much earlier date the partial refinement of sugar seems to have been accomplished by a process effected with wine, but which probably did not proceed further than the removal of foreign matters. By the ancients, as far back as the fourth century before Christ, sugar was known, though not often used.

Sugar, Adulterations of. (*See* ADULTERATIONS OF FOOD, &c.)

Sugar, Burnt. (*See* CARAMEL.)

Sugar-candy.—This sweetmeat consists of sugar crystallised by allowing a concentrated syrup to slowly deposit crystals on sticks, threads, or on the surface of the vessel in which it is contained. It is also deposited from compound syrups, and does not appear to retain much of the foreign substances with which they are loaded. White sugar-candy is prepared from refined sugar, brown from raw sugar, and red from a syrup of refined sugar which has been coloured by means of cochineal. Owing to the hardness and indissolubility of sugar-candy, it is very useful as a remedy for coughs, and to keep the throat moist. In the form of a powder it is sometimes blown into the eye to destroy any film that may have gathered, or to dispel dimness. Crushed sugar-candy forms the coarse crystalline article which is much liked for sweetening coffee.

Sugar-chopper.—Several ingenious devices are now in use in the form of sugar-cutting machines, and are most valuable for use in large wholesale establishments, or for stores where sugar is broken on a large scale. Sugar-choppers are used by the grocers for cutting up loaf sugar into small lumps.

Sugar, Mites in.—When sugar has been kept for any length of time undisturbed, or in an unsuitable situation, or still more probably when sugar is inferior in quality, a minute insect or worm makes its appearance, called sacchari, which of course renders the sugar unfit for use. The sugar merchants and grocers in this country are sometimes troubled with swarms of these minute insects in their stores of sugar. The mites wander to the hands of shopmen and those that handle the sugar, causing considerable annoyance, and very often producing a temporary inflammation known as the grocer's itch. In dried plums, figs, prunes, and cherries, the sugar mites are often seen, rendering of course any fruit attacked by them disagreeable and unwholesome. The dried fruits that are offered for sale at a very low rate often contain a great number of sugar-mites.

Sugar Nippers, Crushers, and Tongs.—When loaf sugar is sent in from the grocer it is very often broken into pieces too large either for use or for economy. It is therefore desirable that a kitchen should be provided with a pair of sugar-nippers, by means of which the large pieces may be re-broken into suitable sizes. Sugar-tongs that are made in silver and electro are well-known articles of daily use; and sugar-crushers are little metal utensils, used instead of spoons for crushing sugar in tumblers. They are generally employed when mixing spirit and water, though spoons answer the purpose quite as well, and are much more universally employed.

Sugar of Lead. (*See* LEAD, SUGAR OF.)

Sugar-plums.—The bonbons known as sugar-plums are made by various methods, though in all cases sugar is the principal ingredient, prepared according to rule. The sugar is poured while hot through a funnel into little clean bright leaden moulds, which are of various shapes, and have been previously moistened with oil of sweet almonds. For coloured sugar-plums the colour is added just as the sugar is ready to be taken from the fire.

When made on a large scale, sugar-plums are prepared by machinery.

Sugar-rock.—The favourite sweetmeat known by the name of sugar-rock is made by boiling sugar to a candy, and then pouring it upon an oiled slab, where it is left to cool in the lump. It may be coloured or flavoured in various ways, or if preferred may be simply made, and devoid of any flavour but the sugar itself.

Sugar-sifters.—Machines bearing this name are made for sorting grades of crushed or ground sugar according to fineness of grain. The reciprocating sieves are arranged one below the other. One end of each sieve is left open, to allow the sugar to fall on the discharge spouts, which are arranged alternately on opposite sides of the frame. The sugar passes alternately through the sieves and conducting troughs, and is discharged below. The small sugar-sifters made of silver and electro are for use at the table. In shape they resemble sauce-ladles, and are perforated, so that the sugar may easily pass through them.

Sugar, To Colour.—Boiling sugar may be made to assume any colour desired, but great care should be exercised in securing wholesome ingredients for the colouring matter. Prepared cochineal imparts a bright red colour; spinach-juice, green; an infusion of saffron, yellow; chocolate, brown; and a little indigo, blue. For colouring dry sugar, lump sugar is coarsely crushed, the colouring is rubbed on the palms of the hands, and the sugar rubbed between them until equally coloured. It is then put in a warm place, and when dry is ready for use. Pink sugar is very pretty for ornamenting cakes and sweet dishes.

Suicide.—The act of putting an end to one's life voluntarily is suicide, or self-murder, and the person who kills himself is called a suicide. By the laws of this country it is felony to commit suicide, provided the act is performed by one in his senses and at years of discretion. The attempt to commit suicide is punishable by fine or imprisonment. It is customary to hold a coroner's inquest over the bodies of persons who have committed suicide, and the verdict usually is of insanity, in which case no further measures are taken, but sometimes *felo de se* (or self-murderer). (*See* FELO DE SE.) Some ancient nations and a few modern ones have regarded suicide as honourable, but all Christian legislation condemns it.

Suit. (*See* SUITS.)

Suit, Law. (*See* LAWSUITS.)

Suite.—1. The personal attendants or retinue of any royal or distinguished individual. 2. A series of rooms in a palace or mansion. 3. A uniform set of jewels, including collar, earrings, brooches, bracelets, &c., as the case may be. 4. A uniform set of furniture for a room, including chairs, couches, &c.

Suits.—This term is used to designate coat, waistcoat, and trousers. For evening wear these three articles of apparel should be of the same kind of cloth, *i.e.*, fine smooth black cloth. When a surtout, or frock-coat, is worn, it is black or blue in colour; the trousers do not match, but are of grey, fawn, or any light shade; the waistcoat is frequently of a washing material.

Sulphate of Zinc, commonly called white vitriol, is obtained in the ordinary process of preparing hydrogen by dissolving zinc in dilute sulphuric acid. It produces vomiting if swallowed in quantities of ten grains or more, and is therefore sometimes administered as an emetic. In doses of one or two grains, which may be increased gradually to five or six grains, it will act as a tonic and astringent. It is also used as a lotion, in the proportion of ten grains to eight fluid ounces of water, in which case it serves as an astringent. It is also used to a considerable extent in dyeing.

Sulphates.—Sulphuric acid combines with many of the elements, forming sulphates, among which those of lime, magnesia, and baryta are of the most frequent occurrence in nature as mineral substances. There are also sulphates of alumina, ammonia, potash, soda, iron, chromium, manganese, lead, zinc, mostly of artificial preparation, many of which are of great importance in the arts. *Sulphate of alumina* is used as such as a mordant in dyeing; and in combination with the sulphates of potash, ammonia, iron, manganese, or chromium, it constitutes alum (*which see*). *Sulphate of baryta* is frequently called heavy spar, on account of its weight. It is a common ingredient in mineral veins, where it is usually found crystallised in right rhombic prisms. It is sometimes used as a white pigment. It is very insoluble, not being touched even by nitric acid. A beautiful variety, called by the miners "cawk," occurs in Derbyshire, which is much used by lapidaries, as it takes a fine polish. *Sulphate of copper*, also called blue vitriol, is made in large quantities from copper scale by the action of sulphuric acid; when the liquor is fully saturated it is drawn off into crystallising tanks, and then left until a crop of crystals has been developed; these are drained dry, and are then ready for use. Blue vitriol is largely used in making the acetate and other preparations of copper. Seeds are often steeped in a weak solution of it to prevent smut and the ravages of insects. Wood saturated with it is not liable to dry-rot. It is also used in dyeing, and in forming blue and green pigments. The *ammonio-sulphate of copper* is used medicinally as a tonic and anti-spasmodic. It is given in pills, a quarter of a grain twice a day to begin with, which may be cautiously increased to five grains. *Sulphate of iron*, or green vitriol, is the same as copperas (*which see*). The *bisulphate of potash* is of a very acid and bitter taste, and acts medicinally as a purgative. *Sulphate of lime* is the same as gypsum (*which see*). The *sulphates of magnesia and soda* are the same as Epsom salts and Glauber's salts respectively, which are described under those headings, and the *sulphate of zinc* is also referred to separately.

Sulphides. (*See* SULPHURETS.)

Sulphites are compounds of sulphurous acid with a base, such as potash or soda. The use of the hyposulphite of soda will be found described under the heading of SODA.

Sulphur.—Virgin sulphur is an elementary body, which is found both native and in combination with other metals. It is used medicinally as:—1. *Milk of sulphur* (*which see*). 2. *Flowers of sulphur.* (*See* MILK OF SULPHUR.) 3. *Confection of sulphur.* This consists of flower of sulphur four ounces, acid tartrate of potash, in powder, one ounce, and syrup of orange-peel four ounces. This is an excellent preparation for children. The dose is from half a tea-spoonful to a tea-spoonful. 4. *Sulphur ointment.* This is composed of flowers of sulphur one ounce, and benzoated lard four ounces, and is a valuable application in various forms of skin disease, especially those of a parasitic character. Persons taking sulphur need not be surprised to find that any silver they may carry about them becomes blackened, as both this and the unpleasant smell which the perspiration frequently has are the result of sulphuretted hydrogen passing off from the skin.

Sulphur, Flowers of. (*See* MILK OF SULPHUR.)

Sulphur, Milk of. (*See* MILK OF SULPHUR.)

Sulphurets, or Sulphides, are compounds of sulphur itself with other elements. The sulphides of the metals are of great commercial importance, as they include some of the richest and most widely-spread ores. Those of copper, iron, arsenic, and cobalt have been described under the general mining term of PYRITES. Fahlerz is the mineralogical name for a valuable ore consisting of a mixture, in varying proportions, of the sulphurets of copper, antimony, arsenic, mercury, silver, and iron; it is principally found in Germany, and some of the pieces of this ore present a very beautiful appearance. The sulphuret of antimony, or stibine, is the ore found in large quantities at Sarawak in Borneo, and also in Brazil, Cornwall, and other places. From this ore most of the crude metal is obtained by simple roasting, as it is very fusible. The sulphuret of lead is called by mineralogists galena (*which see*). The native sulphide of mercury is called cinnabar (*which see*). Silver glance is the sulphide of that metal, a common and very valuable ore in Mexico, Peru, and the United States of America, and also occurring, associated with galena, in Germany, Bohemia, and other places. Zinc blende is the sulphuret of zinc, called black-jack by the miners on account of its brilliant black colour. It is very commonly associated with galena, and, though it would seldom be worth working for its own sake, forms an addition to the returns of many of the lead mines. Besides these mineral compounds, sulphur combines with carbon, forming a disulphide, *i.e.*, two atoms of sulphur to one atom of carbon. This disulphide of carbon is an extremely volatile liquid, considerably heavier than water, which boils at 118° Fahr., and is a solvent for oils and fats, sulphur, iodine, bromine, and phosphorus. It has a very high refracting power.

Sulphuretted Hydrogen. — A gas formed by the combination of two atoms of hydrogen with one of sulphur. It is best prepared by putting some small pieces of the protosulphuret of iron, otherwise called ferrous sulphide, in a glass flask, filling it about half full of water, and then pouring through a funnel which passes through the cork a little sulphuric acid, so that there may be about one part of acid to six parts of water. The tube of the funnel must pass below the surface of the water, so that none of the gas generated shall escape through it. A second tube must pass through the cork to carry off the gas into a receiver. The operation should be conducted in a chamber fitted with a ventilating shaft, as the gas is offensive in smell, and if breathed in quantity it is injurious. The smell is similar to that of rotten eggs, and a very small quantity of the gas will be sufficient to impregnate the air of a large room. Water will absorb about three times its own volume of the gas, and it is in this form that sulphuretted hydrogen is principally used in the chemical laboratory. Certain metals, silver, bismuth, mercury, lead, copper, gold, platinum, tin, antimony, and arsenic, may be precipitated from their acidulated solutions by sulphuretted hydrogen; while the salts of iron, cobalt, nickel, manganese, zinc, alumina, and chromium are not precipitated. Hence it is customary in the analysis of minerals to employ sulphuretted hydrogen as a means of separating any of the former class of metals from those of the latter. Sulphuretted hydrogen is often produced spontaneously, and escapes as a gas from fissures in rocks, or saturates the springs of water, as at Harrogate, Aix-la-Chapelle, Castellammare, and other places. The smallest trace of sulphuretted hydrogen has the effect of blackening the salts of lead; hence lead paint and pictures are often found to get discoloured.

Sulphuric Acid, or Oil of Vitriol, is the most important of all the acids for the variety and extent of its uses. It is manufactured on an immense scale in England, Scotland, and Germany. The consumption in this country considerably exceeds 100,000 tons annually, in addition to which a great deal is exported to foreign parts. In making the acid on a large scale, sulphur, or pyrites, is burned in a current of air in furnaces. In the stream of heated gas is suspended an iron pot containing a mixture of nitrate of soda and sulphuric acid. Vapours of nitric acid are thus set free, and these pass on, mixed with sulphurous anhydride and excess of atmospheric air. The mingled gases pass into immense chambers constructed of sheet-lead supported by a framework of timber. A shallow layer of water covers the bottom of the chamber, and the intermixture and chemical action of the gases are further promoted by injection of jets of steam from a boiler. The nitric acid vapours become reduced to nitric oxide, and this again takes up oxygen, thus changing into the peroxide, which, when mixed with sulphurous anhydride and a large quantity of water, furnishes sulphuric acid and nitric oxide. The sulphuric acid which collects at the bottom of the chamber is concentrated by evaporation in shallow leaden pans till it attains a specific gravity of 1·72, when it forms the brown sulphuric acid of commerce. In

this state it is largely employed in making manures, and for converting common salt into sulphate of soda, a necessary step in the alkali manufacture. When more highly concentrated acid is required, it is distilled over in platinum stills, as lead would melt at the heat needed in this part of the process, and any other available metal would be attacked by the acid. When the boiling-point has reached 640° Fahr., nothing but the concentrated acid remains. The oil of vitriol of commerce is a dense oily colourless liquid without odour, and of a specific gravity of 1·842. It is intensely caustic, and chars almost all organic substances. If exposed to the air it increases in weight considerably by absorbing watery vapour, and hence it is necessary that it should be kept in closely-stoppered bottles. At Nordhausen, in Germany, the fuming sulphuric acid, commonly called Nordhausen acid, is made by the distillation of dried sulphate of iron or green vitriol. Sulphuric acid combines with many of the elements, forming sulphates and sulphites (*which see*).

Sulphuric Ether. (*See* ETHER.)

Sulphurous Acid.—Sulphurous acid gas is evolved when sulphur is burnt in the air. It has a pungent and suffocating odour, familiar to travellers in the Underground Railway; in a concentrated form it cannot be breathed, and in a diluted state it excites the symptoms of a cold in the head. It exercises a powerful bleaching action, though without actually destroying the colour, as that can be restored by the application of an alkali. Flannels, sponge, silk, isinglass, and many other articles which would be injured by chlorine, are bleached by suspending them in a damp state in a closed chamber, and then exposing them to the action of this gas. It is also used for stopping infection. (*See* FUMIGATION.) By its action meat is also preserved from putrefying for a while; and it is frequently employed to check fermentation in cider and home-made wines, for which purpose a little sulphur is burnt in the cask before filling it with the liquor. The gas is very destructive to vegetation, and hence the barrenness of the neighbourhood all round any works where large quantities of sulphur or pyrites are roasted. It is absorbed by water, which is thus converted into sulphurous acid, and this combines with other elements to form sulphites.

Sultana Raisins. (*See* RAISINS.)

Sumach.—The *Rhus radicans* of botanists, belonging to the natural family *Anacardiaceæ*, was originally a native of America, but is now common in our own country, it being very easily cultivated, and being one of the prettiest creepers we possess. The leaves are beautifully green in summer, and change to scarlet in the decline of the year. It is also known by the name of Virginian creeper.

Summary Convictions. — Summary proceedings, directed by several Acts of Parliament for the conviction of offenders and the inflicting of certain penalties created by these Acts of Parliament. In these proceedings there is no intervention of a jury, but the party accused is acquitted or condemned by such person only as the Statute has appointed to be his judge, and who is usually the magistrate or bench of magistrates, and who are said to possess in these cases a summary jurisdiction.

Summary Jurisdiction. (*See preceding paragraph.*)

Summer Drinks.—During the hot summer months, when it is advisable to abstain as much as possible from heating, stimulating liquids, the beverages known as summer drinks are very acceptable and refreshing. Soda water, ginger beer, lemonade, and sherbet are among those best known, though many others equally nourishing are made from milk, fruit, herbs, and other ingredients. The acid substance that forms one of the principal features in summer drinks tends to allay thirst, and is also when taken in moderation cooling and invigorating to the system. All acids employed, however, should be of the best quality. Tartaric acid is very commonly substituted for citric acid, owing to its being cheaper, though the latter is the more wholesome and agreeable of the two. At one time a general opinion prevailed that acids, especially vinegar, were preventives of obesity; consequently vinegar was taken in large quantities by those who wished to reduce their size and weight, leading, of course, to most disastrous results. Vinegar, citric acid, tartaric, and all other acids are powerful in their effect upon the system; they should only be taken in small quantities, and even then not too frequently.

Summer-house.—The summer-house is constructed of either rough unbarked timber, or of planks and posts. Its flooring should be sufficiently raised above the ground to allow the air to pass beneath it; the slope of its roof should be one that will allow rain to run off it readily; and its site should be, as a rule, dry and shady, and well protected from cold winds. It is best to erect it on either piers of brickwork bedded in mortar, or strong posts, the former being of course the more durable. These supports, whether of wood or brick, should not be more than five feet apart. The best roof will be found one that slopes to the sides from the centre. Trellis-work is very popular amongst the constructors of summer-houses, and this may be purchased ready made in the yards of most suburban timber-dealers. It is a good plan to protect the roof from wet by a covering of felt, over which a thatching of straw or reeds has a pretty rustic effect. Copper wire is used in this case for fastening the reeds in their places.

Summing up.—A judge's charge to a jury, in which he recapitulates the evidence given on either side, commenting as he goes on upon the character and effect of the same as influencing the issue raised between the parties, and to guide the jury in their verdict.

Summons.—The process used to compel appearance in court; a call of authority; a citation.

Sumpter. — This is a term of military origin applied to horses and mules used for the conveyance of baggage. They were sometimes called bat-horses, a term derived from the *bat de mulet*, or pack-saddle.

Sun Blinds. (*See* BLINDS.)

Sun, Eclipses of the. (*See* ECLIPSES.)

Sun-dials. (*See* DIALS.)

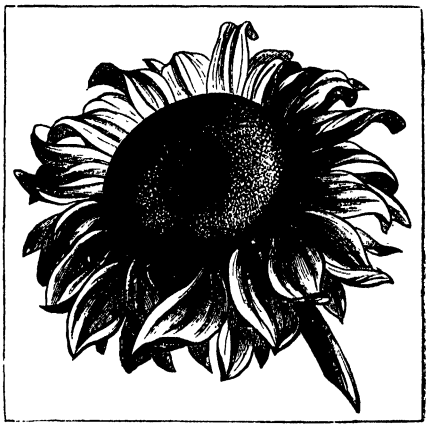
Sunburn.—This is the effect of the sun's rays upon the skin of the face, hands, &c. Some people are much more easily sunburned than others, and have to take extra precaution, as wearing a mask, for example, when much exposed. For the treatment of mild sunburn, nothing more is requisite than the application of cold cream or glycerine, or a lotion made from elder-flowers and buttermilk. When more severe, Goulard water kept constantly applied, and retirement in a cool shaded room, are requisite.

Sunday.—The first day of the week, and the Christian Sabbath. (*See* SABBATH.) This day was consecrated to the sun by the Teutonic races in heathen times.

Sunday Laws.—By 29 Char. II. c. 7, it is enacted that no tradesmen, artificers, workmen, labourers, or other person whatsoever, shall do or exercise any worldly labour, business, or work of their ordinary callings upon the Lord's Day, or any part thereof (works of charity and necessity alone excepted). By the Sunday Observation Prosecution Act, 1871 (34 & 35 Vict. c. 87), it is provided that prosecutions for offences under the Act of Charles II. shall only be commenced by the chief officer of police, or with the consent of two justices of the peace or a stipendiary magistrate; and no such prosecution shall be heard before the justices of the peace or stipendiary magistrate by whom or with whose consent the same has been instituted. (See also 21 Geo. III. c. 49, amended by 38 & 39 Vict. c. 80.) A contract of hiring and service for a year between a farmer and a labourer on a Sunday is not within the prohibition. The Workshop Regulation Act, 1867 (30 & 31 Vict. c. 146, s. 6), provides that no child, young person, or woman shall be employed in any handicraft on Sunday. A like provision is contained in the Factory Acts Extension Act, 1867 (30 & 31 Vict. c. 103, s. 7). But by the 34 Vict. c. 19, Jews are exempted from penalties under these Acts in respect of young persons and females professing the Jewish religion. A bill of exchange drawn on Sunday is not void. The owner of a stage-coach is not within the Statute, nor are railways. Arrest on civil process cannot be effected on Sunday, but an arrest for crime can.

Sunfish.—1. A sea-water fish (*Orthagoriscus mola*) belonging to the family *Gymnodontidæ*. It is remarkable for the shape of its tail, which is so short that it appears like the anterior half of a large fish cut in two. 2. A fresh-water fish (*Pomotis vulgaris*) of brilliant colour found largely in the United States.

Sunflower.—The *Helianthus annuus* of the botanist is our common tall sunflower, well known from its great gaudy yellow flower. It was formerly a native of Mexico and Peru, but after the discovery of America was introduced into our own country, and is cultivated in our gardens for the sake of its bright flowers. It never, however, attains the same height in England which it does on its native soil. The seeds are very rich in oil, which is very pure



SUNFLOWER.

and palatable, and might be used for the table. Fowls may be fattened with its seeds, of which also many other of our domestic animals are very fond.

Sunshade. (*See* PARASOL.)

Sunstroke.—This is also called insolation, *coup de soleil*, and heat apoplexy, and is a condition which appears to result from exposure to excessive heat with a dry atmosphere, and chiefly affects those who from privation, overfatigue, intemperate habits, and other causes, are out of health. Sunstroke sometimes kills suddenly, the affected person falling down as in a fit of apoplexy, and dying in a very short time. In other cases, where there is a tendency to recover from the primary shock, the disease frequently terminates in some form of paralysis or insanity. A few cases perfectly recover. The symptoms of sunstroke are cessation from perspiration, excessive thirst, faintness, difficulty of breathing, followed by lividity of the face, stertor, insensibility, and frequently death. The treatment consists in adopting every contrivance for lowering the temperature of the body; copious affusion and douching the whole body with iced water, if this can be obtained—if not, with the coldest water procurable—will effect much. A blister may be applied a little later to the back of the neck, and stimulants, as ammonia and brandy, should be freely administered. Subsequently a mild purgative enema, followed by a strong one, as turpentine, may be given with advantage.

Superannuation.—The act of relieving on account of age some one who has filled a certain office, often accompanied by a retiring allowance or pension. The term is also applied to exemption from duty in the case of persons who are of a certain age.

Superfluous Hair, To Remove.—This may be accomplished by means of a razor, but as the hair in that case grows again, the remedy is not satisfactory. Isolated hairs can readily

be removed by means of a pair of tweezers. When an abnormal growth of hair is due, as sometimes it is, to actual disease or derangement, it may disappear again under medical treatment. In ordinary cases of superfluous hair it is very common to resort to depilatories, or preparations the effect of which is to destroy the offender. Professor Erasmus Wilson says:—"The ordinary components of depilatories are quicklime, soda, and a combination of sulphur and arsenic. When misapplied, or allowed to remain on the skin too long, they are apt to excite inflammation, and therefore require to be used with care." The objections to depilatories in unprofessional hands are such that we hesitate to give any of the numerous prescriptions for their composition. (Some further information on the subject will be found in "Cassell's Household Guide.")

Superintendent Registrar.—By the Act commonly known as the Registration Act (6 & 7 Wm. IV. c. 86), the country is divided into registration districts, in each of which a district registrar officiates; but there are also superintendent registrars, who are usually the clerks to the guardians of the poor, by which guardians he is appointed. The Act directs him to make indexes to register books, to allow searches, to send certified copies to the registrar-general, to have custody of office and registers, to see that books are correct, to make out account four times a year, to allow marriages at his office, when he must sign the register. His duties in relation to marriages in particular are important, for he receives notices of marriages under the Act, issues certificates and licences, &c. As his title implies, he is the principal registration officer of his district, and may appoint deputies. He is also the medium of communication with the registrar-general, and receives reports of district and other registrars.

Supernumeraries.—A supernumerary is an extra officer of any kind, who is liable to be called upon to fill temporary vacancies arising from ill-health or other causes which render such an expedient necessary.

Suppers, which were so popular with our ancestors, are gradually disappearing before the late dinners of modern days. In the olden times supper was a most important affair, and was served with state and ceremony. It was really nothing less than a second dinner; the members of the family partook of it together, and it was not unusual for a parting cup to be handed round the table just before the company separated. It would be a mistake, however, to suppose that supper was always a *late* meal. The Romans, we are told, supped at three o'clock in the afternoon, and the gentry of Elizabeth's time used to dine at eleven, and sup between five and six. No argument, therefore, in favour of late suppers can be drawn from the customs of our forefathers. There are many people who are very decided in their adherence to the evening meal, declaring that, taken as it is in quietness and rest, when the business and worry of the day are over, it is the most enjoyable of repasts. Medical men are, as a rule, opposed to it, and are of opinion that a heavy supper taken just before going to bed is most injurious. Dr. Pavy says: "During sleep there is a diminished activity of all the bodily functions, and the condition is not favourable for the due performance of digestion. He who retires to rest with a full stomach is fortunate if he escape passing a restless night, being troubled with dreams, and rising in the morning with a foul mouth." Another medical authority says: "Objectionable as it is to go to bed with a full stomach, it is also objectionable to go to bed with an empty one. Restlessness and sleeplessness accompany repletion; they also accompany fasting. The student or literary man whose labours continue far into the night should therefore be careful to have some light nourishment some time before he retires." The question, therefore, as to whether supper is to be taken or not must be determined by circumstances and the habits of life. Supper is bad only when it is a superfluity. Those who dine late require no supper; those who dine early, or who take exercise in the evening, may certainly require it. The chief point requiring attention is that when supper is taken it should be of the lightest and simplest description. A small quantity of farinaceous food which may be easily digested is all that is required. For instance, for school boys and girls who have dined early, a light repast of bread and milk or milk porridge would be preferable to the very usual supper of bread and cheese and beer. As the dishes at supper-time are usually served cold, the laying out of a supper table affords an opportunity for the exercise of good taste and ingenuity. Flowers are an appropriate adornment of the supper table. In elaborate suppers, such as are given in connection with evening parties and balls, flowers should be liberally provided, and, prettily intermixed with fruit, should occupy the whole of the middle of the table. The dishes, too, should be elegantly garnished, and in colour and flavour should contrast agreeably with each other. The details of their arrangement and character must of course be regulated by the size of the room and the number of the guests. Sometimes, as a matter of convenience, a supper is what is called a "standing" one—that is, the guests stand instead of sit while partaking of the viands. When this method is adopted, game and poultry should be cut up into neat pieces, and meat sliced, and everything arranged so that it can be served without much trouble.

Supplies, Committee of Supply.—The sums granted by Parliament for defraying the public expenditure of the current year. The known or probable amount of the different branches of the year's expenses is stated in the House of Commons in a committee of supply, which is always a committee of the whole House; and after they have been voted by the committee, they are formally granted by Act of Parliament. The granting of the annual supplies, as well as permanent taxes, is a peculiar privilege of the House of Commons, which never permits any alteration or amendment to be made by the Lords in the Bills passed for this purpose. The grants of Parliament were originally considered merely as temporary aids to assist the Sovereign in defraying such extraordinary expenses as he was subject to for the benefit of the public; and unless the Commons happened

to entertain at the time any particular jealousy of the crown and its Ministers, the sum granted was commonly left entirely to their disposal. But after the restoration of Charles II., not only were more frequent grants demanded, but in consequence of the poverty to which the crown was reduced, parliamentary grants had become really necessary almost every year. It was impossible, however, for the Parliament, distrusting not only King Charles's economy, but his regard for the interests of his kingdom, to vest considerable sums of money in such unsafe and improvident hands; it was therefore thought requisite to specify the purposes for which each sum was voted. Thus appropriating clauses came to be introduced, which practice has continued ever since; and at the commencement of each session an account is presented of the disposition of the grants of the preceding session, showing how much has been actually paid to each branch of the public service, what remains unpaid of the sums appropriated, with the funds for discharging the same, and the surplus or deficiency of the ways and means. (*See* PARLIAMENT.)

Supply and Demand. — In political economy, the principle of supply and demand is one of considerable importance, as much depends upon the equilibrium of the two. If the question is of labour, inconvenience arises in all cases where the supply or the demand are not in equal proportions; in commerce, also, the prices of goods are greatly influenced by an excess of demand over supply, or by an excess of supply over demand. It has been often said that a demand creates a supply, and naturally it does so by the increase of prices or profitable returns; and the same is true of the supply which creates a demand, but often by the reduction of prices as much as by providing for a real want. Wherever there is inequality there is inconvenience of some kind, and the problem is either to prevent such inequality altogether, or to diminish it as much as possible.

Surcharge, Surcharge and Falsify. —The term surcharge indicates overcharge, or over and above the regular amount. "Surcharge and falsify" is a term used in the Court of Chancery, and denotes the privilege, sometimes conceded to one party who disputes an account which the other alleges is settled, to scrutinise particular items therein without opening the whole account. The showing that credit has not been given for a particular item, where it should have been given, is to surcharge the account; proving an item to have been inserted wrongly is to falsify the account.

Surcoat.—The light coats made by tailors for gentlemen to wear during the very hot weather are sometimes know by the name of surcoats, though the more general name is dust-coats. They are made in dark colours, and also in greys of all shades, some of which are nearly white, many people entertaining the idea that anything white possesses the advantage of repelling the heat.

Sureties.—The contract or undertaking of a surety is a contract by one person to be answerable for the payment of some debt, or the performance of some act or duty, in case of the failure of another person, who is himself primarily responsible for the payment of such debt or performance of the act or duty. To the contract and engagement of suretyship it is essential that there be a principal or third party primarily liable, for there can be no accessory without a principal; if, therefore, no contract has been entered into with the third party on whose account the covenantor or promisor professes to act as surety, no liability attaches to the latter, as he cannot be made primarily liable upon a contract by which he has expressly imposed upon himself only a secondary liability as surety.

Surgeon.—Strictly speaking, a surgeon is one who is engaged in surgical cases; but ordinarily a surgeon is any one who is regularly qualified for general medical and surgical practice. By law the medical practitioner and surgeon must be registered, is authorised to practise in any part of her Majesty's dominions, and can recover in any court of law, with full costs, all reasonable charges for professional aid, advice, visits, medicines, and appliances supplied to his patients. But a member of the College of Surgeons, registered as a surgeon only, and having no further qualification, cannot recover for medicines in cases not requiring surgical treatment. Of course, regular medical practitioners generally have the further qualifications alluded to.

Surgeons, College of.—The Royal College of Surgeons dates its origin from the year 1460, although it was only founded under its present name in 1800. It is one of the three examining bodies in England whose diplomas are sought by the majority of medical students, the remaining two being the Royal College of Physicians (*see* PHYSICIANS, COLLEGE OF) and the Society of Apothecaries. Perhaps the most important medical qualification in this country, and that most sought after, is the membership of the Royal College of Surgeons, abbreviated M.R.C.S. In addition to this the college also grants the higher diploma of Fellow, abbreviated F.R.C.S.

Surgery, Domestic.—Every household should possess the following articles, in order to be able to render assistance in case of accident until a surgeon can be procured:—Adhesive plaster, one or two bandages, lint, oil-silk, cotton-wool, olive or carron oil (for burns and scalds), lunar caustic (for bites of animals), Goulard water, and linseed-meal. For other purposes not quite so urgent it is advisable to have zinc lotion for an eye-wash, zinc and basilicon ointment for sores, and soap and camphor liniment with laudanum for stiffness of joints and sprains when the acute symptoms have subsided. (*See* MEDICINES, DOMESTIC.)

Surgical Instruments and Appliances.—These are so numerous and varied that no attempt can here be made to give a list of them. Nor is it desirable, for from the lancet onwards scarcely a surgical instrument is of any use in non-professional hands; while, as regards surgical appliances, only the simplest are left to unskilled persons. In these days,

nurses who are regularly trained are taught the use of many surgical appliances, besides plasters, poultices, and common bandages, but even they refrain from touching surgical instruments in any form where an actual surgical operation is necessary. Sufferers may meanwhile be comforted by the thought that surgical instruments and appliances have reached an unprecedented degree of perfection, and that by their means relief can now be afforded in many cases which formerly were beyond the power of the surgeon.

Surmullet.—This is a fish called by the naturalist *Mullus barbatus*, belonging to the family *Percidæ*. It is probably better known to most of us by the name of red mullet (*which see*).

Surnames.—Children born in lawful wedlock take the surname of their fathers; illegitimate children take those of their mothers; adopted children may assume the names of their foster-parents; and foundlings are commonly named by those who become their guardians and protectors. When a woman marries, she loses her family name and takes that of her husband; the cases in which this does not appear to be done would probably not be recognised in a court of law. A widow and a divorced woman retain the names of their former husbands. A man may call himself by any name he likes; but if he really wishes for good reasons to change his name, he should have the change duly registered and published by having a deed drawn up and enrolled in legal terms in the Court of Chancery. In some cases a change of surname is effected by means of a royal licence granted for that purpose. For obvious reasons no one should lightly change the name which he received from his parents. It is, for example, important that a person should be able to establish his identity in case of succession to property; therefore if he changes his surname it should be in accordance with legal forms, and should be advertised in the public papers in some such manner as the following:—"I, M. N., of No. — (in such a street, of such a parish, and in such a county), esquire (or of such a profession), do hereby give notice that I intend henceforth to use and adopt on all occasions and at all times the name of O. in substitution of that of N., and that I have this day, as evidence of such my intention, caused a deed in the form prescribed by law to be enrolled in her Majesty's High Court of Justice, Chancery Division, so that the name or style which I shall henceforth use and be known by shall be M. O. and none other. Dated this —— day of ——, 18—. (Signed) M. N."

Surplice.—An ecclesiastical vestment made of fine thin linen, of cambric, lawn, or muslin, which is worn by all the clergy and sometimes by choristers when attending religious services. The forms adopted are various: some surplices descend to the feet, others extend half-way; some are made to hang in folds, and others have but little or no fulness. The shape of surplices worn by choristers always differs in a slight degree from those worn by the clergy. Strong cambric or fine linen is the most serviceable material for this vestment; muslin is only used for those worn by choristers, and for the purpose of showing a coloured cassock underneath. When cassocks are not worn, all surplices should descend to the feet of the wearers.

Surrogate.—One who is appointed or substituted in the place of another as by a bishop, chancellor, or judge. The term is usually applicable to the officer appointed to dispense licences to marry without banns.

Surtout.—The name given to a loose coat made to be worn over another, either for additional warmth or as a dust-coat in summer.

Survey, Ordnance. (*See* ORDNANCE SURVEY.)

Surveyors, District and Parochial.—There are several classes of public surveyors, such as: (1) The surveyors of boroughs and corporations; (2) the surveyors of local boards, whether parochial or district; (3) the surveyors of metropolitan parishes and districts, appointed by the local authorities; (4) the district surveyors of the metropolis, appointed by the Metropolitan Board of Works. The duties and powers of these are varied and important. In the case of boroughs and corporations they depend sometimes upon special Acts of Parliament and the peculiar privileges of the authority they represent; the duties of surveyors in many cases are laid down by the Public Health Act of 1875; the metropolitan surveyors of all kinds are very much regulated by the Acts under which the Metropolitan Board of Works exists and is empowered. In the metropolis the surveyors of the local boards are in charge of roads and footways, public lamps, sewers, numbering of houses, and many other matters affecting the externals of dwelling-houses, &c. The district surveyors of the Metropolitan Board are architects, and their domain includes questions of structure, materials, and all that class of work.

Suspended Animation. (*See* ANIMATION, SUSPENDED.)

Sussex Cheese. (*See* CHEESE.)

Sussex Pudding. — This pudding is usually made when a joint of meat is being roasted, and is intended to be served with it. A paste is made of flour, salt, and water, forming a dough similar to that of which bread is made. This is rolled in the form of a bolster, tied in a cloth, and boiled. When sufficiently cooked it is taken up and cut into slices, and these are put into the dripping-tin under the roasting joint. When soaked with dripping and slightly browned, the slices are ready for eating.

Sutherland Table.—This is a useful and ornamental piece of furniture, constructed with two semi-circular flaps supported by two legs of the table, which flaps when pulled out make it of oblong shape. These tables are chiefly made in mahogany, and vary in price from thirty shillings up to almost any amount, some tables of this description being made of a very expensive character.

Suttee.—Until within the last half century the practice bearing this name was prevalent

in India amongst the Hindoos. It was the universal custom for a widow to be burnt in the funeral pyre of her husband; and should he die at a distance from her, it was considered to be her duty to immolate herself on a pile prepared for her. This sacrifice of life was said to be enjoined by the sacred books of that people. The cruel custom has at the present day been effectually stopped, in the first instance, by the powerful exertions of the East India Company. Notwithstanding this exemption from a painful and ofttimes early death, the position of Hindoo widows is an exceedingly miserable one; they are despised and degraded by their next of kin, and are compelled to be household slaves, and in all instances thrust on to a lower level. The word suttee is said to be a European corruption of the Sanscrit word *sati*, a good or virtuous woman.

Swans.—The large and beautiful white birds (*Cygnus*) which are seen on ornamental waters in this country are found in their wild state in the eastern parts of Europe and Asia. Their food consists of vegetable substances, aquatic plants, and fish-spawn. Their length of bill is equal to their length of head, and there are twenty-three vertebræ in their neck. They possess great strength of wing, and are remarkable for their longevity. In England, swans are held by law to be birds-royal; the wild birds are Crown property, and a fine of five shillings can be inflicted on the person who takes a swan's egg. At one period the swan, like the peacock, was served at table on great occasions, and formed a principal dish at banquets. The swans found in Australia are black, with bright red bills; these are smaller birds than the white ones. In South America a black-necked swan is found. Swans are members of the duck family, but form a very distinct class in that genera.

Swansdown.—This is imported to England from Dantzic and the Baltic; it is obtained from the wild swans which are found in those parts and also abound in the cold regions of Iceland and Lapland. The skins are dressed with the down on them. Swansdown was at one period used for muffs and tippets; in the present day it is used principally for trimmings, chiefly of infants' cloaks and children's coats, for which the delicacy and extreme softness of its filaments render it particularly appropriate.

Swanskin.—A peculiar kind of calico which is valued because of the extra warmth it affords. One side of the material is fluffy and bears a resemblance to swansdown, hence its name. This peculiarity is obtained by the cotton fibres being pulled to the surface like the wool in flannel, and thus forming a kind of nap. Ordinary calicoes are made particularly smooth by the ends and loose threads being burnt off. Swanskin calico is used for vests and drawers. For persons subject to rheumatic affections, or who are otherwise delicate, and for children, this kind of calico is very serviceable.

Swearing.—Profane cursing and swearing are punishable under the 19 Geo. II. c. 21, which imposes on conviction thereof a fine of one shilling if the offender be a labourer, common soldier, or common seaman; two shillings on every other person under the degree of a gentleman; and five shillings on any person of or above the degree of a gentleman. By an Act of the reign of Geo. IV. (4 Geo. IV. c. 31), the provision which the former Act contained for reading the said Act four times in each year in all churches or chapels was repealed.

Sweating.—In addition to its regular meaning this word is in trade descriptive of the practice of those employers who by systematic pressure keep down the prices or wages paid to poor men and women, especially for making articles of wearing apparel. To the purchaser the result is usually a very inferior article, and one upon which, cheap as it may seem, a succession of profits has been made. To the victims of this miserable system the results are necessarily extreme poverty and misery, and not seldom drunkenness and vice of all descriptions, and often positive crime. There is another use of the word sweating which should be recorded, although the practice it describes is much less common than when "sweating of guineas" was oftener talked about. "To sweat coin," says Webster, "is to remove a portion of a piece of coin, as by shaking it in a bag, so that the friction wears off some of the metal, and so that the diminution of the value is not readily perceived." The strictness of modern bankers in weighing gold has doubtless done much to lessen the frequency of this sort of craft.

Sweating (Perspiration).—This is the natural secretion or excretion of the skin. (*See* SECRETIONS; SKIN, TREATMENT OF.)

Sweeping Brushes.—In providing sweeping brushes for household use it is necessary to be supplied with all kinds, to suit the different work that has to be performed. The long soft brush is used for sweeping stone flooring, or for rooms or halls that are covered with oil-cloth. Brushes with the hard bristles are used for sweeping carpets, and these may have either the long handle or short, as preferred. In sweeping good carpets, such as Brussels and other expensive varieties, a soft pliable brush should be chosen in preference to a very hard one, as very hard stiff bristles would be likely to wear out the carpet. A hard brush with a short handle is used for sweeping stair-steps covered with carpet, and a long Turk's-head broom is valuable for sweeping walls and ceilings. In the absence of one of these, a clean cloth may be fastened round an ordinary sweeping brush, and this as far as it can reach will answer the purpose very well.

Sweeping Chimneys. (*See* CHIMNEYS, CLEANING.)

Sweeping Rooms.—Rooms that are used constantly should be well swept every day. Bedrooms should be swept thoroughly every week, and a certain day should be set apart for the regular performance of this duty; besides this the "pieces" should be taken up daily

with a brush and dust-pan. Before beginning to sweep a room, all the pieces of furniture that are movable should be moved, so that the carpet can be swept under and behind them. The window-blind should be drawn up as high as it can be to keep it from getting dusty; all loose articles should be put away, all covers folded up, all curtains pinned up and put into bags. Besides this, dust-covers should be thrown over the large pieces of furniture. A few old tea-leaves should now be sprinkled lightly over the carpet, and the sweeping process may commence. A long-handled broom is not to be recommended; a short-handled brush with long and moderately-stiff bristles is better for the purpose, and the sweeper should go down on her knees and go thoroughly into all the nooks and corners where the dust would be likely to lodge, being careful only not to knock the paint or furniture with the end of the brush. The sweeper should always commence from the far end of a room and sweep towards the door. Inexperienced persons sometimes sweep towards the fireplace, and in this way they not unfrequently spoil the fender and fire-irons with the moist tea-leaves. When the sweeping is done, the dust should be allowed to settle for awhile before the room is dusted. It is always well to wash tea-leaves well and drain them before using them for sweeping; this will prevent their staining the carpet. They should be moist, or they will not slake the dust. If too wet they will convert the dust into a sort of mud, which will certainly spoil the carpet.

Sweet Balls.—These are sometimes carried in the pocket as a perfume. The following recipe for making them is given by Cooley:—Take of Florentine orris-root three ounces; cassia one ounce; cloves, rhodium-wood, and lavender flowers, of each half an ounce; ambergris and musk, of each six grains; oil of verbena ten or twelve drops. Beat them to a paste, form this into balls with mucilage of gum-tragacanth made with rose-water, pierce them while soft with a needle, and when they are quite dry and hard polish them. Some people varnish them, but that keeps in the smell.

Sweetbread.—The sweetbread, or pancreas, of all ruminating animals is a favourite article of food, but that of the calf is most esteemed. There are two sorts—heart sweetbreads and throat sweetbreads. The former are the best and also the most expensive. Sweetbreads should be chosen as fresh as possible, and cooked at once, as they very quickly spoil. There are various ways of cooking them, but in all cases they require to be first soaked in cold water for two hours. In price they vary very much according to the time of the year; their best season is from May to August. The flavour of the calf's sweetbread is perhaps more delicate than that of any other meat, and it is usually accompanied by a highly-seasoned sauce. Opinions vary with regard to its nutritive qualities.

Sweet Herbs. (*See* HERBS, SWEET.)

Sweets.—Under the term sweets are included all the various preparations that, strictly speaking, come under the name of confectionery, a class of food which takes its place on the table after the removal of the meat courses and during dessert. Pies, tarts, puddings, dry and liquid fruit, jellies, candies, custards, blanc-manges, and innumerable other preparations may all be thus named. In addition to these, all the drops, lozenges, sugar-sticks, toffees, and substances made by boiling sugar have the same name, so that there are few words that have a much wider meaning. For further particulars, *see* CONFECTIONERY; DESSERT.

Swellings.—These are of various kinds, and are very frequently due either to inflammation or to some morbid growth. Those considered of any importance will be found described in this work under their respective headings.

Swimming.—This manly accomplishment cannot be regarded merely as a pastime or gymnastic exercise, for it is one of the most essential features in physical education. While indulging in one of the most healthy and invigorating of all exercises, the swimming expert is also in the pleasant position of being able to save from drowning not only himself, but also any others whose lives may be in danger. It has sometimes been said that swimming is hazardous to persons of weak constitution; but this has been repeatedly denied by medical men, who assert that the exercise is in every way healthful unless in cases of actual disease, or when indulged in to excess. The best time for practising swimming is in the morning, an hour or two after sunrise; but bathing or swimming on an empty stomach is not advisable. Before starting for the water, a cup of coffee and a crust of bread or a biscuit should be taken; more than this is unnecessary and harmful, for bathing after a full meal is especially injurious. It is well to take a sharp, brisk walk, bringing the body into a healthy glow, before stripping, then to undress quickly, and plunge in while the blood is still coursing freely through the veins. Swimmers should always enter the water by diving, and beginners should dip their heads directly after entering the water, otherwise the blood will be driven too rapidly to the head. The bather should never remain long in the water—from ten minutes to half an hour at the outside is amply sufficient for any one—or the body will get chilled. The beginner should also beware of taking too long a swim before he becomes expert, and a master of various styles of swimming; the overtasking of feeble powers induces cramp. And now as to learning to swim. There are many mechanical aids to the art which may at times be of service in the absence of all other help, but they are none of them free from objection, and resort to them cannot be recommended unless no other assistance is forthcoming. Among the most ancient and worthless of these contrivances are cork floats or buoys. They usually consist of several circular pieces of cork of various sizes, fastened together by a strap or thong of leather, the larger pieces in the centre, and the rest tapering off at top and bottom. Two of these floats are used by

each person, and are fastened under the armpits, so that the chest rests upon them in swimming, and the head and shoulders are thus buoyed up in the water. The contrivance is, however, not only awkward and cumbersome, causing the learner to contract a clumsy and defective style of swimming, but it is also a source of danger, for the floats are very liable to slip from their position, and suddenly plunge the head beneath the water in such a manner that the wearer cannot rescue himself. Better than these are the ordinary cork jacket and life-belt; but beginners cannot be too strongly recommended to start without any of these contrivances, in full confidence in the theory of the art —*i.e.*, that the specific gravity of the body is less than that of water, and consequently that the body, if left to itself, with the limbs in a proper position, will float of its own accord. Supposing, then, that the learner is about to make his first effort without either personal or mechanical assistance, he should first take up his position in water about breast high. The head must be held up and thrown backward, the chin being kept well clear of the surface of the water; the chest must lean, as it were, upon the water, being well inflated with air before the stroke is taken; and while the chest is thrown well forward, the back should be hollowed, so that all the muscular power of the body may be exercised in the forward motion. These movements, the work of a second in execution, are preliminary to the stroke itself, which is performed in the following manner:—



Fig. 1.—BEFORE THE STROKE.

Bring the hands together a few inches below the surface, and a little in advance of the chin, the elbows being bent below the stomach; the fingers should be quite close together, and the palms slightly concave. Now extend the hands forward as far as possible, and, when the full distance is reached, separate them with the palms downward, and *sweep* the water backwards in a half circle. The elbows thus come back to the body, and the hands are brought quickly together as before, the edges only being presented to the water until the hands meet. While these movements are being performed by the arms, the legs have their part to play as follows:—At the moment when the learner's arms are first thrown forward, as described, he will find his legs rising towards the surface; the knees should then be bent forwards, so that the legs may be thrown well out behind; the feet should be kept apart, and the toes turned out. When the hands have made their sweep, the legs are thrown downward and sideways by a vigorous effort, the stroke of the legs thus *alternating* with that of the arms, and the movement of both arms and legs being so timed that the legs are fully extended out behind at the moment when the arms are stretched straight forward. The movement of the legs is performed with more celerity than that of the arms, and their action must be timed accordingly, remembering that, in preparing for each

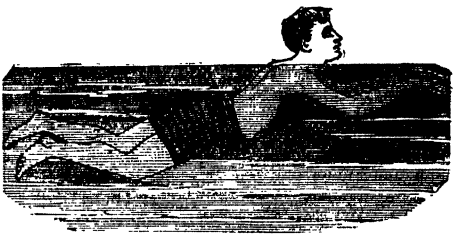


Fig. 2.—AFTER THE STROKE.

stroke, the legs and the arms are both drawn back towards the body at the same instant. Figs. 1 and 2 will further explain these instructions. Fig. 1 shows the position of the swimmer in the water just before the stroke is made, and Fig. 2 the attitude when the limbs are fully extended, the arms being just about to make their sweep. There are several other modes of swimming which may be practised as changes from the ordinary method of progression. The chief of these are *swimming on the side*, and *hand-over-hand* swimming, the former of these being the style usually adopted in swimming races. It may be described as follows:—Turning on either side, the swimmer throws out the undermost arm along the water, and, with the palm of the hand hollowed out for the purpose, scoops or drags the water towards him. The action of the legs is much the same as in ordinary swimming, and the uppermost hand is used at the same time as the legs in pressing back the water. The stroke of the legs must exactly alternate with that of the foremost arm. *Hand-over-hand* swimming consists in swinging the hands, one after the other, forward out of the water to as great a reach as possible, then dragging the water backward to the hips, each leg striking out alternately as soon as the arm on the same side has completed its movement. The whole movement of the arm describes an oval figure, of which the lower part is in and the other out of the water, while the shoulder forms the centre. After being thrown forward, the hand, as it reaches the surface of the water, is turned edgewise, so that it encounters little resistance on entering the water, but it is immediately afterwards turned with the knuckles upward, and the palm hollowed out, as in side-swimming. It has been previously remarked that the best method of entering the water is by *diving*. In diving, the hands of the swimmer should first cleave the water, as if the head comes first in contact with it, the liquid has sufficient resisting power to render the concussion injurious. The hands should be placed together as when they are pushed forward in swimming prior to the stroke; and when thus placed, they should be extended in front of the head to cleave a passage for it before it reaches the water. With

the body bent, as shown in the illustration (Fig. 3), the diver enters the water with a plunge and



Fig. 3.—POSITION FOR DIVING.

a spring from the toes. After the spring he straightens his legs, and at the moment of total immersion he swoops, as it were, in an upward direction, when the buoyancy of the water assists the body in regaining the surface immediately. In deep water the body, on the completion of the dive, assumes the position shown in Fig. 4, a dive of this description being known as a "header." When diving in very shallow water, the plunge must be taken in a slanting direction, and the head should dip but little below the surface, the body slanting upwards again almost immediately after immersion. The diver should be careful never to take a "header" in water only a few feet deep. This is a very dangerous proceeding, and has sometimes been attempted by swimmers with fatal results. *Floating* is a most useful branch of swimming, and is very easily



Fig. 4.—A "HEADER."

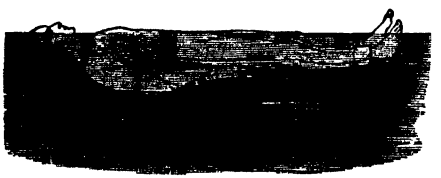


Fig. 5.—FLOATING.

acquired, as all that is wanted is the knack of getting readily into position. In order to float, the swimmer must lean back in the water, throw the head well back, leaving the mouth and chin above the water, and extend the arms as far as they will reach behind the head. The great thing in floating is to remember to let the chest play its proper part, and be inflated to its fullest extent; for this purpose as much air as possible should be inhaled into the lungs, and when the air is expelled in respiration, a deep breath must again be drawn immediately. Floating is of utility to the swimmer principally as a means of relief from the active exertions required in swimming, enabling him to rest without leaving the water; it may also be of the greatest service in time of danger, whether arising from cramp, from over-fatigue, or from sudden immersion.

Swimming Baths.—Almost all large towns are now provided with swimming baths, and novices in the art of swimming would do well to practise in these rather than in open water. Baths are usually attended by experienced persons, from whom lessons may be obtained, and whose help is always available in cases of emergency, so that the learner may there disport himself with more real safety and with far greater confidence to himself. Swimming baths, with their well-appointed dressing-rooms and equable temperature, are also especially welcome to persons of weak constitution, who find the varying temperature of a river, and the wet cold banks for a dressing place, insuperable obstacles in the way of a morning swim.

Swing Glass.—A glass for the toilet, suspended between a pair of pillars, so that it may be placed at certain angles convenient for looking up or down into it, or to suit persons of different heights. They are sometimes made upon a stand containing drawers, and at other times stand upon a slab of wood, veneered and otherwise decorated.

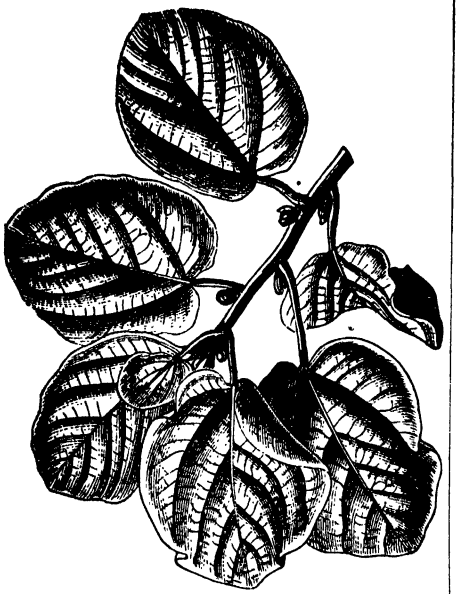
Swiss Lace.—This is a thick and strong description of lace, chiefly fabricated at Neufchâtel; it closely resembles that made at Lille. The disadvantage attached to it is that it is apt to become thick and close when washed. Curtains made of this lace are extensively used, and also short blinds to put across the lower part of windows. Imitations of this lace are made at Nottingham, and these are exceedingly cheap, as they are manufactured of coarse cotton, and the fabric being of an open kind it is quickly executed.

Swivel.—Many articles, distinguished by the fact of their turning upon a pivot, receive this name, which is also applied to a small cannon capable of being turned in every direction; to the iron rings by which a strap is attached to a gun for the purpose of swinging it across the bearer's shoulders; to a species of large link in an iron or metal chain made to revolve upon an axis; to an upright piece of wood fixed in the bows of a boat; and in a general way to any article turning upon a pin or shift.

Swoon. (*See* FAINTING; SYNCOPE.)

Sycamore.—A deciduous tree of the maple family (*Acer Pseudo-platanus*), the wood of

which is largely used in turnery, and for other purposes. The name is also given to a species



BRANCH OF THE *FICUS SYCOMORUS*.

of fig-tree (*Ficus sycomorus*) which grows abundantly in the East.

Syllabubs.—These delicious sweet drinks are composed of wine, sugar, milk, cream, and flavour. The various methods of making them are very numerous, some being much richer and more complicated in their composition than others. As well as being delicious in taste, syllabubs are usually made to form a pretty ornamental dish. The snowy froth with which they are covered is often slightly coloured by being mixed with melted red or black currant jelly, which has a very pleasing effect. Syllabubs are generally made the day before they are wanted.

Symbols.—Speaking generally, a symbol is a figurative representation, or some sign whereby one thing is made to signify another. The word is commonly identified with emblem, but it goes further and includes verbal signs and devices, and there are other differences which are not easily enumerated. A hand may be a symbol of man; a hand issuing from clouds may symbolise Deity; an eye and an ear may be symbols of knowledge and attention, &c. In theology, a creed or catechism, as representing Christian faith and duty, is called a symbol; and properly so, because the essence of the symbol is not only in being comparative or suggestive, but in being a compendium. Hence Coleridge says it is "a sign included in the idea it represents; *e.g.*, an actual part chosen to represent the whole, or a lower form or species used as the representative of a higher in the same kind." Certain signs and equivalents in mathematics are called symbols. Nearly all the details of Gothic architecture and of churches are by some said to be symbolical, *i.e.*, representative of something higher. (*See* EMBLEMS.)

Sympathy.—Fellow-feeling; that mental condition wherein one so enters into the wants and sufferings of another as to feel kindly towards him. The term has other applications: thus, an audience may have sympathy, or be called sympathetic, either when it is kindly disposed towards speakers, performers, &c., or when it is prepared to receive favourably the words, music, &c., which it has come to hear. Another kind of sympathy, well known to professional men, is observed when an affection of one organ produces disorder in another, or when the illness of one person causes illness in another. There are other forms of action and reaction, or reciprocal action, which are described as sympathy, as when two inanimate substances have such an affinity for each other, as loadstone and iron, the relation may be called sympathy. We even hear of sympathetic ink (*see* INK, INVISIBLE), so styled because its colour can be developed by appropriate agents.

Symptomatic. — This word is used of sundry ailments when they are not so much diseases as the results of disease, the presence of which may or may not be known. It frequently happens that persons are treated for these secondary and symptomatic diseases when they ought to attack the primary cause. The facility with which some symptomatic affections can be removed is well known in the domain of quackery, to the great profit of the nostrum vendor and to the great loss of those he has cured—in appearance. Disorders of the skin and hair may be instanced as very often symptomatic, and should be referred to a regular professional man, who will soon see what course is best, and whether the mischief is superficial or not. We do not class with symptomatic diseases such affections which remain as results of illness that has been cured, but has left behind it this heritage of pain.

Symptoms. — The indications of disease. The study of the symptoms of disease is of great value to the physician, who by careful observation of them, and by a scientific arrangement, &c., is enabled to determine what a disease is, its degree and intensity, the course it is taking, the measures to be adopted, &c. In medical and surgical cases, patients should assist their professional advisers by as correct and full an account as they can of their symptoms, because many important details can often only be known to the sufferers themselves. At the same time the skilled practitioner will discover for himself not a few concomitants of hidden disorders, and what is more will understand them. (*See* DIAGNOSIS.)

Syncope.—Another name for a fainting fit or swoon. (*See* FAINTING.) In syncope there is "a diminution or an interruption of the motion of the heart and of respiration, accompanied with a suspension of the action of the brain, a temporary loss of sensation, volition (consciousness), and other faculties." In grammar, syncope is the cutting off of a letter or syllable

from the middle of a word, as ne'er for never, don't for do not, &c.

Synod.—A meeting or assembly of ecclesiastical persons to consult on matters of religion. Of these there are four kinds, viz.:—1. General, or œcumenical, where bishops, &c., meet from all nations. These were first called by the Emperors, and afterwards by Christian princes; till in later ages the Pope usurped to himself the greatest share of this business, and by his legates presided in them when called. 2. National, where those of one nation only come together to determine any point of doctrine or discipline. The first of this sort which we read of in England was that of Hierudford, or Hertford, in 673, and the last was that held by Cardinal Pole in 1555. 3. Provincial, where those only of one province meet, now called "convocation" in this country. 4. Diocesan, where those of but one diocese meet to enforce canons made by general councils, or national and provincial synods, and to consult and agree upon rules of discipline for themselves. These were not wholly laid aside till by the Act of submission, 25 Hen. VIII. c. 19, it was made unlawful for any synod to meet except under royal authority. (*See* CONVOCATION.)

Synonyms.—Words in the same language having very nearly the same signification, and which are, as a rule, interchangeable one with another without affecting the general sense of the context. Trench has defined synonyms to be "words of like significance in the main, but with a certain unlikeness as well; with very much in common, but also with something private and particular, which they do not share with one another."

Syphered.—A mode by which planks with bevelled edges are fixed together.

Syphons. (*See* SIPHONS.)

Syringa. (*See* LILAC.)

Syringe.—A small species of suction pipe, consisting of a cylindrical tube, within which a piston moves up or down. It is used for sucking up and afterwards ejecting liquid, and sometimes for condensing or exhausting air in a close vessel.

Syrups, Culinary.—The use of syrups is supposed to have originated with the Syrians, hence it is thought the name has arisen, though possibly the word syrup may be derived from the Arabic *sirab*, a drink. The various syrups known in cookery are mostly made from fruit, and to ensure success in their composition three important requisites are needed—namely, cleanliness, quality, and quickness. The object desired in making syrups is to obtain the full flavour of the fruit, and this result may be attained in two ways, either by means of heat or by a cold process. When practicable the latter method is the better, and though possessing some drawbacks, it presents many real advantages. Great celerity in the operation must be exercised, the fruit must be fresh gathered and of good quality, and the process from first to last must be conducted in a cool atmosphere. It is necessary also that when the syrup is made it should be stowed away, either in an ice-house or in a very cold cellar. Unless all the means necessary are available, it would be better not to attempt this method, but to adhere to the more common practice of scalding the syrup, which is decidedly the safest plan that can be adopted. When syrups are to be preserved by the application of either steam or hot water, it is better for the boiling to continue a few seconds beyond the time specified rather than under, for though the excess of time may partially tend to impair the fragrance of the fruit, it will ensure its keeping longer in a state of perfection than if removed even a few seconds too soon. The sugar employed for syrups should be of the best quality, and either distilled water or filtered rain-water should be used. By bottling syrups whilst boiling hot, and immediately corking down and tying the bottles over with bladder perfectly air-tight, they may be preserved for years, even in very hot weather, without fermenting or losing their transparency. They are better kept in small rather than in large bottles, as the longer a bottle lasts, the more frequently it will be opened, and consequently the more it will be exposed to the air. The candying or crystallisation of syrup that is made with the ordinary amount of sugar may be prevented by the addition of a little acetic or citric acid, and the fermentation of syrups may be effectually prevented by the addition of a little sulphite of potassa or of lime.

Syrups, Medical.—These are medicinal preparations which are made more palatable by the addition of a large proportion of sugar. Syrup is a favourite medium for administering medicine to children, but nevertheless many persons object to it, and prefer what is usually considered the less pleasant but more ordinary form of taking medicine. Most important drugs include syrup as one of their preparations.

T

Tab.—A loop of ribbon or leather, the ends of which are placed together and attached to another material or substance for the purpose of gaining a hold of or power over them. Thus strong tabs are stitched to elastic boots, by which the wearer is enabled to pull the boots on the feet. Tabs are fastened on windows of carriages, by which they are lifted up or let down; they are also glued on to the inner lids of desks and boxes, as by this means these covers, which have no handles, can be raised without trouble. The title of tab is also given to ornamental loops resembling the above which are attached to dresses as a trimming.

Tabard.—A garment which in shape resembles both tunic and mantle. It covers the body of the wearer before and behind, descending below the loins, and is open at the sides from the shoulders downwards. The tabard was formerly a military garment which was worn during the fifteenth century. The title is now given to a coat worn by heralds.

Tabaret.—A material used for furniture purposes which closely resembles tabbinet. Tabaret is considered to be the handsomer of the two; its chief distinction is that of having broad stripes of satin between broad stripes of tabby or watered material. The satin stripes are frequently of a different colour to the others: thus crimson, green, or blue satin stripes are severally put with cream-coloured watered stripes.

Tabbinet.—A rich and handsome material, the warp of which is of silk and the weft of wool, the appearance of the fabric being much like that of poplin. The surface of tabbinet usually is tabbied, or watered; sometimes diaper and damask patterns are introduced on it. Tabbinet is used principally for furniture purposes. For window curtains, the covers of chairs and couch of drawing-room suites, this cloth is particularly suitable.

Tabby.—A name given to fabrics which have been subjected to a particular kind of calendering, the result of which is a waved or watered appearance. This is produced by rollers, on which waved lines are engraved, being pressed on the material. When damp, an unequal action of light causes the rays to be unequally reflected, and thus the shimmer and wave are obtained. Silk when treated in this manner is called moiré. Stuffs, such as moreen and others, are known as tabby.

Table. (*See* Tables.)

Table-beer.—The wholesome beverage known by the name of table-beer is by many considered better suited for daily use than the stronger, more substantial ales. The proportion of water contained in it is three or four times greater than that present in ordinary beer or ale, though the other ingredients are the same, and it is made after the same principle. Owing to its weakness, table-beer may of course safely be taken in larger quantities than the other varieties of malt liquor.

Table-bell.—For daily use in rooms and offices that are not supplied with a fixed bell-wire, the little table-bells are of great value. For such purposes the ordinary clapper bells have been superseded by what is termed a call-bell. This little article is made to act by means of a spring, which upon being pressed down makes a loud reverberating noise. As many times as the spring is pressed the noise is produced. Bells of this description are extensively used for the table or desk to summon a servant or messenger in the vicinity.

Table-book.—A distinctive title given to small books which contain the arithmetical tables, commonly called multiplication tables and the money tables; added to these are the measures of weight, measures of length, measures of capacity, and measures of time, as recognised and ordered in this country. It is essential that all children should learn by heart the contents of this book, for a ready knowledge of one or all of these tables will be sure to prove of great value in after-life. The name of table-book is also given to blank books, made thus for the purpose of being ready for tracings or writings in pencil when either are required to be hastily made or inscribed.

Table-cloths.—These, whether of coarse or of fine texture, and whether bleached or unbleached, should be of *bonâ fide* linen; when cotton threads are mixed with flax threads the fabric is never satisfactory for any article of table-napery, more particularly for table-cloths, which show a large surface, and should look smooth and glossy. These are made of single and double damask; the former being thin in substance soon crumples and creases, and therefore preference should be given to the latter, which is higher in price. The cost of table-cloths is also governed by the patterns and size, as well as by the quality of the damask. Spots, sprigs, and designs of that kind are much less expensive than those of a more elaborate character, especially when the latter includes a centre pattern and border. The table-napkins should match the table-cloth in pattern. For nursery and kitchen service the half-bleached table-cloths are the most serviceable; these become white when they have been in use a short time; they are particularly strong, and as the fabric is not woven very closely, the stains and marks usually made are readily washed out.

Table-covers. (*See* Covers, Table, &c.)

Table Cutlery. (*See* Cutlery, Domestic; Forks; Knives.)

Table Decorations. (*See* Decorations, Table, &c.)

Table d'Hote (the Host's Table).—Another name for an ordinary (*which see*). In the Middle Ages the landlord's table was the only public dining place known in France or Germany.

Table, Laying the.—It is scarcely possible to be too particular in laying a table. No matter how costly and well cooked the dishes may be, how superior in quality or design may be the glass, silver, and table-linen, provided each article is not laid properly, straight and even, and in its right place, the first appearance of the table will at once offend the educated eye. More than this, it will produce a sense of disorder and discomfort which will interfere with that feeling of rest and enjoyment which belongs of right to the period allotted to refreshment for body and mind. Before beginning to lay the table at all, it is a very good plan to collect and put into proper order in the kitchen everything that will be wanted. The glass and silver should be brightly polished, the knives and plates freshly dusted, the flowers and fruit prettily arranged, and everything in perfect condition. A white cloth should be spread upon the sideboard; it should be even with the edges, and not hang down at all. On this may be placed side dishes, vegetables, or whatever is not immediately wanted. For breakfast, the cups and saucers, with the spoons, are placed on the cloth at one end of the table, and the urn on its stand in the midst of them. The tea-pot and coffee-pot are in front of the urn, the cream and hot milk upon

the right hand, the slop-basin and sugar, with the sugar-tongs, on the left. Whenever it is possible, flowers should adorn the breakfast table; they may either be arranged in one glass placed in the centre, or they may be in small glasses placed here and there amongst the dishes. Two small knives and a fork, with a breakfast-plate, should be laid before each guest—the knives on the right hand, the forks on the left. The most important dish should be opposite the cups and saucers, and the other dishes at the side, or, if preferred, on the sideboard. The bread should be on a wooden platter, and may either be on the sideboard or at the side of the table; the butter in the butter-dish, with the butter-knife close at hand; the marmalade and a spoon wherewith to serve it, the freshly-mixed mustard, with the mustard-spoon, all at hand. Small breakfast-cruets are frequently provided, which contain mustard, pepper, and salt; or small salt-cellars are used, and placed here and there upon the table. They should be quite full; the salt should be smooth at the top, and the salt-spoons (which are very likely to be forgotten) bright and shining. Dry toast should be in the toast-rack. The hot dishes—hot toast, rolls, eggs, bacon, kidneys, &c.—should not be brought in till the last moment, when the party are seated, a few hot plates being provided for each hot dish, and a small pile of cold plates for the cold dishes. Hot rolls should be covered with a napkin, and each dish should be garnished prettily. (*See also* BREAKFAST.) Luncheon is an informal sort of meal, and the arrangements for it vary according to the importance that is attached to it. The table may be laid very much as it is for dinner, excepting that napkins are very commonly dispensed with at luncheon, and that *small* knives and forks only are used. Water-bottles, table-spoons, salts, &c., should be placed as they are for dinner. Dinner is the most important meal of the day, and for it the table should be laid very daintily. The style and arrangements will of course vary with circumstances. (*See* DINNER, ARRANGEMENTS OF.) As at breakfast, the various articles required should be prepared and collected beforehand, put upon the dinner-tray, and taken into the dining-room before anything else is done. The cloth should be laid smoothly and evenly, and the various decorations tastefully arranged upon it. Since the *dîner à la Russe* has become usual amongst us, flowers have come to be regarded as an indispensable addition to the table decorations, and they are frequently supplied in great profusion. Not only are they put into glasses in the centre of the table, but small vases are filled with them and placed amongst the dessert-dishes. Sometimes the vases of flowers are placed upon a plateau of looking-glass, and narrow glasses shaped to form a border are put round. When these narrow glasses are not at hand, a very pretty ornamentation may be made by sewing variegated leaves upon a band, and laying this border flat upon the table round and amongst the dishes. In winter-time, holly, laurel, and ivy tastefully mingled are very effective; and in summer geranium leaves laid flat, one-half upon another, are both simple and pretty. If carefully handled, these decorations can be used two or three times. When the cloth is spread and the ornamentation complete, the silver-basket should first be taken, and the silver placed round. Two table-spoons should be placed at the opposite corners of the table, the bowl of one lying by the handle of the other. A fish knife and fork, a large and small fork, and a dessert-spoon should be put for each guest—the fish-fork and large fork being on his left hand, and the dessert-spoon and dessert-fork transversely across the top. The knife-box should now be taken round, a large and small knife being put on the right hand of the guest, leaving room between them and the forks for the plate. A tiny salt-cellar should be placed before each person, and sets of cruets according to the number of the guests—that is, if cruets are used at all. Of late years it has been usual to dispense with them, and to hand mustard, vinegar, pepper, or whatever condiments are required, on a salver. If a separate carafe is not provided for each guest, water-bottles should be put at the corners of the table, but not very near the edge. The carving knives and forks, with the rests, should be laid on, and last of all the table-napkins, with the bread. The napkins when quite fresh can be put between the knives and forks in the place where the plate will be. They can be folded in any fanciful form, and the bread, thickly cut but not of large size, should be inside them. When the napkins are used a second time they should be brought to table in rings. When all is ready, the chairs should be put round the table; and these must not be forgotten, for it is most inconvenient for the chairs to need to be brought forward after the company have entered the dining-room. The tea-table is laid very much like the breakfast-table. In this meal, however, the cups and saucers (small ones) are placed on a tray instead of upon the cloth. Sometimes a white table-cloth is spread for tea, but this is not very common. A small knife and a tea-plate should be put for each guest; and the bread and butter, cake, sweetmeats, &c., should be arranged down the middle of the table, within easy reach of all. An elaborate supper-table is spread just like a dinner-table. When the meal is a quiet homely one, however, such as is served to ordinary people every day, less preparation is required for it. The cloth is spread, certainly, but the knives, forks, glasses, and plates, and whatever else may be required, are put upon the butler's tray, which tray is covered with a cloth and laid on the table. The bread is brought to table on the bread-board, and the knife is placed near it, so that bread may be cut as it is wanted. The butter is in the butter-cooler, and the dishes provided are placed upon the table. After laying a table it is a good plan to accustom oneself to look round at the last moment, and mentally enumerate the different articles required, in order to be sure that everything has been brought in that ought to be there. Nothing interferes more certainly with the comfort and order of a meal than the absence of small necessaries. It may be that the want is discovered in the midst of an interesting chat, or

just as a favourite delicacy is served, and then the thread of the conversation is broken or the dish is spoilt while the spoon or fork or glass is searched for and looked after. One great secret of laying a table well is, to place upon it, without crowding, a *sufficiency* of everything that will be required.

Table-linen. (*See* LINEN, TABLE.)

Table-napkins. (*See* NAPKINS, DINNER.)

Table-spoonful, Tea-spoonful.—A table-spoonful, in medical phraseology, means four drachms, or half an ounce; a tea-spoonful means one drachm. As both table-spoons and tea-spoons, however, vary considerably in capacity, it is manifest that measurement by these agents must necessarily be more or less incorrect. When, therefore, important drugs are being administered it is well not to trust to spoons, but to use a graduated glass or porcelain measure.

Table-turning.—Without entering upon the investigation of this subject, it may be useful to state a few facts in connection with it. That divination by means of tables was practised in ancient times is certain, because it is referred to by Tertullian, about A.D. 200. A century and a half later a case is reported in which the attempt was made to discover who should be the next emperor by means of a wooden tripod, or three-legged stand, which rapped out part of the letters of the required name, and might have gone further if the authorities had not rushed in and seized the operators. About the middle of this century table-turning began to attract attention, and was reduced to something like system. The idea became exceedingly popular, and circles were formed by many private parties, who generally found that when they sat round a table with their hands upon it, it began to move. The belief that messages from invisible spirits were conveyed through tables under these circumstances was accompanied or followed by extraordinary manifestations. Tables moved up and down and in all possible directions. These motions were sometimes ascribed to the contact of a single medium, and often to the action of spirits without any contact whatever on the part of living persons. Other articles of furniture, such as chairs and even pianos, were alleged to move in a like unaccountable manner. The subject, as a whole, forms part of what is called spiritualism, under which head some additional remarks will be found; the reader should also refer to what is said in the article on ANIMAL MAGNETISM. Many explanations have been given of the phenomena, but no one has yet been advanced which meets all the necessities of the case. It is admitted that imposture and delusion have been proved in certain cases, and that some of the manifestations can be accounted for on scientific principles; and yet it remains true that mystery overhangs the subject more or less, and we must wait for that perfect and satisfactory elucidation which reason and science alike are justified in demanding and expecting.

Tableaux Vivants.—A fund of amusement for evening parties is to be found in tableaux vivants, or living pictures. In some respects they are not so difficult to arrange as charades (*see* ACTING CHARADES), as all the characters acting in them have only to remain dumb and motionless when they have once taken the position assigned to them by the general director. In tableaux vivants the same points are to be sought after which constitute good grouping and pictorial effect in a picture, and for this reason a director of the ceremonies should be chosen by the company who has a good eye for colour and grouping, and a mind quick at imagining interesting scenes. As in the case of acting charades and proverbs, the subject represented is left to be guessed by the audience; but as there is no dialogue, especial care is needed in fixing the grouping and positions, and in settling the costume of the performers. History, romance, and fable form an inexhaustible source from which to draw supplies of interesting scenes for representation.

Tables were anciently mere boards placed upon trestles, so that they could be easily removed and put away after use. When they became permanent articles of furniture they changed their character; legs were substituted for the trestles, and for the boards a slab of oak or some other wood, which in process of time was adorned with mouldings and varnished or polished. With the advancement of domestic luxury their forms and applications took new shapes. Thus we have rising, sofa, Sutherland, tea, telescope, toilet, dressing, writing, bedside, billiard, breakfast, card, chess, console, cottage, dining, duchesse, fancy, folding, gipsy, kitchen, hall, loo, library, occasional, Pembroke, and pier tables, most of which have been fully described under their respective headings. Bedside tables are small in size, and somewhat higher than those of ordinary use. They are sometimes so made that, turning on a pivot, they may be brought over the bed. They are light in construction, and are extremely serviceable for invalids. Breakfast-tables vary somewhat in shape, and are generally of a less massive character than dining-tables. Card-tables when opened are mostly of a square shape, and so constructed that, having a folding top, when not in use they form a side or occasional table. They are covered with green baize, and commonly made of mahogany and walnut woods, which are sometimes enriched with inlays of other woods, pearl, ivory, and metal. One form of card-table has distinct features of a novel description—viz., the four legs of the table form a square, but the top and sides are concave, in order to place the players as close to the table as possible. At each side a contrivance is secured to the legs, to hold (quite protected) the glass or coffee-cup of the player (two on each side), and immediately in front a small drawer is fixed, with loose perforated zinc bottom, through which fall the ashes of the pipe or cigar out of sight; the drawer will also contain pipes, cigars, matches, and two packs of cards. For the purpose of scoring, four dials are sunk at the four corners of the table, and are worked by a screw from

two opposite corners, turned by a knob. Upon a player scoring, he turns his knob until the finger on the dial points to the number made, and his partner's right-hand dial will be found to indicate the same number; by this arrangement the practice of asking the state of the game is done away with. Chess-tables are eminently of a fanciful character and of varied shape, being sometimes provided with drawers for the reception of the men. The top of the table is provided with the alternate dark and light squares essential to the game. Folding-tables are those of a portable description intended for occasional use. Hall-tables are admirable in the principles of their construction, from the fact that they are commonly what all tables should be, that is to say, simple in character and solid in construction, with none of the absurdities of form which are prevalent in other tables. Loo-tables are ostensibly manufactured for the purpose of playing at the game of loo, and are consequently round in shape, and are usually used as the chief table in the drawing-room, modern custom having relegated them to the side of the apartment instead of allowing them to occupy the centre of the room as formerly. Pembroke-tables are an especially useful class of table, being furnished with flaps which let up and down. They are made of different kinds of woods, and are, comparatively speaking, of an inexpensive nature. Pier-tables are ornamental tables placed between windows, frequently supporting what are termed pier-glasses. They are generally elaborately carved and gilt.

Tablet. — The primary meaning of this word is a small table, but it is used in various senses, among which are those that follow:— 1. A flat stone or marble monument, usually affixed to a wall or pillar, as often seen in churches. 2. A small flat square of medicated confectionery, used like a lozenge for medicinal purposes, and generally sweetened. 3. A square flat cake, especially of fancy soap, also called a savonnette. The word in this case and in the preceding one is sometimes written tablette. 4. A writing tablet, usually in the plural, writing tablets, a kind of memorandum book to be carried in the pocket. The leaves or tablets are prepared for writing upon with a lead pencil, and the writing can be rubbed or washed out. Sometimes the material is ivory, but other substances are employed.

Tablier.—A French name given to large aprons worn by women and artisans to preserve the front of the dress while working. This name has of late years been given in this country to a portion of women's attire which resembles the original tablier, and consists of a large piece of material like the skirt or bodice of the dress, made circular or square, which covers the front of the dress and fastens at the waist behind.

Taboo.—This word is also written tabu, tapu, and tambu, and comes to us from Polynesia, where it "has a double meaning—a good sense and a bad; it signifies, on the one hand, sacred and consecrated; on the other hand, accursed, abominable, unholy." It has been adopted among us as a verb, with the sense of forbidding or interdicting, and in a somewhat peculiar way. To taboo a person is to place him under a ban or interdict, or, as the popular saying runs, "to send him to Coventry," so that with the individual tabooed no communication is allowed. In the same way a thing is said to be tabooed which is forbidden.

Tabor is a small drum beaten with a stick, and accompanied generally by a performer on a pipe. In bygone days it was used in the army, but has been superseded by the kettle-drum.

Tabula Rasa.—A tablet from which the writing has been removed, or which is simply a blank. The mind is said to be a *tabula rasa*, either before it has received any impressions from without, or in respect to matters regarding which it has no ideas whatever.

Tabut.—The name given to a small tabor, or shallow drum.

Tacca.—A genus of plants with tuberous roots, found in some parts of Africa and Asia and in the South Sea Islands. The roots of some, which contain a large quantity of starch, and are when prepared nutritious and wholesome, are imported to this country as Tahiti arrowroot. This is said to be a cure for dysentery, while other arrowrooot is not.

Tache. — A cord or loop by which two articles are attached together. Thus the corresponding buttons placed on either side of pelisse or cloak are often held together by long loops of cord or narrow braid. A sabre-tache is a leather pouch similar to a portfolio, worn suspended from the waist, used chiefly by the engineers for carrying their drawings. To it is attached a loop through which the sabre is passed; this prevents the pouch from flapping.

Tachygraphy.—This word merely denotes rapid writing. (*See* STENOGRAPHY.)

Tacking.—The object of this work is to keep two pieces of material together until they are secured in their places by fine close stitches. Long lengths of thread should be taken when tacking, and these should not be drawn out to the full extent every time the needle is taken in and out, because much time is wasted in doing so. Pins are often employed in lieu of tacking, but the latter will prove more satisfactory, more especially when preparing work for the sewing machine. Common thread is sufficiently good for this purpose, as the threads are useless after having been once used. As tacking threads often serve as a guide for stitches, they should be of contrasting colour, and then they are more easily seen. The word tacking is from the Italian *attaccare*. The term basting (*which see*) is also employed for this work.

Tacks are small nails, invaluable for carpentering and other purposes. They are technically divided into three kinds—viz., rose tacks, Flemish tacks, and clout tacks. The Flemish tacks are those in most general use, the heads of these being "Flemished," or, in other words, not raised so much as a rose-head nor so flat as a clout-head. The sizes of these are from an eighth to three-quarters of an inch in length, or, as they are denominated, from one

ounce to sixteen ounces per thousand. The principal place where these and other similarly small kinds are manufactured is Bromsgrove, in Worcestershire, where the workpeople have been known to forge a thousand tacks so small as to permit of their being contained in the barrel of an ordinary goose-quill.

Tænia, or Tapeworm. (*See* WORMS.)

Taffeta.—A glossy and lustrous fabric, the threads of which are very fine silk. Taffeta is made in all colours, and also presents different appearances. The various kinds are distinguished by the names of the places where they were originally made. Thus there is the taffeta called Florence (*which see*); that of China, from which country it is supposed this fabric was first introduced; there are also Lyons, Tours, and English taffeta, each of which has slight peculiarities. The last-named is thicker than the others, and is usually black.

Taffrail is the rail over the heads of the stern timbers of a ship, extending across the stern from one quarter stanchion to the other. It is a curved piece of wood, and usually ornamented with some device in sculpture.

Taffy, or Toffy. (*See* TOFFY.)

Tafia.—This term is in general use only in the French colonies. It signifies a kind of rum distilled from molasses, much esteemed by the natives in the districts where sugar is produced.

Tag.—The small metal cap or point which is fixed upon the end of a boot-lace, stay-lace, and the like; hence it is colloquially applied to any little appendage to something, especially something spoken or written. A small tag is usually called a taglet.

Tahiti Arrowroot. (*See* TACCA.)

Tail (in Law). (*See* TENANT IN TAIL.)

Taints, To Remove, from Meat, &c.—It is much easier to preserve meat from taint than it is to remove the taint from meat. In cold weather certain meats become more tender and delicate in flavour by being kept for awhile; but in hot weather meat taints very quickly, and it should be examined frequently, and used before it shows any sign of decomposition. It should, of course, be carefully preserved from fly-blows, and for this purpose it should either be kept in a meat-safe or under a wire sieve, or it should be wrapped lightly in muslin and hung in a current of air in a cool place. The kernels and any veins that may be perceptible should be removed from it, and it should be wiped daily, especially in the flaps and crevices, with a perfectly dry cloth, to preserve it from damp. Some people rub the joint over with pyroligneous acid, and this effectually keeps the meat from becoming bad, though it imparts to it a very disagreeable flavour. At the same time, a joint that has been kept some time, and has become hard and slightly tainted on the outside, may be washed quickly in vinegar and water without any harm being done, if only it is dried thoroughly and immediately. Many cooks pepper the joint, and this is done to keep away the flies. When, however, notwithstanding all precautions, meat has become tainted, it should be looked over carefully, and any portions that have become discoloured or that have a faint smell should be cut away. After this the joint should be washed thoroughly, and if necessary soaked for an hour, in water in which a small quantity of permanganate of potash has been dissolved. This may be bought for a few pence of any chemist, and the quantity used must depend upon the size of the joint, but there should be sufficient to make the water of a deep crimson colour. This plan may prove successful if the taint is slight; but if it is very decided the meat should be thrown away, for it is sure to be unwholesome, and if eaten may produce serious indisposition. It is true putrid meat is not poisonous to all, and those who are in the habit of taking it appear to enjoy a certain immunity from danger in this respect. According to a trustworthy authority, the American Indians all prefer their meat putrid, and frequently keep it until it smells so strong as to be disgusting. They bury their salmon, and the more it is decayed, the greater delicacy they consider it. Greenlanders, too, eat the flesh of the seal when in a half putrid condition with the keenest appetite. The Burmese, the Chinese, and the Siamese also eat rotten fish as a sort of condiment without bad effect, whilst amongst ourselves epicures do not enjoy game unless it is to a certain extent decayed. Notwithstanding these instances, however, experience shows that meat tainted with decomposition cannot be consumed without incurring the risk of more or less severe gastro-intestinal derangement being set up.

Talbotype.—The Talbotype, or calotype, photographic printing process was introduced by Henry Fox Talbot in 1835, the idea of securing impressions of natural objects on paper by the aid of light and chemistry having been suggested to him some two or three years before, while he was sketching in Italy, by experiments with the camera lucida. He improved and perfected it in 1839, when a paper on the subject was read by him, first to the Royal Institution, and afterwards to the Royal Society, some months before Daguerre's process of photographing on metal plates coated with silver (Daguerreotypes) was made public in France. On each of these occasions Mr. Talbot illustrated his paper with practical experiments. By this process sheets of paper were rendered sensitive to the chemical, or actinic, action of light by being first coated with iodide of silver, and afterwards washed over with a weak solution of gallo-nitrate of silver. The paper is first floated face downward on a bath of distilled water and nitrate of silver (seven grains to the ounce), then dried, then immersed in a solution of twenty-five grains of iodide of potassium and one ounce of distilled water. When the whole of the silver is decomposed, the paper is taken out, drained, and then washed by immersion in clean water, repeatedly changed, for the removal of the free iodide of potassium, after which it is dried and stored carefully away in a portfolio ready for use in the camera. Before this takes place the paper is subjected to the action of a freshly mixed solution, composed first of a

saturated solution of gallic acid in cold distilled water, and a solution of nitrate of silver, fifty grains to the ounce of distilled water, with one drachm of glacial acetic acid. These are mixed in a vessel rendered chemically clean, with one ounce of distilled water, in the following proportions—namely, fifteen drops of the silver solution to the same quantity of the acid. This mixture is applied with what is called a Buckle's brush while the paper is spread upon a board over a piece of blotting-paper. After being drained, the surface is freed from superfluous moisture with blotting-paper, and exposed in the photographic camera in the usual way. When the image has been properly impressed, the picture has to be removed from the camera and developed. For the latter purpose we again have recourse to the last-named solutions, using three parts of the gallic acid solution and two of the silver, with, for completing the process, a solution of gallic acid. When the development has been completed, the impression is fixed, or rendered permanent, by first washing with water, and then immersing in a solution of hyposulphite of soda—one part to four of water. The impression thus obtained is a negative for printing, but before it is used it must be rendered transparent, either by immersing it in almond oil or by waxing. The Talbotype process is a tedious, troublesome, and uncertain one in the hands of any but the most expert and scientific of photographic operators.

Talc.—A mineral of the same composition as soapstone, but occurring frequently in masses capable of being split up into thin leaves. It is usually colourless or of a pale green tint. Tailor's chalk is a variety of talc, and when reduced to powder it is used by bootmakers to ease the getting on of new boots. Thin sheets of talc are sometimes used in lanterns as substitutes for glass, being sufficiently transparent, flexible, and capable of withstanding great heat.

Talc, Painting on.—Painting on thin films of talc is a process in use for obtaining transparent effects, which may be applied to the decoration of windows, lamp-shades, and other similar purposes. The method adopted is identical with that used for painting on glass (*which see*).

Talfourd's Act.—The principal Act relating to the law of copyright (the 5 & 6 Vict. c. 45) is commonly known as Talfourd's Act. An abstract of its principal enactments will be found under the heading of COPYRIGHT.

Talisman.— The Orientals have always placed great faith in the power and virtue possessed, as they believe, by a talisman. Of this there are three kinds: there is the astronomical talisman, which consists of certain representations of celestial bodies accompanied by unintelligible characters; the magical talisman, which exhibits extraordinary figures and curious words; and a third of a mixed character, represented by signs and words. These are graven on stone or metal, and prepared under certain constellations. A talisman differs from an amulet, or charm, in this respect: the former is supposed to give superior power to the possessor, whereas the latter is only capable of preserving the owner from harm. Talisman is an Arabic word which signifies "consecration."

Talking Machines.—The speaking head of Roger Bacon was doubtless one of the earliest inventions in the way of talking machines, but we have various records of the times intervening between his day and the present to show that the application of machinery to the production of an instrument capable of imitating the voice of man has always been regarded as possible, although the measure of success attained has not hitherto been great. Professor Faber, some years ago, introduced a machine which talked, and under the name of the Euphonia created considerable interest amongst sight-seeking Londoners. It was a figure imitating a man, with certain arrangements to act as the tongue does, supplied with air by means of bellows governed by a treadle, and otherwise managed by the aid of wires and keys regulating the admission and passage of air into artificial lungs. A similar machine, but one which approximated in its sounds to those of talking with greater distinctness, was exhibited in 1870 in Regent Street by a French inventor. The phonograph (*which see*), although it produces the sounds of the human voice with a perfection never before attained, does not properly rank with talking machines, the words being rather the actual result of talking than that of any ingenious arrangement of machinery.

Tallow is the fat of oxen and sheep, particularly that which surrounds the kidneys and other parts of the viscera, melted down and strained to free it from membranous matters. It consists of a kind of firm oil, and when subjected to considerable pressure a solid residue and a liquid oil are obtained from it. The solid ingredient is stearine; the liquid ingredient is oleine. Tallow is an article of great importance, and when pure is white and nearly insipid, although as usually imported it is of a light yellow colour. It is used for making candles and soap, also in the dressing of leather, and for the purpose of preserving machinery from rust, and in various processes of the arts. Until the end of the first quarter of the present century, candles for ordinary use were made almost exclusively of it, the high price of wax and spermaceti preventing their employment excepting by the very wealthy. Of late years, however, owing to the extension of gas and other light-giving materials, the trade in tallow for the manufacture of candles is declining. It is still used extensively in making soap, though even in this it has been superseded to a great extent by palm and cocoa-nut oil. Besides extensive supplies of native tallow, large quantities have for years been imported from Russia. The United States, South America, Australia, and even India are now, however, taking the place of Russia in the supplies they furnish to our commerce, but Russian tallow is still considered the best, and maintains a slight superiority in price. Russian tallow is made almost entirely of beef fat. That of South America and Australia is, a good deal of it, mutton tallow. New tallow is more highly valued than old. At one time there was such a small demand for

cattle and sheep in Australia that numbers of animals were slaughtered simply for the sake of their tallow. In 1868 and 1869, 410,048 sheep were thus disposed of. They were killed, divided into three or four pieces and put into high deep vats large enough to hold 400 carcases, and then steamed. When the fat rose to the top it was drawn off, and the flesh was given to pigs or used as manure. What is called town tallow is obtained by melting down mixed fats, such as kitchen fats and bone grease. It is considered equal in value to Australian sheep tallow. The dregs which remain after melting the fats down for tallow is sold under the name of tallow greaves, and is used for feeding dogs. Vegetable tallow is brought from Singapore, and is produced from the seed of *Garcinia purpurea*. It is known also as kokum oil.

Tallow Candles. (*See* CANDLES.)

Tally is a system, much indulged in by the lower orders, of purchasing things on credit from a tallyman, the articles bought being paid for by easy instalments. It is a practice which may be designated as pernicious, as the generality of things vended on this principle are cheap finery which housewives are pestered into purchasing by the men engaged in this trade, who usually call when the husband is away at work. The law is rightly very averse to the system, and if it be proved that the purchases do not come within the category of necessaries, it is extremely difficult for the tallyman to recover for anything sold in these circumstances, without it can be proved that the husband was agreeable to the transaction. In the event of this not being the case, if the husband likes to return the articles as soon as he discovers them in his wife's possession, he is able to repudiate the debt, and the tradesman has to take them back and suffer whatever loss there may be by the goods having been worn.

Tally-shop is an establishment which conducts its business on the tally principle. (*See* TALLY.)

Tallyman, or Packman, is a man who sells goods for a tally-shop. A species of pedlar who vends on credit.

Tamarinds.—The form in which the tamarind (*Tamarindus Indica*) is best known to us is a soft mass somewhat resembling jam, and in this state it comes to Europe from the East and West Indies and from the Levant. The fruit called tamarind is contained in pods, which grow on the tree of the same name; it is a native of the East Indies, though it is now cultivated in other warm climates. The pods containing the fruit are filled with a sweet, pleasant, acidulous dark pulp. It is this substance which is converted into jam. The method adopted is very similar to that known to us for the preservation of English fruits. Tamarind pulp is pleasant in taste, and is also partially medicinal; it is refrigerant and a gentle laxative, and is frequently administered to children. In India it is used as a cooling article of food, and it is also an excellent addition to curries. Tamarind tea and tamarind whey are useful cooling drinks in cases of inflammatory or febrile disorders.

Tamarisk.—This is the *Tamarix* of the botanist, natural family *Tamaricaceæ*, a kind of an evergreen shrub or tree of great beauty. There are several species, some being cultivated in gardens. One kind, the French tamarisk, grows wild in the south of England. Another is the manna-bearing tamarisk of Mount Sinai. There are also the Indian, the African, and the Eastern tamarisks. Most of the species are remarkable from the large quantity of sulphate of soda yielded by their ashes.

Tambour Frames are circular frames which resemble drums in appearance, hence the French name which distinguishes them from others. An easy method of constructing a frame of this description is as follows:—Two smooth wooden hoops, the one a size smaller than the other, are covered with velvet; this must be a band cut the cross way of the material, or it will pucker when stitched round. If ribbon velvet is used, it must be wound evenly round the hoop in a continuous manner, and the ends securely fastened. The material to be worked upon is stretched over the smallest hoop, the larger hoop is slipped over it, and holds it tight without the strain being too great. As tambour work is usually executed on muslin or other delicate and thin material, it is necessary that frames fitted for such fabrics should be employed; in the ordinary frame muslin would be torn or frayed.

Tambour Needles. (*See* NEEDLES.)

Tambour Stitch. (*See* CHAIN-STITCH.)

Tambour Work.—This is a very old style of embroidery, very beautiful specimens of which are to be seen in antique work. It is usually executed on muslin or thin materials, and is generally employed when large surfaces are embroidered, because it can be done rapidly; thus white muslin curtains and dresses are frequently ornamented with tambour work. Formerly the thread was carried to the back of the material, and looped along the surface by a needle formed like a crochet hook. In the present day a more expeditious plan is adopted, by which an imitation chain is formed on the right side of the material. Upon the regularity in size of the loops or links of chain depends the beauty of the work; the thread must not be pulled too tight, or the fabric will look puckered. The thread is always much thicker than the material when the latter is fine and thin. When gold thread is used, the finest quality made should be selected. The Japanese excel in this work; they embroider silks on thin cloths and woollen materials.

Tambourine.—This musical instrument is made like the head of a drum, with openings in the broad hoop on which the parchment is distended for suspending pieces of thin metal—*jingles*—which clash together when the instrument is shaken.

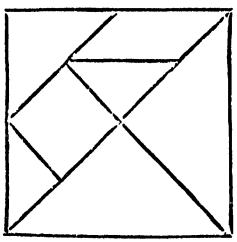
Tammy.—This is a thin but strong material made of worsted yarn and afterwards highly glazed. When dyed red or green it is

employed for window blinds, for which purpose it is very useful, because being glazed it is not soon soiled, and being made of worsted it does not fade or lose colour so quickly as coloured linen is apt to do with sun and rain. Tammy is used for ladies' boots and shoes; it is then known as lasting and durant. When undyed, tammy is used for covering sieves; it is strong and open, and therefore fitted for straining purposes.

Tan.— 1. A name applied to crushed oak-bark when used for tanning leather. After being used for tanning it is sometimes pressed into cakes and burnt like peat; or it is laid down in front of houses where there is serious illness, and the sound of vehicles passing needs to be deadened. 2. A tawny or yellowish-brown colour, as in the common black-and-tan terrier. 3. The brown complexion which often results from exposure to the sun.

Tandem is a large dog-cart with very high wheels, hung on side-springs, the most noticeable feature being the straightness of the shafts. They are mostly used by gentlemen of a more or less sporting tendency for the purpose of driving one horse in the shafts and another horse leading—a style of horsemanship which requires considerable skill, the leader slightly galloping and the shaft horse trotting.

Tangram.— A sort of toy, said to be Chinese. "It is made," says Webster, "by cutting a square of thin wood or other suitable material into seven pieces, these pieces being capable of combination in various ways, so as to form a great number of different figures." It has been introduced into primary schools as a means of instruction. The square is divided as follows:—



Tankards.—The word tankard is derived from the Gaelic word *tancaird*, and is understood to signify a metal drinking vessel. It is supposed that Marius was the first who drank out of a silver tankard after the manner of Bacchus. Unlike the tankards of the present day, those made in olden times were made with a cover which fitted closely over the liquid.

Tanks are large square or oblong vessels formed of wood, stone, or metal for the purpose of holding a supply of water, those on board ship being made of such shapes as to fit into those parts of the ship where they are to be placed without occupying much space. For domestic purposes they should be conveniently situated beneath the surface of the ground, so that being paved over they occupy no valuable space. They are formed of stone slabs, grooved into each other and set in cement, of Welsh slate, of large paving tiles bedded in cement, of brickwork, of plates of cast-iron, or of thick wooden planks, protected by charring and pitching, or lined with sheet-lead. Some tanks made of brick are circular, the sides being built like a well, with bottoms of an inverted dome-shape of very slight convexity. The top is also dome-shaped, and has an opening in the centre large enough to receive a man, in order that the tank may be thoroughly cleaned out when necessary. This opening, which may be upon the surface of the ground or a little above it, should be covered with an oak flap pierced with a number of holes. The most common kind of tanks made of malleable iron are used for exporting grain, hops, &c., to the colonies, where when emptied they do duty as cisterns.

Tanned Netting.—Netting that is made of string is usually required for out-of-door purposes, and for this reason it is necessary to preserve it and to prevent it from being rotted by the wet. Thus fishermen spread out the netting they use, and brush it over with pitch; when dry the netting has a tanned appearance. Netting that is used for the game of lawn tennis should be tanned, because if the string is left its natural colour the net cannot be] discerned from the white lines even at a short distance, and therefore many players often experience a difficulty which could easily be obviated. Another method of tanning netting is by using logwood. If netting is boiled in a preparation of this dye it will become dark brown.

Tannic Acid. (*See* TANNIN.)

Tannin.—The important ingredient in all varieties of tan, and in many other vegetable infusions which are of an astringent character. The tan used in tanning hides and skins is generally derived from oak-bark; but other barks, valonia, sumach, gall-nuts, catechu, gambier, myrobalans, divi-divi, and many other substances, also supply this acid principle, and all these are extensively used, either in preparing particular qualities of leather or for the other purpose mentioned below. The tannic acid combines with the gelatine in the animal skin, forming an insoluble compound not subject to putrefaction, and thus converting the raw hide into leather. When mixed with iron salts, such as copperas, it produces a black colour—a reaction availed of in making black writing inks and dyes. It is used medicinally, as an astringent, to stop hæmorrhage, to check excessive secretions, and to constrict relaxed tissues. The preparations principally used for these purposes are the tincture of galls, the tincture or compound infusion of catechu, and the tincture or compound powder of kino.

Tanning Skins.—The methods by which skins are converted into leather is called tanning—a process which consists first in soaking them in lime and water, and then removing the loosened hair on the one side and the decomposed flesh and fat on the other by scraping, a peculiar knife being used for each process. The thinner hides are subjected to what is termed *bating*—that is to say, frequent soaking

in an alkaline solution and repeated scrapings. Hides known as *green*, *dried*, and *salted* are subjected to three different degrees of soaking and scraping. Sometimes the hides are piled up in a heap with spent tan, to soften the hair by means of partial fermentation, or they are exposed to damp in confined air, or to the chemical action of certain acids. The process of tanning in ordinary use, known as *slow tanning*, is conducted in oblong cisterns sunk in the ground, and filled with a liquid called *ooze*, made by reducing oak-bark to a powder, and soaking it in water until all its extractable matter has been removed. The hides are put into these tanks, and kept there for days, weeks, or months, according to the kind of leather required, the tannin of the ooze being thereby combined with the gelatine of the hide. This is the slow process, but many others are in use whereby the tanning is greatly expedited. When the hides are removed from the tan-pits, they are washed, drained, and dried, and hardened by beating or rolling. In some cases they are split by machinery moved by steam, and provided with a beautifully and exactly adjusted knife, the edge of which works upon the hide placed against a revolving cylinder. The *grain*, or outer portion, of the skin thus split is the most valuable; the *flesh* side, or inner portion, being used for inferior purposes. The spent oak-bark when removed from the tan-yard has some value, being purchased for manure by farmers and gardeners, and for manufacture into a species of fuel largely sold as "turf." The oak-bark used in tanning is procured from the trees in spring. Sumach, the young branches of the wild olive, is ground to powder, and used for tanning some of the thinner kinds of leather. The acorn cup of a species of oak growing in the Levant, called *valonia*, is used for making heavy imperviable leather. *Divi-divi* is used in making a porous brown leather; it is the pod of a South American plant called *Cæsalpinia coriaria*. The bark, wood, and leaves of the *Acacia catechu* is sometimes used for tanning, as are also varieties of the same class, known as *cutch* and *Terra japonica*. In India *myrobalan*, which is the bark on the fruit of certain trees, is much used for tannin. *Mimosa*, the bark of a kind of wattle which grows in New Zealand and Australia, is useful for leather of certain descriptions. Amongst other materials used for tannin are *cork-tree bark*, *larch-bark* (used for *basil* as a cheap substitute for oak-bark), *willow-bark* (chiefly for making "Russia" leather), and *nut-gall*.

Tansy.—The common tansy (*Tanacetum vulgare*), which may be found growing wild in many parts of England, is a perennial, from two to four feet high, with a profusion of deep green leaves and small yellow flowers. Both leaves and flowers possess a strong aromatic smell and a bitter taste. The young leaves are what are most used in cookery, though the plant was much more universally known in former times than it is now. Tansy pudding, which was once a favourite dish, is seldom to be met with at modern tables. Besides having a peculiar flavour, tansy leaves are said to act as a tonic. Tansy tea is an old popular medicine, and was thought to be very efficacious in cases of weakness. In some parts of England tansy cakes and tansy puddings are still prepared, especially at Easter, the tansy leaves representing the use



TANSY.

of bitter herbs at the Paschal feast. In some parishes the clerk carries round to every house a few white tansy cakes as an Easter offering on Good Friday, for which he expects to receive a gratuity in return.

Tantalus, Cup of.—An old-fashioned contrivance, of no use except as a toy, though the principle might be applied to ornamental fountains. The cup contains the figure of a man enclosing the tube of a siphon, the longer arm of which passes through the bottom of the cup, and through which any liquid escapes when poured into the cup as soon as it reaches the height of the bend of the siphon. The consequence is that the cup cannot be filled beyond a certain height, if the water is not poured in faster than it can run off at the bottom.

Tap. (*See* TAPS.)

Tape Measures (otherwise called tape-lines and yard measures).—A piece of tape, shaped as a fillet or band of linen, which is painted and marked in certain lengths, to indicate inches, feet, and yards. Tape measures are enclosed in round metal or wooden boxes, and in shells of carved ivory and bone, being permanently attached at one end to a pin running through the centre, which has a handle on the outside, by which the whole length of the tape can be wound up and drawn within the box when no longer required for use. Engineers, tailors, and dressmakers employ them.

Tapers.—These useful articles are manufactured by candle-makers, and are sold to a great extent for household use. The little short coloured candles that are used for various ornamental purposes are also known by the name of taper, though usually the name is understood to apply to the long thin wax lights that are sold for lighting lamps and chandeliers. These articles are made, not by the yard, but actually by the mile. The process consists

in drawing the wick through a bath of melted wax; it is then made to pass through a perforated iron plate, with cylindrical holes graduated to the thickness required, after which it is wound on a drum, when it can easily be cut any length desired. The little coloured taper knots that are often placed in writing cases and desks are merely single tapers twisted into a small space. The metal cases that are made to fit the tapers form a convenient handle by which to hold them.

Tapes.—Narrow bands or fillets of linen, more or less wide, which are useful in innumerable ways. White tapes are employed to fasten under garments; black tapes for tying waistcoats and dresses; red tapes for holding papers together, because they do not cut or crumple documents as string and elastic are apt to do; unbleached tapes are used for upholstery purposes, and also for binding up meat and poultry when cooked. There are two kinds of tape, known as Dutch and India; the latter is twilled and rather stiff. Dutch tape is plain, and is generally preferred because it is not so liable to curl and knot, but it does not wear so long as India tape.

Tapestry.—A particular kind of hangings which was used to adorn and line the walls of rooms. The idea is said to have emanated from the Oriental nations, the Saracens more especially making use of tapestry for the curtains which they employed in lieu of doors. In the early periods tapestry was worked entirely by hand, although it was executed on a large scale—representations of figures, flowers, birds, and other objects being worked by the needle on canvas or on cloth with fine worsteds of two strands called at that time krewels. In England many noble ladies and their attendants occupied the lonely hours spent in their castles in this work, and remnants of their industry and labours are yet to be seen. One of the oldest pieces extant is the far-famed Bayeux tapestry; it measures seventy-five yards in length and more than a yard in breadth. This wonderful specimen of industry is worked on cloth with crewels; the stitches employed are those known in the present day as chain and tapestry stitches. This piece of tapestry commemorates William the Conqueror's conquest of England; the faces represented are supposed to be portraits. It was wrought by Queen Matilda and her ladies, in honour of her husband's victory, and presented to the cathedral at Bayeux as a thank-offering. In the seventeenth century very beautiful tapestry was produced in Flanders; that of Arras (*which see*) was particularly celebrated. At this period tapestry was woven; small pieces were thus fabricated, and these were skilfully united together afterwards to form the picture represented. In the first method adopted for the weaving of tapestry the frame was placed horizontally, and the weaver was seated when at work; the picture or design which was to be copied was laid beneath the threads of the warp, and the weaver on separating the threads could see the colour required, and use the shuttle accordingly. After this manner the famed Beauvais tapestry was wrought. In the second plan the weaver stood to his work, and the frame of warp threads was in a perpendicular position, the design being behind it. The celebrated Gobelin tapestry (*which see*) was thus woven. The art of weaving tapestry was not encouraged in England as in other countries—as in France, Flanders, and Italy, where palaces and churches were adorned with beautiful and costly productions of the loom, which were often enriched by the introduction of silver and gold threads. The celebrated painter Raphael designed copies for tapestry; some of these are still in existence, and can be seen in the Kensington Museum; designs of this character are termed cartoons, because they are drawn and coloured on strong paper, which the French call *carton*. Henry VIII. and Charles II. were the two English kings who patronised and encouraged the weaving of tapestry. The art at length lapsed in other countries, and fifty years ago the Gobelin manufactory was the only one existing in Europe. Within the last few years one at Windsor has been successfully established, and members of our royal family take a personal interest in its productions. Tapestry is now woven in one piece. *Moquette* tapestry is a comparatively late introduction. It is a material woven with woollen threads to imitate tapestry in appearance. The upper surface is thick and shaggy; the best qualities of moquette resemble Utrecht velvet. Flowers, ferns, mosses, and geometrical designs are chiefly represented. The thickest kinds of moquette are made for carpets, the finer kinds for table-covers. It is not in great request, as footmarks and dust are too plainly visible to make it serviceable, and for covers it is uncomfortable to the touch.

Tapestry Carpets. (*See* CARPETS.)

Tapestry Needles. (*See* NEEDLES.)

Tapestry Stitch.—Various ideas are prevalent with regard to which was the true and original tapestry stitch. By some it is affirmed to be that which is now known as feather stitch—*opus plumarium*, as it was anciently called; others claim the right for tambour or chain stitch; and by others it is described as crossing two threads in length and one in width. The general supposition is in favour of the first mentioned: in this the stitches are worked lengthwise, lie close together, and overlap each other, thus presenting the idea of the plumage of a bird's wing. Tapestry stitch is only suitable for embroidery on close materials, and is rarely used for ornamenting canvas; when employed for that purpose, two threads of canvas must be counted as one square.

Tapeworm. (*See* WORMS.)

Tapioca.—This farinaceous preparation is the starch extracted from the root of a plant (*Janipha manihot*) which grows in the hot parts of South America, and which is also cultivated in Africa, India, and other hot countries. A great quantity is imported into England from Bahia and Rio Janeiro. The root is washed, scraped, and reduced to a pulp by being grated, then subjected to pressure to extract the juice. From the juice, cassava starch and tapioca are obtained, and cassava meal and bread from the compressed residue. Tapioca is made by heat-

ing the starch before being dried on hot plates, and stirring it with an iron rod. The mass thus separates into the small transparent irregular granules, by which appearance tapioca is known. Consisting as tapioca does of starchy matter only, it possesses little nutritive value. It forms a light, agreeable food, and is easily digested, but is very insipid in taste when unaccompanied by any flavour. It is employed for puddings, and is also introduced into soup and broth. When used for the latter purpose the crushed tapioca will be found much better than that consisting of large granules. It may be obtained in canisters crushed almost to a powder, and is added to the soup a short time before serving, imparting to it a proper consistency and also a clear transparent appearance. To the inhabitants of tropical America, tapioca forms an important and also a very valuable article of food.

Taps are technically called cocks, and are contrivances for controlling the flow of gas, water, and other liquids. They usually consist of a short tube communicating with the cask or vessel containing the gas or liquid, and having a plug ground into it near the middle and standing at right angles to it. This plug has a hole through it, which being brought to coincide with the bore of the pipe, the plug offers no obstruction to the gas or liquid; but by turning the plug one-quarter round, the solid part of the plug stands across the bore of the pipe and stops the passage. Taps are made of brass, iron, white metal, and wood. Brass taps are chiefly used for gas or water, and for brewery purposes; iron taps for underground gas-works; white metal taps for acids, vinegar, &c.; and wooden taps for beer and water. There are at least a dozen different kinds of gas-taps and a similar number of water-taps, but though differing in detail, they are all constructed on the principle which we have described.

Tar.—A thick, viscid, reddish-black substance obtained from the distillation of pine wood, and consisting principally of resin, empyreumatic oils, and pyroligneous acid. It is largely used in tarring ropes and wood that are liable to much exposure to wet, being preferred before coal-tar for these purposes. Creasote (*which see*) is derived from it. The tar is chiefly made in Northern Russia and Sweden, these makes being generally known as Archangel and Stockholm tars respectively. *Coal* or *gas tar* is one of the secondary products of the gas manufacture. It is used for coating fences and rails and other rough out-door work; and it is mixed with sawdust, small coal, and other combustibles to make various kinds of artificial fuel. From it are made carbolic acid, benzol, paraffin, and many other substances, including the brilliant aniline dyes of the present day. The products named are described under their respective headings. When the more volatile and liquid portions are drawn off by the application of heat, *pitch* or *coal pitch* is the result—a semi-solid body at the ordinary temperature, and which gradually hardens by exposure. The former is used for caulking the seams of ships, and for coating the bottoms of those which are not sheathed with metal. Coal-pitch is largely employed as a substitute for asphalt. The mineral pitches are described under the heading of BITUMEN.

Tar Soap.—This is a soap in which tar or pitch is incorporated. Tar being a good disinfectant and skin application, to use soap made with it cannot fail to be both wholesome and beneficial.

Tar Water.—Tar or pitch is a treacly liquid of complex composition which is obtained from the destructive distillation of different varieties of pine-wood. When mixed with water, in the proportion of one part of tar to four of water, the so-called tar-water is formed which was the popular panacea some years ago, but is now seldom used. There is no doubt that tar-water taken internally, in doses of from one to two table-spoonfuls, may do much good in certain forms of indigestion, especially those in which the breath is offensive; also in chronic bronchitis, &c.; it will also be found serviceable in obstinate skin diseases of a scaly character, when it can be applied externally as well in the form of ointment.

Taraxacum.—This is the scientific name for the well-known medicinal plant, dandelion (*which see*).

Tare and Tret.—A phrase used in commerce to denote an allowance or abatement from the gross weight or quantity of goods charged on the invoice. *Tare* is a reduction made from the weight of goods on account of the weight of the packing, and may be either *actual*, the true weight; *average*, an estimate formed by weighing a few of the packages; or *customary*, a uniform allowance accepted as the rule of the trade. *Tret* is an allowance of 4 lbs. on every 104 lbs. for refuse matter, waste, &c., the term being probably derived from the Latin *tritus*, that which is rubbed away.

Tariff.—A list or schedule of all duties levied by any government on goods imported or exported. The term is said to be derived from *Tarifa*, the name of a Spanish town at the entrance to the Straits of Gibraltar, where duties were at one time levied.

Tarnish, To Remove, &c.—Tarnish may be removed from gold and silver goods by washing the surface with a mixture of soap and common whiting. After soaping the flannel, a little dry whiting should be sprinkled upon it, and with this the metal should be well rubbed. It must then be made perfectly dry, and polished with dry whiting and a wash-leather.

Tarpaulin.—This is manufactured by coating canvas with tar or some other kind of preservative material, and is used in sheets for covering wagons, luggage, and goods generally when conveyed in open vehicles. Tarpaulins are also used to cover the hatches of vessels at sea when the weather is rough, in order to prevent the water finding its way into the vessel through the seams.

Tarragon.—This is a plant which belongs to the natural family *Compositæ*, and is called by botanists *Artemisia dracunculus*. It is a native of Siberia, where it grows to a height of

two or three feet, and has smooth leaves of a bright green colour, and if crushed in the hand have a pungent, aromatic odour. The leaves



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are agreeable to the taste, so much so that they are put in vinegar, which thus obtains the name of tarragon vinegar.

Tarragon Vinegar is made by soaking a portion of the leaves of the tarragon plant in the best vinegar. It forms a very pleasant adjunct to cold meats of any kind.

Tartans.—Woollen fabrics checkered with various colours and in divers ways, used in Scotland by the Highlanders for their kilts. Each clan adopts a different plaid for its tartan, which is known by the name of the clan. Thus there are the Rob Roy or Macgregor and the Stuart tartans amongst many others. It is curious to remark that the word tartan is not of Gaelic origin, no such word being in that language; the supposition is that tartan arises from the French *tiretaine*, or from the Milanese *tarlantane*, both of which mean linsey-woolsey.

Tartar, or Argol, is a crystalline substance which collects upon the inside of wine-casks, and of which considerable quantities are imported, principally from Italy. When purified it is known as cream of tartar (*which see*).

Tartar, Cream of. (*See* CREAM OF TARTAR.)

Tartar Emetic is the potassio-tartrate of antimony, a colourless crystalline salt, soluble in water but not in alcohol. It has a styptic, metallic taste. In purchasing this salt it should always be seen that it is supplied in crystals, to ensure its being properly prepared. What is sold in the state of powder frequently contains a good deal of the bitartrate of potash uncombined with the antimony. It produces sweating, vomiting, or purging, according to the quantity taken. One-quarter of a grain dissolved in water will cause a profuse sweat if the skin be kept warm; half a grain will first purge, and then lead to perspiration; and a whole grain will cause vomiting, purging, and sweating in succession. Tartar emetic dissolved in sherry wine is also given along with saline medicines and warm drinks to promote perspiration. When powdered and mixed with lard, in the proportion of one ounce of the former to four of the latter, it forms an ointment used in cases of chronic swellings of the joints, particularly when arising from rheumatism.

Tartaric Acid is made from cream of tartar by first converting it into the neutral tartrate of potash, and that again into tartrate of lime, which on being treated with dilute sulphuric acid is split up into tartaric acid and sulphate of lime. The acid is then crystallised out and purified. Being cheaper than citric acid, it is used as a substitute for the latter in making sodaic powders. Its chief value, however, is as a discharger of the mordants in calico-printing, by which white or coloured patterns can be obtained on a dark ground, especially when madder or logwood is used for the grounding.

Tartlet.—This name is given to fruit tarts that are made small in size and ornamental in appearance.

Tartrate of Potash is made from the bitartrate, or cream of tartar, by boiling up the latter along with an aqueous solution of carbonate of potash; by this means carbonic acid gas is given off, and the potash remaining behind unites with the excess of acid in the bitartrate, forming a neutral salt. It has a saline and bitter taste, and is much more soluble in water than the bitartrate. It is commonly purchasable in shops in the form of powder, but it ought always to be had in crystals. It is a mild and efficient purgative, and when given with resinous purgatives or senna it corrects their griping properties by accelerating their operation.

Tarts.—The articles of confectionery known by this name consist of fruit—usually jam—spread on puff-paste, and baked. They may either be made large in size, when they are called open tarts, or quite small, and are baked in round or oval tins. The jam may be baked with the crust, or put in afterwards, if preferred, by the cook.

Tassel.—This is an ornamental bunch of silk, wool, cotton, or some glittering substance which is added to the end of cord or ribbon to serve as a handle or to give additional completeness and grace to the suspension. Tassels should be made of the same material as the cord to which they are attached, and should also match in colour. Plain and simple tassels can be easily made by winding a certain number of strands of the wool or cotton round a card which is the desired length of the tassel; when sufficient thickness is obtained, the short skein is taken off the card, and the wool or cotton is wound round one end and fastened with a needle. A wooden button put within the covering forms a firmer head; when complete the tufted ends should be cut evenly. The word tassel arises from the French word *tasse*, a tuft of grass.

Taste. — Though the tongue and fauces are the organs most highly endowed with the sense of taste, experiment has proved that the soft palate, uvula, and tonsils also take

part in producing this sensation. The nerves of taste are the lingual and glosso-pharyngeal, or gustatory; and it is to the action of these upon the papillæ and the sensitive structure of the tongue and parts adjacent that we owe our appreciation of the various matters which pass into the mouth, and which are either swallowed or rejected. The sense of taste to be perfect requires (1) that the gustatory nerves should be in a healthy condition; (2) that the tongue should be free from fur and dryness; and (3) that the matter submitted to the palate should be more or less in a state of solution, or at least capable of passing into that condition. The sense of taste is very much aided by a very delicate sense of touch possessed by the papillæ situated along the sides and tip of the tongue; it is also materially influenced by another sense, viz., the sense of smell. To prove this it is only necessary to close the nostrils, when it will be found that wine and other matters taken in such circumstances will apparently lose much of their flavour and excellence. Taste, like sight, becomes very much impaired by a continuation of the same exciting cause. This is seen in tasting wines of different kinds, which after two or three glasses, if the eyes are blindfolded, cannot often be distinguished. It is also more or less affected by various diseases, affecting either the nerves or causing the tongue to become dry or furred. Thus we find complete loss of taste in certain forms of paralysis; a more or less impaired taste in fevers and inflammation; a metallic, coppery taste in indigestion, especially where the liver is at fault; and a salt or putrid taste in consumption and other diseases of the lungs. Lastly, the sense of taste may be suspended temporarily and instantaneously from strong mental emotion.

Taste (Æsthetic).—The sense by which the tongue distinguishes flavours is called taste; and by a simple metaphor this word is applied to that faculty of the mind which most resembles it, and "which enables us to perceive, with the aid of reason to judge of, and with the help of imagination to enjoy, whatever is beautiful or sublime in the works of nature and art." The American author Quackenbos, from whom this definition is taken, admits that "so contradictory are the definitions of taste given by different authors, so obscure is their language, and so inconsistent are many of them with themselves, that it is difficult to ascertain their real views on the subject." There is, however, no doubt in the minds of any that taste is in some sense a natural faculty, which begins to exercise itself in infancy, and extends through life to all conditions of men. The taste of an ignorant, uncultivated, and even weak-minded person may in some cases be as correct as that of an artist or a philosopher, but as a rule it will not be so refined, and will often violate all sound principles. There are men so constituted that no amount of culture would ever enable them to pass beyond the most rudimentary stage, and if in consequence they lose some of the vexations which befal the possessors of an exquisite taste, they miss not a few of the more exalted of intellectual pleasures, and they fail to contribute to the sum of human happiness one of its most precious ingredients. But usually taste may be developed and refined, and that by simple expedients. We all know how the principles of taste elevate those who have from early life been taught their application to the intercourse of daily life in speech and action; to painting, sculpture, and all the round of fine arts; to eloquence and literary composition; to dress and all personal and domestic arrangements; to music and all the legitimate amusements of the world; to the glories of mountain and valley, plain and forest, river and ocean, night and day, and the rolling seasons of the year. Taste is the critical faculty in its most amiable, delightful, and perhaps most useful mood; and is rightly described as æsthetic (*i.e.*, sensitive or perceptive), because in healthy conditions it affords the keenest gratification, and raises the man of taste above the dead level of the unobservant, the insensible, and the stolid. In daily life, especially among the educated classes, references to a correct standard of taste are incessant. All such words as delicacy, refinement, elegance, polish, and tact relate to this; so do such expressions as vulgarism, vandalism, clownishness, and boorishness. We style a man who has acquired the habit of properly appreciating the elements of the beautiful, a man of taste; and we say of words or things which come under our notice day by day, that they are in good taste or in bad taste. The correct education of this faculty would be a great public benefit; as to its neglect, we are indebted for gaudy, tawdry, finery, frippery, and tinsel in dress and ornament, and for the slovenly, ill-mannered, and unrefined in behaviour and speech. To the cultivation of the true principles of taste we owe the great triumphs of ancient and modern art, the beauties of polite literature, the graces of personal bearing, and a thousand other things of equal importance.

Tatting, otherwise called *Frivolité*, is a kind of edging made with a shuttle and pin, the principal merit of which consists in its strength. The cotton employed may be of any strong yet soft make, such as fine crochet-cotton or that used for machine sewing. The implements for tatting are few and simple, and consist of a small shuttle made of ivory, bone, or tortoiseshell, and a strong pin attached to a ring by a short chain; the cotton is put on the shuttle in the same manner as on a netting-needle; the ring is worn on the thumb of the left hand, in order that the pin may be ready for use when required. The worker holds the shuttle by the thumb and first two fingers of the right hand; the cotton is passed round the fingers (which should be stretched apart) of the left hand, and is brought again between the thumb and first finger; the shuttle is slipped under the cotton between the first and second fingers; it must be drawn out quickly, and kept the while in a horizontal line with the left hand. While the cotton is held stretched by the shuttle, the second finger of the left hand should let the loop under it slip, and thus the cotton is fastened. When a number of stitches are completed, they are drawn close together and form a loop; these loops are joined together as the worker proceeds by means of the little picots which are intro-

duced to form a purl edge round each loop. They are made by twisting the pin in the cotton, and holding it thus while forming a stitch. To join loops, the worker makes a picot in the first loop, where the connection should be, and on arriving at the corresponding place in the second loop, draws the cotton through the first picot and passes the shuttle through the loop thus made. Tatting is an exceedingly useful trimming for calico under garments, being strong and durable; when made of very fine thread it is suitable work for caps and children's dresses. Tatting is quickly done when the first difficulty of the loop is surmounted, and it is work that can be carried in the pocket, and brought out to occupy odd moments of leisure.

Tattoo.—1. To produce indelible marks and designs on the skin, by means of puncturing it with a needle or some sharp instrument, and then rubbing into the openings, below the outer cuticle, gunpowder, or coloured pigments, usually blue. This practice prevails much in the East, and amongst sailors of most nations. It is generally confined to the arms and the chest; but amongst savage nations, such as the wild tribes of the North American Indians and the New Zealanders, the face and the whole body are tattooed, sometimes so much so as to present the appearance of being fully dressed in tight-fitting clothing. 2. A beat of drum at night to recall soldiers to their barracks or camp, or to give notice for their retreat. 3. Beating or drumming with the fingers or foot is called "the devil's tattoo."

Tattooing. (*See preceding paragraph.*)

Tautology.—The unnecessary and inelegant repetition of the same words and phrases. Tautology is a great defect in written composition, and to be avoided in private conversation and public speaking. It may be due to lack of words or to inattention, but is always inelegant and contrary to good taste. The following may be given as an example: "The general *ordered* the captain to *order* the soldiers to observe good *order*." Under the head of tautology some include a sort of unpoetical alliteration or inharmonious repetition of the same sounds too frequently; *e.g.*, "We went *in an e*normous carriage."

Tavern.—A kind of public-house or inn, licensed usually for the sale of strong drinks by retail, whether to be consumed on or off the premises. Sometimes arrangements are made for the amusement of the guests, and also for supplying eatables. The name really denotes a place for the accommodation and refreshment of travellers and guests generally, or what we commonly call an inn; but in practice it is oftener applied to inns of the more conspicuous and attractive class.

Tawdry.—An epithet applied to any gaudy and showy finery without elegance or taste. The word is also sometimes used of a style of composition, which, whether spoken or written, bears some analogy to the tawdry in dress and ornament. It is said that "tawdry" is a corruption of St. Audrey, and due to the annual fair of St. Audrey in the isle of Ely, where laces and gaudy articles of all sorts were purchased. St. Audrey itself is said to be a corruption of St. Etheldreda, and the fair was held on the 17th of October, which was the day of that saint. As Dr. Johnson's account of the word is somewhat peculiar, we give the principal part of it: "From Stawdrey, Saint Awdrey, or Saint Etheldred, as the things bought at Saint Etheldred's fair (Henshaw, Skinner); meanly showy; splendid without cost; fine without grace; showy without elegance. It is used both of things and of persons wearing them."

Tawing Skins.—Leather manufacturers have a process of preparing leather in which tanning (*see* TANNING SKINS) does not take place, and this is called tawing. In it alum and salt take the place of tannin, and combine with the gelatine of the skin. Tawing is mostly employed with goat, kid, sheep, and lamb skins, for the production of various kinds of white leather, such as is used for gloves, &c. The wool and hair being removed, the skin is scraped thin, and then, under the name of pelt, is put with others into a drum or cylinder, with the alum, salt, and water. They are removed, washed in clean water, allowed to ferment in bran and water, and dried. The skins are next placed in a rotating drum, in which flour is dissolved in water with the yolk of egg, until the skins have absorbed the latter. They are afterwards steeped in water, spread out, and scraped with the smooth rounded edge of a piece of metal, from which they derive the requisite degree of elasticity and softness. The number of eggs used by leather manufacturers for tawing is very large.

Tawny.—As descriptive of a colour very similar to tan: a dull yellowish-brown, of different shades. Hence a lion is called tawny, and so is a complexion which is sunburned or naturally very dark, as "a tawny gipsy."

Tax-cart, or Taxed Cart.—A two-wheeled vehicle once much patronised by farmers and tradesmen. It was a sort of gig, but simply and cheaply constructed. Mr. Thrupp says:—"The tax in 1790 upon two-wheeled vehicles in general was three pounds seventeen shillings each, but if the cost was only twelve pounds, and the words 'taxed cart' were painted upon the gig or cart, the yearly tax was reduced to twelve shillings." At a later date the name and address of the owner had to be written or painted in a conspicuous place, and in letters of not less than about two inches in height.

Taxation of Costs.—This is a legal term for revising the charges of attorneys and solicitors, which office is performed in England by a specially-appointed official called a taxing-master; in Scotland the person who fulfils this duty is termed an auditor. All solicitors' charges are regulated and defined by the Court; and if a person engaged in a lawsuit has reason to think his bill of costs excessive, he is at liberty to have it investigated by the taxing-master, who, in cases where the work done has been of an unusual character, is allowed considerable discretion in apportioning or determining upon the proper sum to be

charged. In the event of the taxing-master deciding that a bill so submitted has been surcharged more than one-sixth of the right amount, the client does not have to pay the excess or the fees for taxing; but where the overcharge is less than one-sixth, the taxation fees have to be borne by the client.

Taxes.—These go by several names, and are levied in different ways. What are called duties and rates, and the amounts charged for licences, are all really taxes. Thus regarded, taxes may be divided into two great classes—those which go to the Imperial Government, and those which are used for local purposes. Under the first head we include all such imposts as income-tax, property-tax, land-tax, house-tax, import and export duties, duties on probates, armorial bearings, servants, plate, hair-powder, stamps, licences of every description, and all other sums levied for the support of the Government, and paid to its representatives. Under the second head we include all rates commonly so styled, for the public use of parishes, districts, boroughs and corporations and counties, for the poor, for sanitary purposes, works and improvements, lighting, watering, police, sewers, roads, education, and numerous other purposes. Tithes are a sort of tax; so are church rates (now generally voluntary, though not universally so), and rates for the support of the clergy in special cases, mostly under the power of local Acts. The authority for levying local ordinary rates is that of the parish, &c., in which they are to be expended. The power of enforcing payment is in the hands of those who can make a rate or impose a tax. The mode of recovery of unpaid rates and taxes is by summons, and subsequent distraint or seizure and sale of goods. Owing to the peculiar arrangements which are made for producing the imperial revenue, few persons know the amount they annually contribute as taxes in one form or in another. What they do know is how much they are personally called upon to pay. Many burdensome taxes have been remitted, such as those on windows, chimneys, corn, &c.; but still, vast sums are raised from year to year, and they increase with the increase of the national wealth. Information respecting the chief rates and taxes is given under their respective titles.

Taxidermy means the art of preparing and preserving the skins of birds, quadrupeds, and reptiles, and of stuffing and "setting them up," as it is called, to represent them in their natural appearance while alive. (*See* STUFFING BIRDS, &c.)

Tazza.—This is a shallow ornamental cup, mounted upon a stand and provided with handles.

Te Deum.—1. The words adopted as the name of a sacred composition (*Te Deum laudamus*, "We praise Thee, O God") used in the Western Church, and generally, though perhaps questionably, attributed to St. Ambrose, who is said to have improvised it during the ceremony of baptising St. Augustine. This tradition as to the origin of this splendid canticle has caused it to be designated "the Ambrosian Hymn." 2. In ecclesiastical architecture the term signifies a theological series of sculptured figures placed in niches, the order of precedence among which is thus arranged: (1) angels; (2) patriarchs and prophets; (3) apostles and evangelists; (4) saints and martyrs; (5) founders. An example of an architectural "Te Deum" is to be seen in the restored west front of Salisbury Cathedral, although the original number of figures, amounting to 123, has been reduced.

Tea.—The plant (*Thea sinensis*) from which tea is obtained is indigenous in China, Japan, and the northern parts of the eastern peninsula of India. The use of the dried leaf is said to have been introduced into China from the Corea about the fourth century after Christ, and to have extended to Japan about the ninth century. Tea was brought to Europe early in the seventeenth century by the Dutch East India Company, and the first reference to the beverage made by an Englishman is found in the records of the English East India Company in the year 1615. After this it gradually became known to the wealthy inhabitants of London, but in price it was exorbitantly dear, for it fetched sometimes as much as £10 per pound, and was never sold for less than £5. In 1657 a rather large consignment fell into the hands of a London merchant named Mr. Thomas Garraway, who established the famous Garraway's Coffee-house for the sale of the prepared beverage. For a long time high duties were levied upon tea, but as these were gradually reduced the trade in tea increased. In 1853 the consumption of tea in the United Kingdom amounted to fifty-eight millions of pounds (25,000 tons); in 1866 it had risen to ninety-eight million pounds; and in 1871 the quantity consumed had risen to one hundred and seventy millions, or about three pounds fifteen ounces for each member of the community. The use of this beverage amongst English people, and especially amongst English women, has increased in the most extraordinary manner, so that it has been said that if to be an Englishman is to eat beef, to be an Englishwoman is to drink tea. China is the great tea-producing country, although a good deal is grown also in Japan and British India. The tea-plant has been cultivated also, with more or less success, in the Brazils, North America, Western Africa, and Australia. The Government of India has made great efforts to extend the growth and production of tea, and has succeeded in Upper and Lower Assam, Kumaon, Cachar, Arracan, Dehra Doon, Darjeeling, Sunderbund, and other districts. Some of the teas received from these sources have been found to be superior in quality to the Chinese teas, and the hope is entertained that India will in time supply to a great extent our wants in tea. Indian tea is penetrating in flavour, and contains a larger proportion of chemical elements than does Chinese tea. On this account it is specially valuable when used as a mixing tea. For a long time a good deal of mystery surrounded the subject of the preparation and cultivation of tea. It was believed that black tea could only be obtained from the plant known to botanists as *Thea bohea* (*see* BOHEA TEA), and green tea from *Thea viridis*, while Assam tea

was the product of a third species, *Thea Assamensis*, a variety grown in Assam, in the Presidency of Bengal. It has, however, been satisfactorily proved by Mr. Fortune, the eminent botanist, that black and green tea may be obtained from each variety of the plant, and that it is upon the mode of preparation adopted and upon the age of the leaves that the nature of the article depends. Although varieties may have been produced by cultivation, and though soil and climate also produce their due effect, there is in fact one plant only from which tea is made, wherever it is found. This in growth and form of leaf is something like the myrtle. Its blossoms are white and very fragrant, and resemble our white rose in appearance. The leaves of the tea-plant can only be gathered at certain times. The first gathering is in April, when the young leaves begin to burst from the buds, and some of them in their tender state are gathered and dried quickly, and made into Young Hyson (from *Yu Tsien*, before the rains) of the finest quality. This tea is green, and of a most delicate flavour, but it is difficult to make, and quickly deteriorates. It is very strong in taste, yet it scarcely colours the water with which it is made. It has rarely been brought to England, for a sea voyage would cause it to lose its flavour. A large proportion of it is reserved for the use of the wealthy Chinese, and the rest finds its way to Russia, where it commands an exorbitant price. It is conveyed thither overland, either by caravans or on horses' backs, and is known by the name of Russian or caravan tea. The second picking is the most important of the season and takes place in May, at the conclusion of the summer rains, when the leaves are more matured. A third gathering later in the season supplies the inferior teas, which are bitterer and more woody than the earlier ones. Tea-leaves are dried in pans which are heated over smokeless fires. Green teas are prepared from the young leaves, and are dried very quickly to preserve the colour; black teas are exposed to atmospheric changes for a time, and undergo a sort of fermentation. Green teas have an artificial bloom imparted to them by manipulating the leaves with Prussian blue, indigo, and gypsum. This artifice, however, is resorted to only for teas that are to be sent abroad. It is said that the Chinese never dye teas that are intended for their own use. Teas that are believed to be entirely free from adulteration of this kind are sold under the name of uncoloured teas. During the process of preparation the leaves are sorted according to their size. The smallest are called Pha-ho, the second size Pow-chong, and the largest Toy-chong. The familiar term Souchong indicates any one of these classes. Besides green and black teas there are what are called scented teas, which have had a foreign flavour and odour imparted to them by being placed during the process of manufacture with certain aromatic flowers. The blossoms of the sweet-scented olive (*Olea fragrans*) are extensively used for this purpose, and impart to the tea a very fragrant and delicate scent. The odour is, however, very evanescent, and it may be taken for granted that it is only the inferior teas that are thus manipulated. Scented teas are never used alone; they are usually mixed with a variety of good common tea. If mixed with fine tea they should be very sparingly used.

The names of these three great classes of tea, green tea, black tea, and scented tea, vary somewhat from year to year. They have been thus classified :—*Green teas:* Gunpowder, Hyson, Young Hyson, Twankay or Imperial Hyson, Japan, and Java, coloured and uncoloured. *Black teas:* Congou, Moning and Kaisow; Souchong; Oolong; Orange Pekoe; Canton and Foo Choo; and Caper, plain and scented. Besides these there is Imperial tea from Java. This tea, which is rather rare, is made up into small balls about the size of a pea. Indian teas have been classified as follows:—(1) Fine Pekoe, or all flowery leaf; (2) Pekoe, little flowery, with small leaf; (3) Pekoe Souchong, large leaf, few ends; (4) Souchong, larger leaf, without ends; (5) Congou, all coarse, dark, leafy sorts; (6) Broken Pekoe, siftings of fine Pekoe Pekoe; (7) Broken Black, siftings of Pekoe Souchong Souchong; (8) Fannings, siftings of Congou, old leaf. Whatever kind of tea is chosen, the leaf should be closely rolled, and there should be little or no stalk with it. In selecting tea it should be remembered that fine green tea is the purest tea that can be obtained in England, and that it scarcely signifies which variety is chosen if only the Hyson be of the highest quality. Of black teas Congou is the most economical, and it is excellent for mixing with flavouring teas. Ordinary Congou consists of older leaves, and it has a rougher flavour than Souchong or Kaisow. Souchong (from *Sian Chung*, little plant), as a rule, possesses an excellent flavour, but excepting when very fine scarcely possesses sufficient strength to be used alone. Assam or Oolong, or orange-flavoured Pekoe, is very good when mixed with Congou. Lapsang, or Lapsang Souchong, is a black tea of superior quality when genuine. A specimen analysed was thus described: "Odour agreeable, taste delicate and pleasant, infusion rather light-coloured. No foreign leaves could be detected." Oolong is a black tea which possesses a strong flavour, but which produces only a light-coloured liquid; it is better when mixed with other teas than when used alone. Pekoe also is a superior tea as regards flavour only, but it is not of full body, and therefore is not good to be used alone. It is named from *Pecco*, white hairs, because the young leaves from which it is made have a white down upon them. For ordinary use, however, a most excellent tea may be made by mixing three parts of Congou and one of Assam or Oolong; and for the best kinds a mixture may be made of one part of Kaisow, three of Souchong, and one either of Assam or of Orange Pekoe. Besides the varieties already named there is what is called lie tea, which is spurious tea prepared from the dust and sweepings of tea-warehouses bound together with rice-water, and rolled into grains. This tea is either coloured green to imitate gunpowder, or black to imitate caper tea. It is generally used for purposes of adulteration. Compressed tea is tea pressed compactly together, and made to lie in a small space. It is convenient for travellers and others who have only a limited space at

their disposal for storage. (*See also* BRICK TEA.)

The most important constituents of tea, when subjected to analysis, are found to be three in number—viz., an astringent matter of the nature of tannic acid, which imparts to it its bitter taste; a volatile oil, to which it owes its peculiar aroma and flavour; and a crystalline substance of an alkaline nature called theine. This substance may easily be made to reveal itself by the following simple experiment:—If a small quantity of dried tea-leaves, finely powdered, be put into a watch-glass and lightly covered over with paper, then placed upon a hot place, such as the top of a cooking-range, or exposed to the action of a spirit-lamp, a white vapour will gradually arise from it, which will condense both on the powder and on the paper in the form of small shining crystals, which consist of theine. Each molecule of the crystal contains in itself eight atoms of carbon, five atoms of hydrogen, three atoms of oxygen, and two atoms of nitrogen. Theine is without taste and without smell, but it is the most important ingredient of the tea, and exerts a very powerful action upon the human frame. Authorities differ as to whether or not this action is beneficial; some physicians regard it as highly so, others look upon it as the cause of numerous diseases, especially of the nerves. Most of them agree, however, that it possesses very valuable stimulative and restorative properties, that it soothes the body and enlivens the mind. According to the generally received opinion, it diminishes the disintegration of the bodily tissues, and to a certain extent diminishes the necessity for food. Thus, Professor Johnstone says, "by the consumption of a certain quantity of tea, the health and strength of the body will be maintained in an equal degree upon a small supply of ordinary food. Tea, therefore, saves food." Dr. Edward Smith, however, whose authority we should certainly acknowledge, calls in question this conclusion, and asserts that tea promotes rather than checks chemico-vital action. He performed an extended series of experiments both on himself and others, in order to obtain a correct opinion on the subject, and the result has been that he has declared that "tea cannot be regarded as a nutrient in the sense of supplying material to maintain structure or generate heat by its own decomposition; and that in reference to nutrition we may say that tea increases waste, since it promotes the transformation of food without supplying nutriment, and increases the loss of heat without supplying fuel. It is therefore especially adapted to the wants of those who usually eat too much, and after a full meal when the process of assimilation should be quickened, but is less adapted to the poor and ill-fed, and during fasting. As a matter of comfort it is to be observed that a cup of tea is in health always refreshing, and to those accustomed to its use always welcome." Another authority writing on this subject says:—"Owing to its stimulating and restorative action on the nervous system, tea is very serviceable to travellers and soldiers, and should be preferred to alcoholic stimulants after fatigue. It is equally efficacious against heat and cold; in nervous exhaustion, particularly in hot climates, or consequent on walking in the sun, especially when followed by shortness of breath, it has often proved strikingly beneficial. It excites vital action and stimulates respiration. Though it supplies very little nutritive material, it aids the assimilation and transformation of other foods, increases cheerfulness and activity, clears and quickens the brain, stimulates the energies, and lessens the disposition to sleep. By its heat it warms the body when cold, by promoting the action of the skin it cools it when hot, and by its astringency it modifies the action of the bowels. It is better than coffee as an antidote for beer." Although tea is thus spoken of, however, it must not be supposed that it can be drunk with impunity in large quantities, or too frequently. When its use causes loss of appetite, mental excitement, or sleeplessness, it should be relinquished. It should be understood also that tea is more likely to produce indigestion when taken with animal food than when taken with simple bread and butter. Therefore the "meat teas" and tea dinners that some people favour so much are not to be recommended. The power tea possesses to produce sleeplessness is well known, and has been recognised from very early times.

The water used in the preparation of tea should neither be very hard nor very soft, for hard water impedes the extraction of the soluble principles, and soft water favours the absorption of too much of the general extractive matter, at the sacrifice of delicacy of flavour. The kind of water used is an important consideration, and soft water is to be preferred to hard water. The Chinese direction is, "take it from a running stream; that from hill-springs is the best, river water is the next, and well water is the worst." Many housekeepers are careful to let the infusion "draw" for some time before it is drunk; but this is a mistake, for by long brewing the tea takes up an excess of extractive matter which gives it a rough bitter taste. Tea quickly poured off the leaves, though it contains less colouring and astringent matter, possesses a choicer flavour and a more delicate aroma than that which has been allowed to stand. The water should be at the boiling-point when used; if it is allowed to cool at all, the infusion will be weak in all its constituents. Tea-tasters use only water that is newly boiled; and this is right, for water that has been twice boiled or kept boiling for some minutes will not make good tea. It is in accordance, too, with the practice of the Chinese, for they say "the fire must be lively and clear, but the water must not be boiled too hastily. At first it begins to sparkle like crabs' eyes, then somewhat like fishes' eyes, and lastly it boils up like pearls innumerable, springing and waving about." Carbonate of soda is sometimes used to draw the tea; but, excepting when the water is hard, its use is objectionable and should be avoided. It spoils the tea both as to flavour and effect. In China and other tea-producing countries, the infusion is drunk alone; in all other places it is customary to add something to it. The Germans often flavour it with rum, cinnamon, or vanilla. The Russians squeeze the juice of a lemon into it, and this renders it very agreeable. The English add sugar and milk or cream, all

of which increase the respiratory action of the tea, and at the same time offer nourishment to the body. In countries where tea is difficult to obtain, the leaves of certain other plants are prepared and extensively used as substitutes for it. Some of these contain theine, and some do not, but resemble true tea in flavour and smell only. Amongst the principal tea substitutes are maté, or Paraguay tea (*which see*), and an infusion prepared from the seeds of the guarana, a small climbing plant (*Paullinia sorbilis*). These seeds are roasted, ground, and pressed into small rolls like sausages, which are soaked in cold water to produce the beverage. Coffee leaves are occasionally used as a substitute for tea in the West Indies. In taste and colour this infusion resembles a mixture of tea and coffee; it would be more extensively used than it is were it not for its disagreeable smell. The kola nut, the active principle of which is theine, is another tea substitute. This decoction is highly valued by the inhabitants of Central Africa. Besides these there are Labrador tea, very strong in astringent and narcotic properties; Abyssinian tea, called also *chaat;* Siberian tea; Appalachian tea; Swiss tea, made from several Alpine plants; Hottentot tea; Chilian tea; Lime tea; Mountain tea; and others. The leaves of several species of Monarda are also dried and infused, and the infusion drunk as a beverage under the name of Oswego tea. Monarda leaves somewhat resemble mint in appearance, and have an agreeable smell. The liquor produced from them is said to be useful as a stomachic.

Tea, Adulterations of. (*See* ADULTERATIONS OF FOOD.)

Tea, Assam. (*See* TEA.)

Tea, Beef.—Among the numerous restorative diets prescribed for invalids, beef tea is one of the most important; but as most of its value depends upon its being prepared properly, it is desirable that the best method should be adopted in making it. Miss Nightingale says, that one of the most common errors among nurses, with respect to sick diet, is the belief that beef tea is the most nutritive of all articles. In cases of disease where the digestive organs are deranged it is certainly of great value; it invigorates and sustains the system during a time of intense weakness, and until the patient is sufficiently convalescent to partake of solid food is effectual in preventing the feeling of weariness and exhaustion that must necessarily arise from prolonged fasting. At the same time it is a mistake to imagine that with the strong and healthy it can be taken alone in its pure state as a substitute for food; it must be accompanied by bread, vegetables, or farinaceous substance of some kind, to render it sufficiently satisfying to the appetite. One item of great importance to be observed in making all beef tea, according to whatever recipe, is that the liquid should simmer gently, but must not be allowed to reach the boiling-point. The prolonged boiling destroys the flavour and invigorating power, and although it tends to extract the gelatine from the meat, the albuminous matter becomes so condensed and agglomerated that the liquid is useless as wholesome food for an invalid. The beef tea that is manufactured in the raw state is by many doctors highly recommended. The lean beef is simply scraped to a pulp; upon this cold water is poured, and allowed to stand for an hour or more. At the end of that time the meat will be almost colourless, and the liquid a clear red colour. In this state it is purer and more nourishing than any other beef tea, and in some instances of extreme exhaustion has been found beneficial when other remedies have failed. In cases where invalids object to the raw taste, the liquid may be made hot, but must not boil, though if once the objection to the rawness be overcome it will soon be preferred to the cooked liquid. Another favourite and excellent way is to place the jar containing the meat and liquid, which has stood for an hour, into a pan or vessel containing boiling water, which water must be kept simmering for another hour. Thus prepared a very agreeable restorative liquid is obtained containing a rich pleasant meaty flavour, and quite free from any taste of rawness. Many of the extracts of beef, though extremely valuable and convenient, are only suitable for flavours or accompaniments to soups, gravies, and other home-made liquids. Taken alone they are neither sufficiently pleasant nor nourishing, and are only meant to be mixed with other liquids.

Tea, Bran.—In some parts of England by the farmers and peasants bran tea is quite a well-known beverage. It is made by the labourers' wives much in the same way as we make tea, and not only is it taken as a cool refreshing drink, but is highly valued medicinally. For those afflicted with bad breathing, or who suffer from chest complaints, it is most efficacious as a soothing healing liquor, besides which it possesses the advantage of being easily obtained, and is very inexpensive.

Tea-caddies. (*See* CADDIES.)

Tea-canisters.—The box or case in which small quantities of tea are kept is called a canister or caddy. The tea-canister is usually made of wood, and lined in the inside with lead sheeting, because tea, if it is to preserve its flavour, must be kept in lead. It should be also closely covered in order to prevent the escape of the aroma.

Tea, Five o'clock.—This is a comparatively modern institution which is intended to provide a slight refreshment between the more substantial meals of luncheon and late dinner, and it has quite superseded the custom of offering wine and cake to callers. A pretty and special tea equipage is provided for five o'clock tea. The cups and saucers are small in size, sometimes they vary in colour, and often in form also; these are known as croquet and harlequin sets. The sugar-basins and cream-jug are of diminutive size; they are commonly of glass, and should match each other; sometimes they are of gold or silver, and form a set with the tea-pot. This latter, if not of silver or gold, is of china; a china tea-kettle and a couple of china dishes, for cake, bread and butter or toast, complete the equipage. The tray is of medium size and ornamental character; frequently a Japanese

tray is chosen; china, silver, ebony and silver, and gold are also used. The tea is brought into the drawing-room, placed on a small table over which an embroidered white cloth is previously laid, and brought in front of the hostess. If visitors are in the room they are invited to partake. It is not usual to take a second cup at this tea. When guests are invited to a five o'clock tea they are not expected to arrive punctually, nor is it usual to stay beyond six o'clock.

Tea, Herb.—In addition to the many uses to which herbs are applied for culinary purposes, they are undoubtedly of great value in a medicinal point of view. In cases of disease they have repeatedly proved highly beneficial when administered at proper times, and in small quantities, though some of them are so strong that when taken in excess they become absolutely poisonous. What is called herb tea may be made in a variety of ways, either by mixing a number of herbs together, a plan adopted by scientific herbalists, who understand the intrinsic value of each particular herb, or by using one herb only. Some herbs are used for curative purposes, simply because of their form or marks in the leaves: thus wood-sorrel, being shaped as a heart, is used as a cordial; liver-wort for the liver; the celandine, which has yellow juice, for the jaundice; herb-dragon, which is speckled like a dragon, to counteract the poison of serpents. Sage, which was formerly more highly appreciated than it is now, possesses considerable aromatic and astringent properties, and is also useful for debility of the stomach, and in nervous cases. Mint is stomachic and anti-spasmodic. The peculiar flavour and properties of peppermint are principally owing to the camphor which it contains, and of which one-fourth of its essential oil is composed. Pennyroyal, which belongs to the mint family, has long been known to be valuable in female diseases. From clary flowers a medicinal wine is made. Tansy tea is good in colic and gout. The leaves of the fennel made into tea are diuretic in their tendency, and the root is aperient. Dill-water relieves flatulency and indigestion, and is frequently given to infants. The flowers of the marigold made into tea are good for promoting perspiration, and strengthening circulation, and are beneficial for liver complaints. Unfortunately the medicinal use of this plant is very little known. Rue, another name for which is the herb of grace, was formerly much in repute; it is a stimulant and anti-spasmodic, increases the secretions, and excites the circulation. The leaves and flowering tops of the hyssop, made into tea, form a gently stimulant aromatic, and the infusion is good in chronic catarrhs and disorders of the chest and lungs. Applied externally it restores the natural colour to the skin after bruises. Rosemary tea is a tonic and a cordial, stimulates the circulation and nervous system, and is a cure for headaches. Sometimes the powdered leaves are taken in the form of snuff. Balm tea is a favourite drink in cases of fever. Camomile tea is a powerful aromatic bitter, and a fine tonic. The medicinal value attributed to herbs is, however, not nearly so great as it was two or even three hundred years ago; then the herb garden was quite an institution, and herbs were continually employed as cures for sickness. As a rule, herbs occupy but little space, and are easily cultivated, and where practicable it is most advisable to reserve a portion of the garden for their growth. A garden of herbs, even were it not especially needed in a business point of view, is pretty to behold, and is also a pleasant spot to visit, on account of the delicious perfume emitted from it.

Tea-kettles. (*See* KETTLES.)

Tea, La Veno Beno. (*See* VENO BENO.)

Tea, Linseed. (*See* LINSEED.)

Tea, Paraguay (also called Jesuits' tea, Herva maté, Yerba maté, or simply maté).—According to Mr. Scully, of *The Anglo-Brazilian Times*, the tree from which this tea, so much used by the inhabitants of the Southern American Republics, is prepared, grows wild in Paraguay, and in the Brazilian provinces of Parana, and St. Pedro do Rio Grande. It is a species of holly, the variety principally used being the one called *Ilex Paraguayensis*, which has smooth oval leaves four or five inches long. The natives of the countries where it is used ascribe to it many valuable medicinal qualities, and it certainly, like opium, has the double effect of soothing the nerves and stimulating the spirits; it contains, moreover, some of the active and peculiar principles of tea and coffee. At first Europeans do not like it, having a herby and somewhat bitter taste, but among the inhabitants of the Southern Republics it is a much prized article of luxury and a necessity, and is the first thing which they offer to their visitors. Their tables are seldom seen without it, and the *gaucho* of the plains will travel on horseback for weeks, asking no better fare than dried beef, washed down with plenteous draughts of maté. The great and growing demand causes a rapid destruction of the trees. The Jesuits foresaw this, and started large plantations in Paraguay and the provinces above-named, some of them still existing and furnishing the best tea. Of late years the cultivation has extended, as it is found to improve the quality. The manufacture is curious but simple, and is thus described:—At the proper season the leafy twigs are gathered and spread on scaffolds, under which slow fires are maintained until the twigs are dry enough to be easily pulverised. After being pounded in rude wooden mortars, the tea is forced into bags of raw hide, which are carefully sewn up, and contracting as they become drier, compress the tea into an almost solid mass. It is mostly used without milk or sugar, and made by infusing a small quantity in boiling water; this is drunk while hot through a small tube with a strainer at one end. One kind, prepared in Parana, is only made of the leaves, which being left unpulverised are used in the same way as Chinese tea. Mr. Scully adds that as long since as 1862-3 the exports of maté from Brazil were 605,179 arrobas, which, if Portuguese of 32 lbs. each, equal 19,365,728 lbs., none of which would be sent to Europe, where it has not been

adopted. The Paraguay tea must not be confounded with the so-called Paraquay plant, once sold in packets as a substitute for tea, though said to have been really new hay steeped in an infusion of catechu, and cut up small and compressed for sale.

Tea-pots that retain the heat are better than those which allow it to pass off quickly. Therefore black earthenware tea-pots should not be used; white-glazed earthenware or porcelain are suitable, but metal, particularly silver, tea-pots are the best, for in them the strength and fragrance of the tea are drawn out more readily than in any others. A globular-shaped tea-pot answers its purpose most effectually. Earthenware tea-pots are frequently preferred because they can easily be kept clean, but with a little care there need be no difficulty on this score with a metal pot. Many servants have a most objectionable habit of rinsing out the tea-pot with greasy water previously used for washing the crockery, then putting it away without drying it. It is impossible to make good tea in a tea-pot that has been thus used. The practice causes a thick incrustation to gather round the inside of the tea-pot, which will certainly make the tea of a darker colour, but which is neither more nor less than dirt. Every tea-pot after it has been used should be rinsed out with boiling water and dried thoroughly, the inside being kept as bright as the outside. A tea-pot that has been neglected, and is not in this condition, should be washed thoroughly in strong soda-water, then filled with the same, and left to soak for some hours, being rinsed out with clean boiling water before tea is again made in it. The tea-pot should be rinsed also with boiling water a minute or two before the tea is put into it; by this means less heat will be abstracted from the infusion, and the action will be more powerful. According to the ordinary rule of tea-making, a spoonful of tea is allowed for each person and one for the pot. It should be remembered that very fine tea needs to stand a minute or two longer than coarse tea. The infusion should not be drawn off entirely before the tea-pot is re-filled; a cupful at least should be left in it, and when the leaves are exhausted the old leaves should be turned out before fresh tea is made. If this be not done, the bitterness of the old tea-leaves will be retained in the new tea.

Tea-poy, or Tea-poise.—A small table or stand, the top of which can be raised, and having under it a receptacle for canisters of tea of different kinds, or, in addition to tea, sugar-basin, cream-jug, &c. The construction is usually ornamental, in order that it may be kept in rooms where an extempore cup of tea may be wanted, or where it may serve the purposes of the family

Tea Service. (*See* SERVICE, TEA.)

Tea-spoonful. (*See* TABLE-SPOONFUL.)

Tea-trays. (*See* TRAYS.)

Tea-tree.—There are several varieties of tea-trees, or, as they are more properly called, tea-plants, and it is supposed by some botanists that they are all derived from the same species of plant. (*See* TEA.)

Tea-urns.—For family use, where a great quantity of boiling water is required, tea-urns are invaluable. By means of the heater placed inside the urn the water may be kept boiling for some time, the tea-pot may constantly

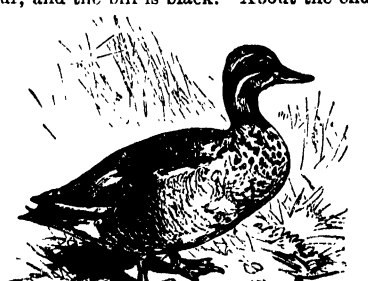


TEA-URN.

be replenished with boiling water, and with much less delay and disorder than frequently results from having to depend upon the kettle. Tea-urns are made in silver, electro, copper, and bronze, and vary much, both in shape and value. (*See* COFFEE-URNS.)

Teak.—This is a light, strong, durable kind of wood, largely used in ship-building for vessels of the best class, and in cabinet-work for boxes and photographers' cameras, &c. It is readily worked, and is not liable to be attacked by insects. The tree from which this wood is obtained (*Tectona grandis*) grows to a very large size, and is found chiefly in the East Indies. It is known sometimes as the Indian oak.

Teal.—This is a species of duck—natural family *Anatinæ;* it is very small and very beautiful, and the flesh is considered exceedingly delicate. The teal duck has the ear and the upper portions of the body a bright bay colour, and the bill is black. About the end of

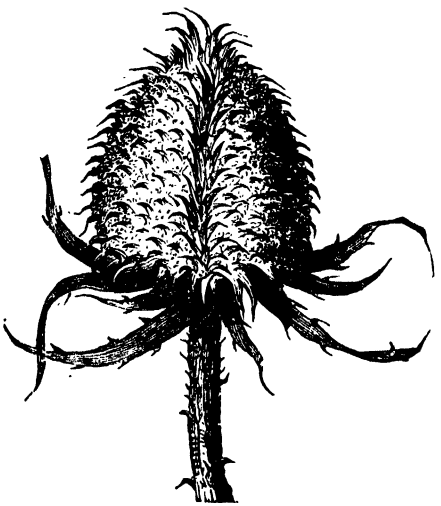


TEAL.

autumn it arrives in this country, being found chiefly on the western and southern shores of England and Ireland. It is called by naturalists the *Querquedula crecca.*

Tears.—The watery fluid of which these consist is secreted by glands adjacent to the eye, which it serves to moisten, preserve, and cleanse. The natural quantity of tears may be increased in many ways, as by any strong emotion, especially grief, by injury to the eye, by weakness, and by disease. The proper passage for the outflow of tears is in the corner of the eye nearest the nose; when more tears are secreted than this duct can carry off, the eyes overflow, and when the duct itself is stopped, as in *fistula lachrymalis*, surgical treatment must be resorted to. Tears contain about one per cent. of solid matter, consisting of salt, soda, and albumen. Some persons are much more subject than others to weeping, as the overflow of tears is called.

Teazle.—A species of thistle, known also as *Dipsacus Fullonum* (Fuller's thistle), a plant which is cultivated in England, Holland, and France for the valuable help it affords to cloth manufacturers and stocking-makers. The burs or heads of the teazle are provided with strong rigid awns, which are hooked at the point. A number of these bracts are fixed on a wheel, which is made to revolve against the surface of the fabric; by this action the awns catch the knots and flecks of wool and raise them on the surface, and thus a nap is formed; the loose



TEAZLE.

ends are then combed or shorn off. No mechanical invention has yet been discovered to equal teazle for this particular purpose; hitherto all the machines tried have torn holes in or otherwise injured the cloth. Two thousand burs are required to dress one piece of cloth, and therefore extensive cultivation of the plant is necessary, for the awns of wild teazle prove too weak for the task—they break in the endeavour to pull away the wool. Teazle flourishes best in clay soil; it is not until the second year that the plants are available for use, as the young bracts are not sufficiently strong. The flowers of this plant yield a good supply of honey, and the seed is useful for feeding poultry.

Technical Education. (*See* EDUCATION, TECHNICAL.)

Teeth.—These are the organs of mastication, and as such play an important part in the function of digestion (*which see*). For the purposes of description, human teeth may be divided into two classes—viz., (1) temporary teeth, and (2) permanent teeth. 1. *Temporary teeth.* These are also called milk-teeth. They begin to manifest themselves about the seventh month of infantile life, and are usually complete about the end of the second year. They are all shed about the sixth year of childhood, hence they are called temporary or deciduous. The temporary or milk teeth are about twenty in number—viz., ten for each jaw, and make their appearance in the following order:—About the seventh month the central incisors appear; a month or so after these the lateral incisors show themselves; then a few months later the front molars; immediately after these the canine; and last of all the back molars. As a rule, the teeth of the lower jaw are a little in advance of those of the upper. A section of one-half of either upper or lower jaw in a child of three years old whose teeth are fully developed shows the following arrangement:—Two incisors in front, one canine behind, and further back two molars. 2. *Permanent teeth.* These are thirty-two in number—viz., sixteen for each jaw—and, taking a similar section as that just mentioned, are arranged in the following order:—Two incisors in front, behind them one canine, then two bicuspids, and last of all three molars. The permanent teeth begin about the sixth or seventh year, and the last molars are often not complete until the twenty-first year, and even later, hence they have received the name of wisdom teeth. Incisor teeth are eight in number, four for each jaw, and are so named from their presenting a sharp edge eminently adapted for cutting food. They have only one fang, and are larger and stronger in the upper jaw than in the lower. The canine teeth, sometimes called eye-teeth, are four in number, and are readily recognised by their prominence and strength. These also have only one fang. The bicuspid teeth are eight in number, and receive their name from the two-pointed spear-like heads upon the crown. The molars are twelve in number. They present a broad, strong surface for grinding the food, hence the name molar, which is derived from the Latin, and means "to grind." The first molar is the largest, has five cusps or points in the crown, and in the upper jaw has three fangs, in the lower only two. The second molar is smaller, but has the same arrangement as to fangs. The third molar, or wisdom tooth, is the smallest of the molars, and has also three fangs. When a tooth is examined it is found to consist of a crown and one or more fangs; the crown is composed of an intensely hard bone-like substance called ivory, which is crusted over with a still harder substance called enamel. The fang is also composed of ivory, but has for its covering a kind of cement, which is called

the cortical substance. The crown contains a hollow cavity, which is continuous with a canal in each fang. In this cavity lies the dental pulp, which is richly supplied with vessels and nerves, hence the extreme sensitiveness and pain experienced when the teeth are in any way affected.

With regard to the preservation of the teeth, it is only necessary to say that cleanliness is the chief point. They should be brushed, if possible, after each meal, in order to remove the particles of food, as these not only cause tartar, but by a process of slow fermentation eat through the enamel and irritate the nerve, thus giving rise to the painful affection known as toothache. Toothache, it is true, may arise from other causes, as from a disordered state of the digestion, neuralgia, &c., and may soon be relieved by the remedies suitable for those complaints (*see* INDIGESTION; NEURALGIA); but in a large proportion of the cases of toothache there is decay in some portion of the tooth. If this is external, some discoloration will be visible, which should be at once attended to (stopping with gold is probably the best remedy); if it is internal, and the pain protracted and annoying and can no longer be endured, then extraction is the only resource left to the sufferer.

Teeth, Artificial. (*See* ARTIFICIAL TEETH.)

Teething.—This is, properly speaking, the process of the growth and development of the teeth in the human subject described under the heading of TEETH. The term is, however, popularly limited to that period of infant and child life during which the temporary or milk teeth are formed. It is a period of much anxiety to many mothers, as although the process of teething usually goes on with no more manifestation than a little dribbling from the mouth and some irritability on the part of the child, still there are cases when the latter is so delicate that even the irritation of teething may excite the brain and cause convulsions, which may have a serious result. As a rule, however, in these cases the digestion is more at fault than the teething, and some error of diet can generally be traced to account for the alarming symptoms present; at any rate, it is always wise to administer an aperient occasionally during the teething period, and especially when the stools are not of a natural colour. There is no doubt that the irritation of teething interferes somewhat with digestion, producing indigestion; that these react upon each other, and both occasionally on the brain, producing skin affections, convulsions, and other disorders common amongst children. The practice of lancing the gums is very much to be deprecated, except in very exceptional circumstances, as so far from aiding the natural process of teething, it may materially impede it. Certain affections of the skin, which have received the common name of tooth-rash, frequently occur during teething. These, if they do not depart spontaneously, readily yield, as a rule, to a little magnesia and the warm bath; if, however, they be obstinate, a lotion of Goulard water, or the application of a little zinc ointment, may be requisite.

Teetotal Drinks.—This term is applied to various beverages which contain no alcoholic ingredients. Under this head are included chocolate, cocoa, coffee, ginger-beer, lemonade, sherbet, soda-water, tea, and many others noticed in the course of this work. They may be multiplied to almost any extent by means of fruit syrups and other flavours, whether made to effervesce or not.

Teetotallers; Teetotalism.—Teetotallers are those who practise teetotalism, or the principles of total abstinence from intoxicating drinks. The first step in this direction was in the establishment of temperance societies, the members of which engaged to abstain from distilled spirits, except for medicinal purposes; subsequently, owing to the inadequacy of these restrictions, societies were formed for inducing total abstinence from all kinds of intoxicating drinks. This movement, zealously promoted, secured multitudes of converts, and is now represented by numerous powerful organisations, with branches in all civilised communities. The word teetotal is said to have originated in the inability of one of the early popular advocates of the system to pronounce the word "total," which he called "t'total." Whatever views may be held as to the duty of total abstinence in all cases, the system has conferred immense benefits, direct and indirect, upon millions of our fellow-creatures.

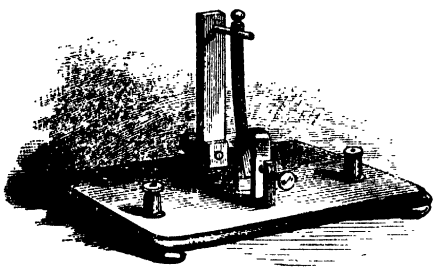
Telegram is a message or despatch transmitted by telegraph. The word is a corruption of *telegrapheme*, which is the proper rendering. *Grapho* compounded with anything but a preposition becoming *grapheo*, which with *tele* would be *telegrapheo*, the noun from which is *telegrapheme*. At the time the word telegram was first introduced there was a stir among literary savants as to its incorrectness; but it is so much more convenient than the proper word that no one, be he ever so pedantic, would question its use now-a-days.

Telegraphy. (*See* ELECTRIC TELEGRAPH.)

Telephone.—This is an invention of Professor Graham Bell, first announced to the public in 1877, by means of which conversation can be held between two parties far away from one another. The apparatus consists of two instruments, both alike, the one telephone being in the hand of the speaker, and the other in that of the listener. The instrument is enclosed in a convenient case, open at the end, where it is formed in the shape of a mouthpiece, and opposite to the aperture is a small disc of tinned iron. At right angles to this, enclosed in what forms the handle to the instrument, is a small bar of soft iron, surrounded by a coil of wire, so as to form a magnet, connected by binding screws with ordinary telegraph wires passing from a galvanic battery—the two telephones thus forming part of a closed circuit. The speaker placing the one instrument in front of his mouth, and speaking loudly against the iron disc, causes it to vibrate in accordance with the sounds uttered; and the other instrument in the hands of the receiver produces at once corresponding vibrations, on a smaller scale, but with perfect fidelity, which

will be quite audible on placing the open end of the telephone close to the ear. Musical sounds, and the very tone of one's voice, are thus faithfully rendered, it being, in fact, a true articulating instrument; but there is a considerable loss of sound, which has caused some difficulty in its practical application, especially as it is very sensitive to the disturbing influences of neighbouring wires, which are apt to produce a kind of Babel. Many improvements have, however, been effected, and the instrument has been successfully brought into use. Where the lines are well isolated it has worked very satisfactorily.

The *microphone* is an instrument invented by Professor Hughes in 1878, by which feeble sounds which are inaudible by the unaided human ear can be so magnified as to be heard with almost painful intensity, and that whatever may be the distance to which the sound is wished to be conveyed. A battery and telegraphic wire are employed, and attached to the wire is an ordinary telephone, which the auditor holds to his ear. Instead, however, of the circuit being strictly continuous, the line of wire is broken by the insertion of a conductor, so prepared as to afford a series of breaks and contacts through the effect of the vibrations upon it. The result of this irregularity of action is carried by the wires to the telephone, the diaphragm of which



MICROPHONE.

vibrates accordingly, and gives out sound waves corresponding to the vibrations which have affected the receiving instrument. This portion of the apparatus may be made in a variety of ways, some of them extremely simple. One of the best forms is as follows:—A diamond-shaped piece of gas carbon, about an inch long, is placed upright between two other pieces. The lower end rests loosely in a little hollow made in the lowermost piece of carbon, and the upper end in a similar hollow made in the upper piece. The two horizontal pieces of carbon are connected with the circuit, and the upright piece forms a movable conductor between them; so that the continuity of the circuit is very slight, and the points of contact are liable to change under the influence of a very small vibration. The conductivity of the carbon may be increased by saturating it with mercury. The horizontal bars of carbon may be fixed against a sounding-board, and the slightest vibrations affecting this bit of apparatus will be heard at any distance to which the wires may be carried, so that if it be merely swept with a soft camel's-hair pencil, the sound of the brushing will be audible at the receiving station. A steel chain, or even a pile of common iron nails just resting upon one another, will serve instead of the gas carbon. Professor Hughes, with the roughest possible apparatus, has made instruments so delicate that even the footfall of an imprisoned fly walking in its cage placed on the sounding-board has been rendered quite audible at a distance.

Telescope.—This is an optical instrument for the purpose of viewing distant objects, and is undoubtedly one of the most important inventions of science, as it unfolds to our view the wonders of the heavens, and enables us to obtain the data for astronomical and nautical purposes. As the use of the instrument depends upon the proportionate distance of the glasses, and this distance requires to be changed to suit the nearness or remoteness of the object and the vision of the observer, the tube of the telescope is so contrived as to admit of being lengthened and shortened according to circumstances. A telescope for viewing terrestrial objects should be constructed so as to show them in their natural posture, and this is done by employing one object-glass and three eye-glasses, so placed that the distance between any two which are nearest to each other may be equal to their focal distances. The most important improvement in this instrument consists in the formation of the object-glasses free from the errors of chromatic and spherical aberration, whence they have been designated *achromatic* telescopes. They are formed by employing a compound object-glass composed of a series of lenses of different refractive powers, which will mutually correct each other, and thus give a pencil of light entirely colourless. The *reflecting* telescope, used for astronomical observation, is constructed with a concave mirror, the simplest constructions of this kind being those in which the image, formed in the focus of the mirror, is used directly, and a convex eye-glass is employed to magnify the angle under which it is seen; and this, in fact, still continues to be the principle on which reflecting telescopes are constructed, modifications since their original invention having been introduced by Cassegrain, Gregory, Hadley, Short, and the Herschels. Newton, by means of a second reflection from a plane mirror, inclined at a certain angle, threw the image of the object into such a position of the tube of the telescope that it could be easily examined from the side of the tube through a plano-convex eye-glass in whose focus it was situated. The principal effect of telescopes depends upon the rule that objects appear large or small in proportion to the angle which they subtend to the eye; and the effect is the same, whether the pencils of rays, by which the objects are rendered visible to us, come directly from the objects themselves, or from any point nearer to the eye, where they may have been united so as to form an image of the object, because they issue again in certain directions from those points, where there is nothing to intercept them, in the same manner as they did from the corresponding points in the objects themselves. In short, the effect of the telescope is, first, to make an image of a distant object by means of a lens or mirror, and then to give the eye some assistance for viewing that image as near as possible, so

that the angle which it shall subtend to the eye may be very large compared with the angle which the object itself would subtend in the same situation to the naked eye. This is effected by means of an eye-glass which so refracts the pencils of rays that they may be afterwards brought to their several *foci* by the humours of the eye. Although the telescopes of the present day are wonderful improvements upon the original inventions, their superiority consists more in the quality of the workmanship employed than in any alteration of design or construction, one of the principal makers having stated that the principle upon which his instruments are constructed is almost the same as that adopted by the firm in the commencement of the present century.

Tell-tale.—This is a mechanical contrivance showing the amount of work done by a machine, the number of times a door or gate has been opened, &c.; and by this ingenious invention it is possible to check the work of servants of the watchman and check-taker class. *Tell-tale*, nautically speaking, is a pointer connected with the steering apparatus, for the purpose of indicating the position of the helm at any time.

Tellers, Tellers in Parliament.—A teller is one who numbers; a numberer. There were four officers in the exchequer known as tellers, whose duty it was to receive all moneys due to the Sovereign, and to give the clerk of the pells a bill to charge him therewith. They also paid all persons any money payable by the Sovereign by warrant from the auditor of the receipt, and made weekly and yearly books of their receipts and payments, which they delivered to the lord treasurer. These offices were abolished by the Statute 4 & 5 Wm. IV. c. 15. In Parliament the tellers are the members of the House selected to count the numbers when a division takes place. In the House of Lords a division is effected by the "non-contents" remaining within the bar, and the "contents" going below it, a teller being appointed for each party. In the Commons the "ayes" go into the lobby at one end of the House, and the "noes" into a lobby at the other end, the House itself being perfectly empty. The Speaker then appoints two tellers for each party, and of each two there is one for the ayes and one for the noes put together, in order that they may act as a check upon each other. On the return of the members into the House, their names are ascertained by the clerks, who, having in their hands alphabetical lists printed on large pieces of cardboard, put a mark against the name of each as he passes. In this manner a division of a full House will be effected in little more than a quarter of an hour. (*See* PARLIAMENT.)

Temperament.—Human beings are very differently constituted as regards their natural disposition. The ancients supposed that these differences were due to the excess of certain fluids in the system, hence they made four temperaments, which they called the choleric or bilious, the melancholic, the phlegmatic, and the sanguineous. To these some have since added the nervous temperament. The temperaments now recognised are styled the sanguine, the phlegmatic, the bilious, and the nervous. Each of these has its proper signs. 1. *The sanguine.* Body plump; skin soft and thin; eyes blue; hair fair or red; circulation active; pulse quick and full. 2. *The phlegmatic.* Body round; muscles soft; skin pallid; hair fair; pulse low and languid; and functions of mind and body torpid. 3. *The bilious.* Flesh and muscles firm; features sharp; complexion dark; hair black; pulse full, firm, and moderately quick. 4. *The nervous.* Frame small and spare; constitution delicate; movements impulsive; pulse feeble but easily excited; thought and imagination active. Each of these temperaments is regarded as favourable to particular forms of disease. In many subjects the temperament is not sharply defined, but partakes of a mixed character, sometimes to such a degree that it is not easy to say in which particular direction there is a marked preponderance. Therefore, useful as certain indications may often be, a hasty conclusion should not be drawn.

Temperance is moderation, and the word is correctly applied to all the forms of self-control or government. Where the mind is concerned it may, as in some other cases, be called sobriety. To put the whole case in a few words, people should be temperate in their judgments and opinions, in their passion and zeal, in their speech and bearing, in dress and ornament, in eating and drinking, and in their general expenditure. The advantages of temperance in all these respects are manifold, and are a blessing to the individual and to society. Temperance commands respect, and is a sign of self-respect; it is, where outlay of money is concerned, a source of pecuniary profit, a promoter of personal and domestic happiness, a protector of health, and a prolonger of life. What are called temperance societies contemplate especially the abolition of drunkenness; but true temperance goes much further, and involves the restraining of all tendencies to excess as above indicated.

Temperance Societies.—The object of these is explained under the heading of TEETOTALLERS, TEETOTALISM. The first society of the kind seems to have been formed in the State of New York in 1808; another was founded in 1826, and a third in 1829. In Ireland a society was formed, also in 1829, and another about the same time began in Scotland. The next year the movement spread to England, where in 1832 it developed into tectotalism, after which date the old temperance principle fell into the background, while total abstinence extended in every direction.

Temperature of the Body.—The temperature of the body, when carefully taken with a correctly-adjusted and self-registering thermometer, is one of the most important guides which the physician possesses, as it enables him not only to recognise in his patient a departure from health, but also to predict at certain stages of the malady with much more certainty what the result is likely to be. The ordinary temperature of the healthy body in a temperate climate is

about 98° Fahr.; in the tropics it averages one degree more. There is but little variation in either climate from this standard in the twenty-four hours, but there is this difference, that in the former, viz., the temperate climate, the maximum temperature is attained in the morning, whilst the reverse is the case in the tropics. Taking 98°, then, as the standard of health, it may be safely assumed, after making allowance for individual peculiarities, that as a rule a persistent increase above that point indicates something wrong, the nature and extent of which will in all probability receive additional light from the frequent use of the thermometer. Again, if the temperature, after rising suddenly two, three, or five degrees, falls in a few hours or a couple of days to its normal standard, any alarm as to fever or serious ailment need no longer be felt. But if, on the other hand, increase is gradual and progressive, or rapid to a high point and then stationary, then a serious illness is to be looked for, in the correct diagnosis of which the thermometer will also be found to be an important aid. It has already been stated that the temperature in a state of disease will often indicate the probable result, and this is especially so in fevers, where a sudden fall is the surest indication of returning convalescence, whilst a steady or sudden increase portends an unfavourable issue. (For further information as to temperature, *see* PNEUMONIA; TYPHOID FEVER.)

Tempering.—Tempera painting is used chiefly for interior decoration and dramatic scenery, and is better known as distemper painting (*which see*).

Tenant. (*See* LANDLORD AND TENANT.)

Tenant in Tail (from the French word *tailler*, to cut or carve).—An estate-tail is a freehold estate of inheritance, limited to a person and the heirs of his body, general or special, male or female, the person for the time being in possession of such an estate being termed the tenant in tail. Tail general is where lands and tenements are given to one and the heirs of his body begotten, which is called tail general, because however often such donee may be married, his heirs by every such marriage are capable of inheriting the estate-tail. Tenant in tail special is where the gift is restrained to certain heirs of the donee (as his sons by a particular wife), and not to all in general. Estates-tail are likewise diversified by the distinction of male and female, as if lands be given to a man and the heirs male of his body begotten, this is an estate in tail male special; but if to a man and the heirs female of the body of his present wife begotten, this is an estate in tail female special, because the issue of the donee by any other wife is excluded; so in case of a gift in tail male, the female line shall not inherit. As the word heirs, or some word implying inheritance, is necessary to create a fee, so the word body or some other words of procreation are necessary to create a fee-tail, and ascertain to what heirs the estate is limited; therefore if the words of inheritance or procreation are omitted, although the others are inserted, this will not make an estate-tail. If an estate be granted to a man and the issue of his body, this is only an estate for life, the words of inheritance being wanting; and a grant to a man and his heirs, male or female, is an estate in fee-simple, not in fee-tail, as there are no words to define the body whence they shall issue; though in wills, where greater latitude is given, an estate-tail may be devised by the words to a man and his heirs male, or other irregular modes of expression. The incidents to a tenancy in tail are principally these:—(1) a tenant in tail may commit waste on an estate without being impeached for the same; (2) the widow shall have her dower; (3) the husband of a female tenant in tail may be tenant by courtesy; (4) an estate-tail may be barred or cut off, *i.e.*, destroyed, formerly by fine or recovery, now by the simpler means prescribed by the Act for the abolition of fines and recoveries and for the substitution of more simple modes of assurance (3 & 4 Wm. IV. c. 74); (5) leases which do not tend to the prejudice of the heir are allowed to bind the estate-tail. Personal estate cannot be entailed, and words of limitation which would confer an estate-tail in freehold lands would operate to give a fee-simple absolute in lands of leasehold tenure.

Tench.—This is the *Tinca vulgaris* of the naturalist, and belongs to the *Cyprinidæ* or carp family. It is a well-known and common fish in these islands, and resembles the carp in many of its habits as well as its haunts. It is found in ponds, in lakes, and in deep and sluggish parts of rivers, spawning in May and June. It is best taken from April till August, when it will greedily swallow gentles, paste, worms, or grubs; in fact, the same bait as that used for carp. It is cooked by either frying, boiling, or fricasseeing.

Tender.—A small vessel which accompanies a larger one to carry provisions and stores, to convey intelligence, &c. The same name is given to a kind of carriage attached to a locomotive engine on a railway, for carrying fuel, &c.

Tender, Legal.—An offer of payment, accompanied by production of the amount offered to be paid in cash. Bank of England notes are a good tender for all sums above five pounds, so long as the bank continues to pay their notes on demand in legal coin, but neither the bank nor any branch bank can make a legal tender of payment in their own notes to a party requiring gold. Gold coin is a good tender for payment of any amount. Silver coin is a good tender for sums not exceeding forty shillings, and copper coin for sums under sixpence. But no valid tender can be made of gold, silver, or copper coin defaced by names or words stamped thereon, or bent by any machine or instrument. If an absolute and unconditional covenant or promise be made for the payment of money without any time of payment being mentioned, there is an immediate liability and cause of action, in respect of which a writ may be at once issued; but if before any writ is issued, and before there has been any demand and refusal of the money, a tender thereof is made, the party entitled to the money and suing for it, notwithstanding the tender, will not be entitled to the costs of his action. A tender after the issue of a writ is utterly nugatory. The money must then be paid into

court, with costs up to the time of such payment. A tender clogged with conditions or reservations, and made in such terms that the party accepting the tender would be drawn into admission against himself, is a bad tender, for the debtor has no right to expect the creditor to take the money, if by doing so he will furnish evidence against himself of the nature and extent of his demand. Therefore an offer of money to be accepted as "all that is due," or "in full of all demands," or as "the balance due," or as a "settlement," does not constitute a valid tender; but if the party offers the money as being all that he admits to be due, not requiring the other party to accept it as all that is due, but leaving the latter free to insist upon any ulterior demand, the tender is then a good tender. If he says, "I am come to settle," or "I am come with the amount of your bill," and then goes on to offer the money, leaving the other party after he has got the money to treat it as "a settlement" or as "the amount of the bill," or not, as he may think fit, the tender is a good tender. A tender "under protest" is a perfectly good tender. If a debtor tendering money requires a receipt for the amount, he ought himself to be prepared with the paper and writing materials, and the stamp when a stamp is necessary (which it is in all amounts of two pounds and upwards), and tender them to the creditor together with the money. A tender to a clerk or servant having a general authority to receive money for his master or employers is a good tender to the latter. When a solicitor instructed by a creditor writes for the debt, requesting it to be paid to him (the solicitor) at his office by a day named, tender of the money to any person found in possession of the office will in general be sufficient; and if the solicitor demands payment of the cost of his letter, which is refused, and a writ be issued, the writ may be set aside. A tender to an executor may be good, although he has not proved the will, provided he afterwards proves and takes upon himself the burden of administration. A tender to one of several joint creditors is a good tender to all.

Tendons.—These are formed by the convergence of muscular fibres at their extremities, and present the appearance of white glistening cords, of varying length and thickness, which are endowed with great strength. Tendons, as a rule, are very sparingly supplied with blood-vessels and nerves. The best examples are the Tendo Achillis at the heel, the tendon of the diaphragm (*see* DIAPHRAGM), the conjoined tendon of the internal oblique and transversalis muscles in the groin, and the various tendons in the hands and feet.

Tenement (from the Latin word *teneo*, to hold) signifies, in its vulgar acceptation, houses and other buildings, but in its original, proper, and legal sense, *everything* which may be holden, provided it be of a permanent nature, and whether it be of a substantial and sensible, or of an unsubstantial, ideal kind. Thus *liberum tenementum*, frank tenement or freehold, is applicable not only to lands and other solid objects, but also to offices, rents, commons, advowsons, franchises, peerages, &c.

Teneriffe Wine.—The wine imported to us from Teneriffe, which is the largest island of the Canary group, bears a greater resemblance to Madeira than any other wine. Being inferior in quality, however, to the latter wine, it is sold at a cheaper rate, and is in considerable demand. The climate of Teneriffe is peculiarly delightful, and remarkably adapted to the growth of rich juicy fruit, which fact accounts for the abundant manufacture of wine that is carried on in the island.

Tenesmus.—This is the term used to signify a condition common in dysentery, diarrhœa, cancer of the rectum, piles, &c., in which there is considerable straining and frequent desire to go to stool, usually with but slight result.

Tennis.—This game was formerly very popular in England, and was especially fashionable in the time of Charles II., by whom it was probably imported from France. It, however, requires a special court to be set apart for it, and hence has fallen rather into disfavour at the present day, but a modification of the same game, adapted for out-door play, is very popular. (*See* LAWN TENNIS.) There are now very few



TENNIS.

tennis courts in the country, those few remaining being as a rule attached to the mansions of noblemen, &c.; one of the best of these is to be seen in Hampton Court Palace. Formerly there were many very elaborate rules for the guidance of the players, but into the details of these it is impossible to enter; a brief description of the mode of play may, however, be given. First, then, it is played, as already mentioned, in a room or court provided with high walls. Across the centre of the room is stretched a netting about three feet in height, and on either side of this the players, who may be either two or four in number, stand. When there are four players they divide into sides, two on each side. The only further requisites for the game are some ordinary tennis balls and a bat for each player, very similar to the bats used for rackets. (*See* RACKETS.) The game commences by one player dropping the ball on the ground, and striking it on its rebound against the opposite wall, so that it may

fall in the court opposite to him. As it falls, one of the players on the other side of the net strikes it against the other wall, and so the game continues much as at rackets or lawn tennis.

Tenon is the term used in carpentry for the square end of a piece of wood or metal, diminished to one-third of its thickness, to be received into a hole in another piece called the mortice, for the jointing or fastening of the two together. The tenon is cut at the end of the piece, in the direction of the grain; the mortice is cut parallel with the grain, and must necessarily be the exact size of the tenon. Both mortice and tenon should be accurately gauged before being cut. That part of the timber from which the tenon projects is called the shoulder of the tenon. The mortice should be cut the same depth as the length of the tenon, that the shoulder of the tenon may rest upon the cheeks or sides of the mortice, and also that the tenon itself may rest firmly and equally at the base of the mortice.

Tent.—This is a portable covering constructed of canvas, and chiefly used by soldiers; it is supported by one or more poles, according to shape, and held extended by pegs driven into the ground. The tent which has been the most highly approved is one which has a circular frame, hinging in the centre like the ribs of an umbrella, over which the canvas is stretched; its superiority over the ordinary regulation tent being that it is more roomy in proportion to its weight, is better ventilated, and is perfectly safe from being blown over. From time immemorial it has been the practice of the Eastern nations to dwell in tents, the Scriptures being full of references to this class of habitation. Many Persian tribes live wholly in tents, and consequently the Persians have brought their pavilions to a higher state of perfection than any other nation. Their shape is nearly hemispherical, with a wooden framework, and covered with felt, while worked hangings close the aperture, the felt, admitting of much taste of a decorative character, being displayed.

Tent-bedstead.—The covering placed over a bedstead bearing this name is very similar to that which forms a gipsy's tent. Four short posts stand at each corner, and an arched canopy is stretched over and fastened to each post; valances are draped round the ends and sides, and four pairs of small curtains are hung at the corners. This description of bedstead is not so much in favour as it was some years ago, because the idea is now prevalent that bedsteads should have but scanty drapery and be devoid of canopy. In this instance the tent is bent rather closely over the sleeper. The drapery of these bedsteads is usually of white or coloured dimity or of chintz, in preference to dark or heavy materials.

Tent-stitch.—This is made by crossing over one stitch of canvas in a diagonal direction; it resembles the first half of cross-stitch. It is employed when sewing beads on canvas.

Tent (Wine).—The name of Rota tinto, or tent wine, is given to a sweet, coloured Andalusian wine, which in Spain is highly esteemed. It is extensively used as a sacramental wine.

Tenter-hooks are sharp hooked nails placed along the cross-pieces of a *tenter*, on which cloth or other things are stretched, hence the expression being "on tenter-hooks," which means to be on the stretch or in suspense. The *tenter* is a machine or frame used in cloth manufactories to stretch out the pieces of cloth and make them even and square. It is ordinarily about four and a half feet high, and exceeds in length that of any piece of cloth. It consists of several long square pieces of wood, placed like those which form the barriers of a menagerie, so, however, that the lower cross-pieces of wood may be raised or lowered, as is found requisite, to be fixed at any height by means of pins.

Tenths.—Tenths and fifteenths were temporary aids levied on personal estate, and granted to the Sovereign by Parliament. They were formerly the real or actual tenth or fifteenth part of all chattels or movable property of the subject, when the same were of much less value and importance than at present. Ecclesiastical tenths were different in character, being the tenth part of the annual profit of each living, which, with the first-fruits (*i.e.*, the first year's profit of the living), was claimed and for a long time enjoyed by the Holy See from the clergy of the English Church, under the supposed authority of a precept of the Levitical law. After the Reformation the clergy continued to pay the same tax, but then paid it to the king, who had become head of the Church; but upon the accession of Queen Anne she abandoned this source of revenue, and allotted it to trustees for the purpose of augmenting poor livings. Hence the designation of the ecclesiastical fund or trust known as "Queen Anne's Bounty."

Tenures.—The mode or system of holding property, as, for instance, when we say land is of freehold, leasehold, or copyhold tenure. Tenure is the direct result of feudalism, which separated the *dominium directum* (the dominion of the soil), placing it mediately or immediately in the Crown from the *dominium utile* (the right to the use and profits of the soil), designated by the term seisin, which is the highest interest in land a subject can acquire.

Tepid Bath. (*See* Baths and Bathing.)

Term Fee.—A small fee which, in the superior courts, a solicitor is entitled to add to his bill of costs for every term or sittings in which business (other than the issue and service of the writ of summons) is done in the particular action or suit. If successful in the same, the client is entitled to recover these term fees from the opposite party, *i.e.*, they are allowed on taxation. The amount of each term fee varies from 13 per cent. to 20 per cent.

Terms.—This word signifies, in law, the extent of time for which a leasehold estate is granted, the lessee being, with reference to the term so holden, the termor, or tenant of the term. This interest is a chattel real—*chattel*, because the estate passes to the owner's executors or administrators at his death, and not to his heir-at-law, and so far partakes of the nature of personalty; *real*, because it is an

interest in land, and therefore partakes of the nature of real property. Every term must have a certain beginning, from which the computation is to be made, and a certain point beyond which it cannot endure. It may be made determinable on a life, or on any other contingent event, before the effluxion of the time named, as to A. for 99 years if B. should so long live; should B. die before the 99 years expire, the estate will cease; but though B. should survive the term, the estate, on the expiration of the 99 years, would be absolutely at an end, for the interest is an estate for years determinable on a life. A term of years is usually created by a deed, *i.e.*, an instrument under seal, called a lease or demise, and the appropriate operative words therein are "demise or grant, lease and to farm let;" but any words showing the intent of the parties that the one (the lessor) shall divest himself of the possession, and the other (the lessee) come into possession for a determinate time, are generally sufficient for the purpose. (*See* LEASES.)

Terms, Collegiate.—Certain portions of the year set apart for study, examination, &c., at the universities and colleges. They vary to some slight extent at the different British universities, but the terms kept at Oxford and Cambridge may be given as examples. Thus at Oxford there are four terms: Lent, from January 14 to April 13; Easter, from April 24 to June 7; Trinity, from June 8 to July 6; and Michaelmas, from October 10 to December 17. Cambridge has but three terms, *i.e.*, Lent, from January 13 to April 12; Easter, from April 26 to June 21; and Michaelmas, from October 1 to December 16. These terms may vary one day in different years to allow for Sundays.

Terra Cotta.—An Italian designation which means, in its literal translation, baked clay or earth. This name has been applied to a peculiar kind of pottery, red in colour and somewhat rough and porous in its nature. The antique specimens of terra cotta were often ornamented by coloured designs on the red ground; these were baked in the sun, and were less durable than those baked in a kiln. The manufacture of terra cotta, which was principally employed for vases and articles of that description, decreased considerably. In the year 1770 it was revived by Wedgwood, who introduced great improvements, in the form of a much finer and less brittle kind of terra cotta, which is more serviceable than its predecessor. This is now made at Watcombe, in Devonshire, and has been employed for architectural purposes. One or two churches of terra cotta have been made, and public buildings, such as museums and hotels, have been ornamented by its aid.

Terra Japonica.—In former days this substance was supposed to be a kind of earth brought from Japan, and for this reason received the above name; in reality it is obtained from the juice of trees, such as the acacia. It is brought mostly from India, and is often adulterated by the addition of earthy substances. The pharmaceutical name is catechu; it is used medicinally as an astringent, and is also employed as colouring matter.

Terraces.—Raised ground, ascending in a step-like way, in gardens and pleasure-grounds are called terraces; and the same term is applied to rows of houses built upon such raised ground, which is generally associated with balustrades and steps. Terraces were very fashionable in the reigns of Queen Elizabeth and James I.

Terrapin.—A kind of turtle or tortoise inhabiting fresh water, and valued as an article of food. There are several species found in tropical and warm temperate countries. They are well known in some parts of North America, as in Virginia and Maryland, where considerable attention is given to the selection and preparation of them for table. The large, fat, and thick-bodied ones are best, and the female terrapin is preferred to the male. When cooked they are first boiled whole, after which the prime meat and eggs are dressed in a variety of ways. The terrapin properly so called, or *Testudo concentrica*, was figured many years ago by Dr. Shaw, who said of it: "This species is a native of North America, and is sold in the markets of Philadelphia and elsewhere under the name of terrapin—a name applied indiscriminately in America to several other species." It is also found in Jamaica, &c.

Terrestrial Magnetism.—The globe is divided into two magnetic hemispheres, in one of which the dipping needle dips northwards, and in the other southwards. The dividing line is generally inclined to the equator at an angle of 12°, crossing the latter northwards in about longitude 3°, and southwards in longitude 187° east of Greenwich. This magnetic equator does not form an exact circle round the earth, but is apparently affected in some places by local influences. The positions and secular variations of the principal magnetic poles have already been given under the heading of MAGNETISM. Along the magnetic equator the dipping needle has no action, but rests horizontally. As it is carried thence towards either pole the dip becomes greater, so that when over the magnetic poles it will be perpendicular. Besides the questions of declination and inclination, which affect the mariner's compass and the dipping needle, there are also variations in magnetic intensity, two points of maximum intensity being found to exist in each hemisphere. Magnetic storms have received a great share of attention within late years, and they appear to occur with a certain periodicity; such magnetic disturbances attain a maximum every ten years or so, suggesting a relation to the decennial variation in the sun spots. Occasionally storms of special local importance occur, and these sometimes over considerable areas, as in the case of the great storm of February 20 to 25, 1866, which was observed both at Kew and Lisbon. The study of these and of earth currents has become of increasing importance, in consequence of the effect they exercise upon telegraphic operations.

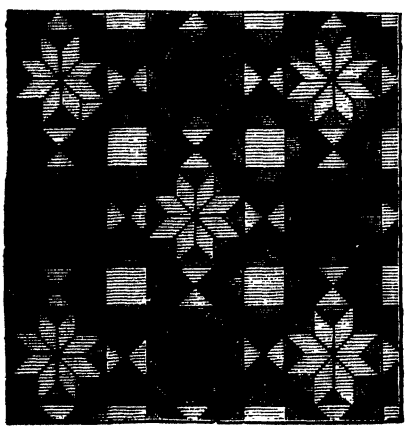
Terriers.—These dogs may be divided into two classes—namely, field or working terriers, and toy or lap terriers. First in the ranks of the former class comes the fox-terrier. This dog is intended really to run with a pack

of hounds, and in the event of the fox taking to the earth to "bolt" or turn him out. He is a cobby little short-haired dog, weighing from fourteen to twenty pounds, close strongish coat, with a longish V-shaped head and V-shaped ears drooping well forward, cat-shaped feet and good legs, straight, and with plenty of bone. The Skye terrier is a capital vermin dog. He is very low on the legs, long in the head, with ears either pricked or drooping, has a very long body, and a coat of hair like pin-wire that would defy any weather. The Dandy Dinmont is another good terrier; so too are the Bedlington, the white English terrier, the bull-terrier, and the black-and-tan or Manchester terrier. Of the toy or lap-dog terriers we have several kinds, notably the blue and gold Yorkshire or Bradford terrier, the silver Scotch or Yorkshire, and the Maltese terrier, with its long soft white silky coat.

Terry is placed in the list of velvets, although in appearance it does not bear a very close resemblance to that particular fabric. Terry has fine ribs, or cords, on its upper surface. The best is made entirely of silk; the inferior quality has a cotton back. It is used chiefly for trimming purposes; the hats and coats of little children are often bound with terry, and when employed thus it is always cut the cross way of the material. Terry is an expensive fabric. It is made in all the principal colours, and looks well in every colour except black.

Tertian.—A term applied to a form of ague which recurs every third day. (*See* AGUE.)

Tesselated Work is that which is decorated with pieces of brick, stone, marble, &c., arranged in various shapes and ways to form ornamental designs. The ornaments thus



TESSELATED WORK.

formed may be geometrical or imitative of natural objects. Tesselated pavements of the greatest beauty, variety, and elaboration are found wherever the ancient Romans settled and built. Pliny says the materials they used were sought in all parts of the world, and that the stones were sometimes varied by a process of burning. Of late years tiles have been largely introduced for the formation of tesselated pavements, and these generally consist of red clay or marl, with a sunk device filled in with clay of another colour, and glazed or rendered smooth by sand-paper.

Test Papers.—Papers which, when chemically prepared, indicate the presence of certain ingredients in articles tested by their means. There are many kinds, and they are almost exclusively employed by chemists in making investigations and experiments. Some of them are of great value to the medical profession. For some purposes test solutions are employed. In domestic economy more use might be made of simple tests for detecting alkalies and acids, especially in liquids. For instance, a particle of alkaline powder, such as bicarbonate of potass, will show whether there is any acidity in the liquid into which it is put; or a little tartaric acid will reveal whether there is alkali present. The reason is that if an acid and an alkali come into contact in a moist or wet condition, effervescence will of necessity ensue.

Testament, Testator.—A testament is another term for a man's will, which is the written disposition of his property according to his last wishes. He is termed the testator; and such a document is usually described as "the last will and testament" of the testator or maker of it.

Tester Bedsteads.—The word tester applies to a flat canopy, and a bedstead of this description has a flat cover resting on four posts; such a one is more generally known by the familiar name of "four-poster." These bedsteads have almost entirely given place to those called "half-testers," which have a canopy extending but a short distance over the bed, supported by two posts at the head of the bedstead. The testers in either case consist of a framework or cornice of wood, within the borders of which, material corresponding with the curtains is stretched tightly, either plain, in folds, or in fluted plaits. When the tester has no cornice of wood around it, a hanging valance or fringe is placed round its edge.

Testimonials.—By this word we commonly understand favourable opinions, somewhat formally expressed, concerning persons and things. A character given to a servant; a certificate given to a scholar, teacher, or professor; a written or spoken declaration, based on personal knowledge, recommending any kind of article whatever—all these are testimonials. In a great many cases the acceptance of a testimonial may involve the outlay of money, or a variety of risks; it is therefore obvious that the giving of testimonials is a most responsible act, and one the consequences of which should be pondered beforehand. Whenever a testimonial is presented, care should be taken that it be really merited, that it be not exaggerated, and that no improper use will be made of it. There are public as well as private testimonials; but whichever are in question,

they are only valuable so far as they are justly merited, and then they will be equally honourable and a source of real pleasure to givers and receivers, and to those who are influenced by them. Formal testimonials often take the shape of presents and of ornamentally written documents.

Testimony.—Another term for evidence given, or proof by a witness or witnesses, in an action or legal proceeding. (*See* EVIDENCE.)

Tests (Chemical, &c.).—A chemical test is any substance which, when added to another, demonstrates the nature of that other, by giving rise to some phenomenon which is presented by no body but one; so that if the peculiar phenomenon be witnessed, it implies the existence of the solitary body that can produce it. Thus no liquid acid gives ruddy fumes when a metal is added to it; hence the metals, such as copper and zinc, are tests of nitric acid, which they identify by causing the evolution from it of nitrous acid. Sulphate of iron is tested by muriate of baryta for discovering the presence of sulphuric acid, and by tincture of galls to prove the presence of iron, through the precipitates formed by the respective mixtures. The simplest and most common test for gold and silver is to slightly wet the metal, and then gently rub it with a piece of lunar caustic. If the article be of gold or silver the mark will be faint, but if of an inferior metal it will be quite black.

Tetanus. (*See* JAW, AILMENTS OF.)

Tête-à-Tête (French, signifying "head to head").—1. A familiar drawing together of two individuals, necessitated by the intention to speak in so low a tone as to be inaudible to others who might otherwise be within hearing. To propose a *tête-à-tête* is equivalent to stipulating that no other person shall be present, and that the interview shall be private and confidential. 2. A peculiar description of sofa, or two chairs united, with the backs and seats respectively turned opposite ways. Thus when occupied by two persons they sit facing each other, though turned different ways.

Text-books.—Such books and editions as are adopted for special study by schools and colleges. It is found by experience that it is better for the students all to use the same book in a variety of cases; hence text-books are adopted for the sake of convenience and uniformity.

Text-hand.—A kind of handwriting in large and legible characters. It is so called because it was the custom in writing manuscripts to write the text in large letters, and notes and comments in small ones.

Textiles.—This term signifies materials wrought in a loom, of whatever stuff they may be. Thus the threads of a textile may be spun from the produce of the animal, vegetable, or mineral kingdoms, as from sheep's wool, goat's hair, camel's wool, or camel's hair; from flax, hemp, mallow, or the filaments drawn out of the leaves of plants; from the lily and asphodel tribes of flowers; from the fibrous coating about pods, or cotton; or from gold, silver, or any other metal. All the webs made from such materials are called textiles. Other appliances are used in some countries to substitute those abovenamed, and amongst these paper, which is extensively utilised for the composition of garments in Japan. In cold latitudes the skins of animals, sewn with their sinews, supply the most suitable coverings. The women of our Anglo-Saxon period spun the fleece of sheep from the distaff; the universal employment of the sex, from the king's daughter downwards, in this occupation having given rise to the term "spinster." The fabric produced in Britain at a still earlier period was plaited wool, a coarse, loose shroud manufactured by this process having been discovered, to prove the fact, in an early Celtic barrow in Yorkshire. The art of dyeing the woollen fabrics soon followed the invention of the loom, and a strict rule limited the beautiful colours in the official costumes which the Britons knew well how to give. Cotton fabrics are natives of the East, the mallow family supplying the material used in the Indian looms. Pliny says that weaving with a good number of threads, so as to work the cloths called *polymita*, was first taught at Alexandria, and dividing by checks originated in Gaul. From the Latin name *cannabis* our own word "canvas" is derived, and means any texture woven of hempen thread. Hemp, a species of the nettle tribe, superior in quality to flax, was much employed throughout ancient Scandinavia. Thracian cloth of woven hemp can scarcely be distinguished from that of flax. The latter, though growing wild in the British Islands, was not known as a material for the loom for many ages. The weaving of flax was a great source of mercantile wealth to the ancient Egyptians. Fabrics produced from their looms attained to the highest degree of artistic perfection, and were decorated with designs, animals, &c., and embroidered with tree-wool and with gold. The twists of tree-wool, though very fine, were composed of three hundred and sixty threads, clearly distinguishable. Sir G. Wilkinson states that a piece of ancient linen fabric which he obtained at Thebes contained one hundred and fifty-two threads in the warp and seventy-one in the woof. Mummy bandages of *byssus* in every instance are composed of fine unmixed flaxen linen. Silk textiles appear to have originated in China; through India or Persia they travelled to Cos, off Asia Minor; Pamphile, the daughter of Plates, being credited as the first silk-weaver in that island. It was of a very thin, gauze-like consistency at first, and was condemned as an insufficient covering by Tibullus, Seneca, and Solinus. At an early period it was brought to Rome. Caligula's adoption of silken attire was condemned as effeminate; but in A.D. 533 looms worked by women were set up in the imperial palace. Beautifully embroidered silk stuffs, distinguished as *samit*, *ciclatoun*, *cendal*, *baudekin*, *syndonus*, *taffeta*, *sarcenet*, *satin*, *cardas*, *camoca*, *cloth of Tars*, *velvet*, *fustian*, and *diaper* (in early times a fabric made of silk), were made from the cocoon of the silkworm and brought from the East. When the raw material was imported, its weaving became a wide-spread occupation in England by women. The use of gold for

weaving (with linen, and alone) existed in Egypt anterior to the time of Moses, being at first flattened for the purpose. In China and in India this primitive fashion continues. Webs dyed with purple and interwoven with flattened gold wire were anciently known as Medean, Lydian, and Persian textiles. Quintus Curtius describes the dress of Darius when he went out to battle thus:—"The waist part of the royal purple tunic was wove in white, and upon his mantle of cloth of gold were figured two golden hawks, as if pecking at one another with their beaks." On opening an ancient Roman tomb in 1840, the fine flat gold thread of which the lady's grave-clothes were made was found about her remains. Likewise in the grave of Childeric, buried at Tournay, A.D. 482, the flat gold threads of his cloak were discovered in 1653; and also in our own Isle of Wight, in an Anglo-Saxon burial-place, similar remains were found. Silver as well as gold used to be hammered out into thin sheets, and cut in shreds for the loom. Our woollen textiles of a coarse description, or in thread, or both combined, formed a stuff called *burel*. This manufacture and all the coarse kinds of stuff were woven by men. The shuttle and loom for the weaving of woollen cloth occupied the monks from very old times. Irish cloth, both white and red, was much used in England in the time of King John. Flemish textiles, including velvets, satins, damask silks, and block-printed linen, became remarkable in the fifteenth century. In France silk fabrics were not much manufactured till the sixteenth century. An ecclesiastical textile called an *Orphrey web* was woven at that time at Cologne and in Italy. At the beginning of the fourteenth century a kind of silk called *acca*, or cloth of gold, shot with coloured silks and figured with animals, was introduced, it is supposed, from Syria. *Bordalisaunder*, or *Burdalisaunder*, a striped cloth (*bord*, in Arabic, meaning striped), was the oldest known design for any texture, and in England took its name from Alexandria. St. Augustin speaks of *burda* in the fourth century, and it is probable that the curtains of the Jewish Tabernacle were made of it. *Fustian* was originally woven at Fustal, on the Nile, with a warp of linen thread and a woof of thick cotton, so twilled and cut that it showed on one side a thick low pile. *Muslin* takes its name from Mosul, an ancient city of Central Asia. The women of this locality could spin thread from this cotton of less than hair-like fineness. *Cloth of Areste* was another woven stuff of cloth of gold, beautiful and rich in figured decorations, much used for ecclesiastical purposes. *Cloth of Tarsus* was woven of goat's hair and silk, both rare and costly. Silks of two distinct colours, one on either side, were known in England in 1300, or earlier. Other varieties of textiles are treated separately under their own headings. A few real textiles that may be regarded more perhaps in the light of curiosities we enumerate as follows:—A remarkably fine kind of silk is spun in some parts on the coasts of Italy, obtained from the *Pinna marina*, a large mussel, which secures itself to the rocks by means of the fine brown threads which it spins. From them stockings, gloves, and other articles are manufactured by the people of those coasts. The ancients knew and employed this material under the name of *bygsus*. The manufacture is carried on at Palermo; the silk is beautiful and very fine, and stockings woven of it are esteemed valuable in cases of gout and rheumatism. A species of vegetable silk is procured from the Japanese paper-mulberry tree. The thread is obtained from the fibres in the bark, which is woven into cloth. Nets and fringes are made by women in Louisiana from mulberry fibres, and the finest Otaheitian native cloth is likewise made of it. A species of cloth can be made from the fibre of the leaves of the pine-apple plant. A russet, very firm, and beautiful cloth has been made from the wool of the cotton-grasses of Yorkshire and elsewhere, and yarn for stockings. The stalks of nettles have been used in France for making cloth; and in Sweden a strong description of cloth is made from hop-stalks. A splendid kind of brocade, consisting of spun glass and silk—the glass threads forming the figured pattern—is also manufactured. (*See* FABRICS.)

Thatch.—Reeds, straw, flags, and other similar materials, when used as a covering for roofs to exclude rain, &c., are known as thatch, reeds being the best. Thatch was at one time in common use for building purposes of nearly every kind. It is now used for the humblest cottages and huts, barns and rude outbuildings. Thatch was used at a very early period. The word is derived from the Anglo-Saxon *thack*, or *thaccan*, to cover.

Thaumatrope.—This is a scientific instrument chiefly employed as an amusement to demonstrate the time an impression made by the light reflected from objects, and refracted upon the retina of the eye, is retained after the luminous or visible object has been withdrawn.

Theatricals, Private and Amateur. (*See* AMATEUR THEATRICALS.)

Theft.—The popular term for describing larceny (*which see*).

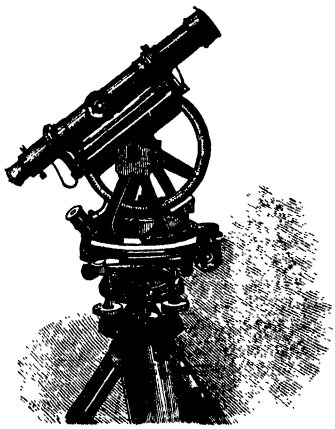
Theine.—A nitrogenous crystalline substance derived from tea, and hence its name. About three per cent. of the weight of the tea-leaves consists of theine, which adds considerably to the nutritive properties of the beverage. It also occurs both in coffee and cocoa.

Theme.—In its general sense, any subject proposed for discussion, either in speech or writing. In a scholastic sense, a short essay or dissertation by a student.

Theobroma Cacao. (*See* COCOA.)

Theodolite.—A most important surveying instrument for observing and measuring the angular distances between objects projected on the plane of the horizon (Greek, *Theaomai*, I view, and *dolos*, stratagem). In using the sextant (*which see*) for surveying purposes, previous calculations as to the horizontal angles and determinations of the altitudes are necessary; but the object of the theodolite is to do away with these, and measure at the same time both

the horizontal angles subtended by each of the two points observed with it, and the angles



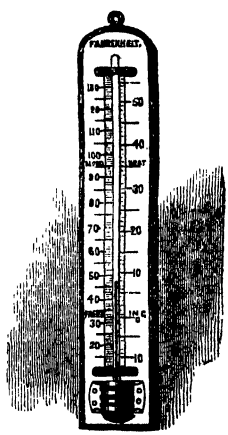
THEODOLITE.

of elevation of these points from the point of observation.

Therapeutics.—This term is derived from the Greek word "to heal," and is used in the science of medicine to signify the different curative or healing measures, with their mode of action, by which disease is combated, and a return to health, if possible, promoted.

Theriaca is in the present day the medical name for treacle (*which see*). The term was, however, in ancient pharmacy, applied to various preparations which were used as antidotes to poisons. The most celebrated of them was known as *Theriaca Andromachi*.

Thermometer. — An instrument for measuring variations in temperature by means of the expansion of liquids by heat. The liquids most suitable for this purpose, and therefore generally used, are mercury and spirits. For ordinary use, mercury is to be preferred, as it remains liquid until 38° below zero of Fahr. is reached, and does not boil till 660° Fahr. is attained. Absolute alcohol will stand any amount of cold without freezing, but it boils at 174° Fahr., so that spirit thermometers are the best for very low temperatures, but of no use whatever for high ones. Water, of course, is practically useless for this purpose, as it has so small a range—only 180° Fahr. between its freezing and boiling points. The spirit used is coloured red, in order that its height in the tube can be more readily seen. The instrument consists of a capillary tube of glass, widening out into a bulb at the bottom, into which such quantity of mercury or spirit is introduced as shall bring the level of it a convenient distance up the capillary tube at an ordinary temperature; all air must be expelled from the space above the liquid, and the end of the capillary tube hermetically closed. If the air has not been properly exhausted, the expansion of the air by heat will reduce the proper expansion of the liquid, and the readings would be too low. Whether this has been done or not can be tested by suddenly turning the thermometer upside down. If the vacuum is a good one, the mercury will then fall to the end of the capillary tube with a sharp blow; but if there is air in it, only a muffled sound will be produced. The graduation of the scale should also be made with great exactness. This is often carelessly done, and errors perceptible to the eye are common in cheap thermometers. Another source of error, which, however, is difficult to detect, arises from variations in width of the bore of the tube. This can only be tested by careful comparison with standard instruments, and on this point the reputation of the makers has generally to be accepted. Ordinary thermometers are usually fixed to a boxwood or metal frame on which the scale is engraved; for scientific purposes the scale is generally engraved upon the glass tube itself. Registering thermometers are made for showing the maximum temperature within a given period. The instrument is placed almost horizontally, and as the liquid expands, the index which floats upon it is pushed forwards along the tube, but rests as soon as the liquid begins to contract again, thus showing the extreme height the liquid has attained. The instrument must be tilted up after each reading, so as to send the index down again to the surface of the liquid. There are three different scales according to which thermometers are divided. Fahrenheit's (commonly in use in England), in which the melting-point of ice is fixed at 32°, and the boiling-point of water at 212°; Reaumur's (in common use in Central and Southern Europe), in which these two points are fixed at zero and 80° respectively; and Celsius's, or the Centigrade scale (used in Northern Europe, and very generally by scientific men in England and elsewhere), in which these two points are fixed at zero and 100°. In converting Reaumur's or Celsius's scale into Fahrenheit's, the number of degrees must be multiplied by $\frac{9}{4}$ or $\frac{9}{5}$ respectively, and 32° must then be added to the product; in reversing the operation the 32° must, of course, be deducted first, and the remainder divided by the same fractions. The instrument shown in our illustration is the ordinary form of thermometer with Fahrenheit and Centigrade scales. A thermometer should never be subjected to such a heat as to cause the whole of the capillary tube to be filled by the expansion of its contents, because in such case the bulb will be distended by the expansive force within, and as it will not contract again to its original size, all subsequent readings will be too low.



THERMOMETER.

Thermoscope.—Another name for the thermometer. (*See preceding paragraph.*)

Thermostat.—An instrument which consists of two metallic bars, differently affected by heat, soldered or riveted together. At one temperature it is straight, but variations from it are indicated by its bending, which, acting upon a lever, is made to close or open the damper in a flue, and thus regulate the draught. It is used for purposes of ventilation, and for regulating the temperature of baths, hothouses, &c.

Thesis.—In general usage, any proposition which is to be supported or negatived by argument. In a special sense the term is also applied to certain questions propounded in universities — the Scotch and Continental universities in particular—to be dealt with by the students in writing as part of the examination for their degree.

Thibet-cloth.—A name which is given to a fabric made of coarse goat's hair, and also to a fine woollen cloth employed for making ladies' dresses.

Thickening.—The various ingredients employed to give body to sauces and soups are in English termed thickenings, and in French *liaisons*. The substances usually chosen for the purpose are flour, ground rice, arrowroot, roux, eggs, butter, and cream or milk. Flour may be dredged into the liquid separately, but it is more usual, in order to escape lumps, to mix flour as well as ground rice and arrowroot to a smooth paste with cold water, milk, or stock, and afterwards to strain this into the hot liquid. The sauce or soup must be boiled after the liaison is added. The liaison of roux is made of butter and flour, cooked together over a gentle heat. (*See* Roux.) The liaison of egg is composed of the yolks of eggs only. The yolks should be beaten in a basin, and mixed with a little of the liquid, slightly cooled. They should then be added to the remainder, and all stirred over the fire till the preparation is quite hot. It must not boil, however, after the eggs are added, or it will curdle. Liaisons of cream and butter are intended to enrich rather than to thicken sauces and soups. The thickening should be added at the last moment before serving, after the liquid has been taken from the fire. Cream should be added boiling hot. A thickening of blood was once common; it has now gone out of use almost entirely, excepting with preparations of game, as hare soup. Caramel and glaze are frequently called liaisons. They are introduced to colour and enrich liquids, as well as for the purpose of thickening them.

Thimbles.—Covers for the finger as a protection against the needle, which are made of brass, steel, silver, gold, ivory, and ebony. The first two metals are employed for thimbles which are used by tailors, upholsterers, and by others who also may have work to do in which thick needles and strong stiff materials have to be dealt with, this class of thimbles being frequently open at the ends. Silver, and occasionally gold, thimbles are used for ordinary sewing. The indentations in these should not be large, because not only is the needle liable to catch in them but holes are the sooner worn through. These thimbles are ornamented in various ways; they are engraved, chased, and embossed, and sometimes gold thimbles are set with jewels. Metal thimbles are ordinarily made by a stamping machine. A method adopted in France is to cut circular discs, to make these red-hot, to lay them over hollow moulds, and with a round-faced punch to form them into shape. After this they are placed in a lathe, when the inside is made smooth; finally, the outside is ornamented. Ivory and ebony thimbles are especially fitted for lace-work and embroidery, more particularly when silks are used. They are very smooth, and do not injure or tarnish the materials in hot weather as those of metal are apt to do. The black ebony thimbles are known as nuns' thimbles on the Continent. The Dutch are said to be the inventors of these extremely useful articles; by them they were introduced into England about two hundred years ago.

Third Party.—The term used on the introduction of any one into a matter in which two characters are already engaged in a definite relation to each other, as principal and agent, guardian and ward, solicitor and client, &c.

Thirst.—This is a condition which may occur in a great variety of circumstances. In health it may be due to excessive exercise, to the consumption of salt food, or to indulging in certain condiments. In disease it is usually the result of a feverish and dry state of the mouth and throat; it is a common accompaniment also of excessive discharges from the body, as in hæmorrhage, diarrhœa, cholera, dysentery, diabetes, &c. Thirst is an instinct, and indicates that drink is wanted; but this should be of a harmless character, and when the body is very hot should only be taken in such a way and in such quantities as not to excite, shock, or be injurious. It is cruel to prevent, as is too often ignorantly done, the fever patient from having an abundant supply of cool drink. It is grateful as well as beneficial, in most cases, to give as much iced milk as the patient will take.

Thistle (Edible).—This is also called the milk thistle, and by botanists *Carduus marianus*, belonging to the natural family *Compositæ*. The veins of the leaves are of a milky-white colour, hence the name. This colour is absurdly supposed to have been produced by a drop of the Virgin Mary's milk. Seldom seen in Scotland, it is common enough in England, and is often eaten when young as a salad, or even boiled and used as greens. The roots may also be eaten, being prepared as artichokes are. The edible thistle may be cultivated in the kitchen garden, the seeds being sown in spring, and the young plants thinned out to a foot and a half, so that they may be earthed up and bleached.

Thistle, Order of the. (*See* Knight, Knighthood.)

Thorax.—This is the anatomical name for the bony framework which is commonly called the chest. It is bounded in front by the sternum, or breast-bone, and the cartilages of the six

upper ribs, on each side by the ribs and intercostal muscles, and behind by the ribs and the spinal column. The thorax is conical in shape, narrow above and broad below, and is separated from the abdomen by an intermuscular septum or floor called the diaphragm. The contents of the thorax are the heart, with the large vessels proceeding to and from it; the lungs, with their respective bronchi; as well as a portion of the trachea, or windpipe, the œsophagus, or alimentary tube, passing down to the stomach, the thoracic duct, and certain important vessels, nerves, and glands. The thorax varies considerably in circumference, but when fairly developed should average from thirty-six to thirty-eight inches. In some persons, especially those who have been rickety in childhood, the breast-bone and front part of the chest bulge considerably, constituting the condition known as pigeon-breasted. A contracted thorax is frequently associated with the strumous or consumptive tendency, whilst a deep and expansive chest is in a state of health usually indicative of great respiratory power. We say in a state of health, because in certain diseases, as emphysema of the lungs, pleuritic effusion, &c., there may be considerable bulging of this part.

Thorn Apple.—This is another name for the stramonium (*which see*).

Thornback.—A fish of the skate order, belonging to the natural family *Raiidæ*. It is the *Raia clavata* of the naturalist, and is also called the rough ray. It is easily known, as it is covered with rough spiny plates. Its flesh is considered more delicate than that of any other of the ray tribe. It is supposed to be best in the month of November.

Thorns, To Extract.—These must be removed, and afterwards treated in the way recommended for splinters (*which see*). Special care must be taken, in the case of thorns of an irritating or poisonous character, to remove all the fragments, if there be any, as troublesome sores are apt to result if this is not done. It is well in these cases, also, to apply a warm poultice as soon as the operation of removal, as far as it can be accomplished, is effected.

Thread.—For sewing purposes, and for the manufacture of lace and net, this is made very round and smooth. Several strands of yarn are doubled and twisted by means of a machine frame; the yarns are moistened with starch paste, they are then passed over flannel to absorb the extra liquid; afterwards the yarns are brought together by rollers, are slightly compressed, and finally are twisted together in the same manner as ropes, in greater or less number, according to the desired degree of fineness or thickness of thread. The cotton and silk threads used in sewing-machines require to be specially smooth; ordinary sewing cottons cannot be used in the majority of machines. Linen threads are employed for lace-work; the thicker kind, known as flourishing thread, is used for embroidering on linen and flannel. Linen threads do not shrink when washed, and therefore are chosen for these purposes. Coloured, tightly-twisted linen threads are used to sew carpets and strong materials together.

Thread Lace.—A term used broadly to designate lace which is fabricated with flax thread, in contradistinction to that made with silk, gold, or silver threads, but used in the present day more particularly to distinguish it from lace made with cotton thread, to which it is considered to be vastly superior. Cotton thread becomes hard, shrinks, and thickens when washed; while flax thread retains its softness of touch, its original size, and clearness of appearance. The former is much cheaper, and consequently is often used for that reason.

Thread Lace, To Wash.—This should be done in a careful and gentle manner. Lace should never be rubbed with the hand nor with the iron, and should never be wrung. It should be soaped with white curd soap, and put by itself into warm water; after lying some hours it should be pressed with the hands, not lifted out of the water, because the weight of that is liable to break the threads; it is then put in fresh warm water, again soaped, and left to steep. When clean, it is put in a bowl, and clear cold spring water is poured on it. When pressed and squeezed free from soap, it is put in a dry towel, and the moisture is pressed out of it; finally, it is dried—on grass, if possible—then passed through thin starch (usually without blue), dried, damped, rolled in a dry towel, clapped, to absorb the superfluous starch, and then pressed with an iron made moderately warm. When ironing lace, the fingers should do as much in straightening it as the iron; the lace is gently pulled out and arranged in form; the iron presses it when thus arranged.

Thread-worms. (*See* Worms.)

Threader, Needle. (*See* Needle-threaders.)

Threatening Letters, Threats.—Threatening letters are letters written with the view of intimidating or coercing parties into doing certain acts, or paying hush-money, &c. They are the subject of express legislation, of which we shall give a short summary. By 24 & 25 Vict. c. 100, ss. 16, 44, and 96, "Whosoever shall maliciously send, deliver, or utter, or cause to be received, knowing the contents thereof, any letter or writing threatening to kill or murder any person; and whosoever shall send, deliver, or utter, or knowingly cause to be received, any letter or writing demanding of any person with menaces, and without any reasonable or probable cause, any property, chattel, money, valuable security, or other valuable thing; and whosoever shall with menaces, or by force, demand any property, chattel, money, valuable security, or other valuable thing of any person with intent to steal the same; and whosoever shall knowingly send or deliver any letter or writing accusing, or threatening to accuse, any person of a crime punishable by law with death or penal servitude for not less than seven years, or of any infamous crime as thereinafter defined, with a view to extort or gain, by means of such letter or writing, any property, chattel, money, valuable

security, or other valuable thing from any person, shall be guilty of felony, and liable to be kept in penal servitude for certain terms (in some cases for life), or to be imprisoned for any term not exceeding five years, and if a male under sixteen years of age, to whipping." *Threats* or menaces of bodily hurt, through fear of which a man's business is interrupted, are civil injuries, affecting the right of personal security. The remedy for this injury consists in pecuniary damages; but it is also made a felony, and is punishable, under 6 & 7 Vict. c. 96, and 24 & 25 Vict. c. 96 and 97, with penal servitude or imprisonment.

Threshold is the ground or step under the door of a house. When a person enters a dwelling by the door, he or she is said to have crossed the threshold.

Thrift.—This is the name given to the *Armeria maritima*, belonging to the natural order *Plumbaginaceæ*. It has rose-coloured flowers, somewhat like small daisies; it is found growing close to sea-beaches, especially where the ground is flat, but bears transplanting to the garden, where it is often used to form the edges of flower-beds. This little flower is sometimes called the sea-pink.

Thriftiness, or Thrift.—Frugality; economy; careful management, especially with a view to the avoidance of waste and extravagance. The term "to thrive," from which these forms are derived, means to flourish, prosper, and increase; and thrift is that which tends to make men thrive. Nothing need be said to recommend a habit which is so conducive to the welfare of persons, families, and communities. It is not to be confounded with miserly niggardliness, which is a vice, whereas thriftiness is a virtue.

Thrips.—A name given to a kind of blight that comes on some trees, caused by innumerable small spotted flies.

Throat, Affections of.—These are very numerous, and will be found described under the headings of Diphtheria; Quinsy; Scarlet Fever; Sore Throat; &c.

Throat, Gargles for. (*See* Gargles.)

Throbbing.—This is the peculiar pulsating or beating sensation often experienced during the first stage of inflammation. It indicates an increase in the flow of blood to the inflamed part, as well as some impediment to its return from it. Headache is not unfrequently of a throbbing character, and when this is so the cause is for the most part some temporary vascular or nervous excitement. (*See* Pulse.)

Throne.—A chair of state and high dignity, especially that of a monarch, but also of an archbishop, a bishop, or of some prince. Figuratively, the dignity is itself called a throne, as the throne of Great Britain, &c.

Thrown Silk.—Silk when imported to this country is in roughly-assorted hanks, and in this state is termed raw silk (*which see*). In order to bring it into a condition fit for the weaver's use, it requires to be doubled, twisted, and reeled. While undergoing these processes the silk is tossed and swung by rapid movements to and fro, and hence silk which has been so treated, when twisted and wound, is known as thrown silk, and the workers who accomplish this are called "throwsters." There are small mills in France for this purpose; in England the silk-mills are much larger establishments; they are chiefly in Derbyshire. The method now employed in these is an improvement on the Italian plan, which was at first adopted in this country.

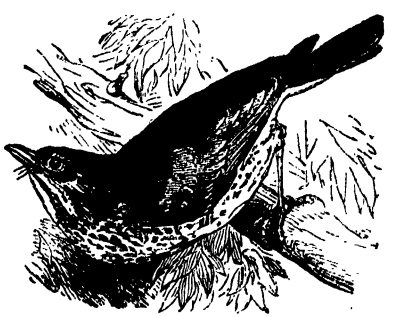
Thrum Mops.—These useful articles of domestic furniture, used for cleaning floors, are made of pieces of coarse cloth or yarn, called thrums, fastened securely to a long handle, thus forming a kind of round sweeping brush. Being stronger than the ordinary sweeping brushes, thrum mops are well adapted for the rougher kinds of household work.

Thrumety. (*See* Furmety.)

Thrums.—This name is given to the numberless threads that are cut off by weavers when working their looms.

Thrush.—This is a vesicular eruption of the mouth, common to new-born infants, and varies in intensity from a mild form, which lasts only a few days, to one much more severe, which partakes of a diphtheritic character, and is sometimes fatal. The disease frequently follows measles. In the mild form of thrush all that is necessary is to give the infant a little borax and honey to suck, and administer a little magnesia as an aperient; a little lime-water may also be beneficially added to the milk. In more severe cases a lotion of biborate of soda (one drachm), glycerine (two ounces), and rose-water (four ounces) should be painted over the mouth and tongue. When the affection is of a diphtheritic or parasitic character, the application of a solution of sulphate of soda, one drachm to the ounce of water, is the most effective remedy. Tonics and change of air will be requisite in the more severe cases.

Thrush (Bird).—There is more than one species of this pretty and interesting bird kept as a household pet, and probably the song-thrush, or mavis, is the best. Although naturally a shy bird, it thrives very well in confinement, requiring even less care and attention



SONG-THRUSH.

than does the blackbird. It may be fed on German paste, or paste made of oatmeal moistened with milk, with now and then a few snails and worms, which the bird greatly

relishes. Thrushes need to be kept very clean, and to have a large supply of water both for drinking and bathing purposes. The young birds are hatched in spring, and should at first be fed on a little raw meat cut very small, and bread steeped in milk and mixed with a little hemp-seed. When they can feed themselves let them have German paste, but still give an allowance of raw meat.

Thyme.—The common or garden thyme (*Thymus vulgaris*) is a native of Spain and Italy. Its uses are well known, and it is one of the herbs that cannot be dispensed with in a herb bed. Its leaves possess an agreeable and highly aromatic flavour, and are used, both in a green and dried state, to season soups, stews, sauces, and stuffings. It needs to be judiciously introduced into the culinary preparation, however, for a little of it goes a long way. In the south of France an essential oil is distilled from it, which is imported into this country and sold under the name of marjoram oil. A kind of camphor also is obtained from it by distillation, and in Spain it is infused in the pickle in which olives are preserved. Common thyme grows best on a sandy soil in a sunny situation. When grown in a rich garden soil it is tender in winter, but in a sandy, stony soil it is perfectly hardy, and the severest frost does not injure it. It may be raised either from seed or by the division of the old plants in spring. It is an exhaustive plant, and therefore, after it has grown for four or five years in one place, a fresh bed should be made in a different situation, and the old one should be dug up and manured. Common thyme was well known to the Romans, and it was one of the plants grown for the sake of bees. The leaves should be gathered for drying and keeping at the end of July and in August. Wild thyme (*Thymus serpyllum*) is less erect in its growth than the garden thyme. It is found abundantly on the hills and mountains of Britain, throughout temperate Europe and Asia, and in the north of Africa. There is not one of the species that is indigenous in America. It possesses the same qualities as the garden thyme, but it is the less fragrant of the two. Its branches are used in medicine for stimulating purposes, and those who live in places where it grows plentifully may, if they choose, use it for flavouring also. Lemon thyme (*Thymus citriodorus*), which possesses the most agreeable perfume of any of its genus, is a lemon-scented variety of wild thyme. It is propagated either by slips or by parting the roots. It should be planted in light sandy soil, and thrives very well in peat. It is a hardy, dwarf, trailing evergreen, and is used for the same purposes as the other species. It is so valuable that no garden should be without it. Like the garden thyme, its leaves may be gathered for drying in July and August.

Tiaras.—In the present day this term is used to designate the peculiar head-dress worn by the Pope on solemn occasions, which consists of a triple crown. The word tiara is also used rhetorically when speaking of the Papal dignity. In former times a tiara was a kind of hat, which was worn by Armenians, Parthians, Persians, and Phrygians. There were two forms—one of these was upright, and worn by priests and by men high in rank; the other was made of a soft fabric, and its crown hung down at one side; this was worn by the lower orders of the people.

Tic-doloreux.—This is a painful neuralgic affection of the face. (*see* NEURALGIA.)

Ticket-of-Leave. — A licence to be at large which is granted to a convict for good conduct, but it is revocable upon subsequent misconduct. See 6 & 7 Vict. c. 7; 16 & 17 Vict. c. 99, s. 9; 20 & 21 Vict. c. 3, s. 5; 27 & 28 Vict. c. 47, ss. 4—10; and 34 & 35 Vict. c. 112.

Ticking.—A very strong material which is used for the covers of mattresses, beds, bolsters, and pillows. Ticking is made of linen and also of cotton threads; the former is preferable, owing to its smoothness of texture. Cotton ticking is used because it is cheaper. Ticking is usually woven in stripes of blue and white; the strict uniformity of these acts as a sure guide when sewing the material. Ticking is rubbed with wax before feathers are put into the case.

Ticks.—A large class of parasitic insects, especially such as attach themselves to different animals. They often bury their heads in the skin, and live by sucking the blood of their victims. Some kinds are peculiar to certain animals, but others are not so, and among these there is one which will fasten upon travellers in our own woods and forests. These are troublesome, cause much pain, and are detached with the greatest difficulty, often leaving their fangs in the flesh. Ticks are called *Ricinia* by naturalists, and are classed with the *Acaridæ*. (*See* MITE.)

Tides.—The alternate fall and rise—called *ebb* and *flow* respectively—of the waters of the ocean. They are principally due to the attractive influence of the moon, but they are considerably modified by the action of the sun. The oceanic waters, forming a mobile body, are drawn by the attraction of the moon and sun towards that side of the earth to which these heavenly bodies are nearest at the time, and there they tend to accumulate; while those waters which are on the opposite side to these attractive forces are least affected, so that the supply of water must necessarily be drawn from the intermediate parts. The high tides should therefore be theoretically at the parts nearest to and most remote from the sun and moon, and the low tides in the parts between each. But as a matter of fact the moon exercises a considerably stronger attractive influence than the sun, so that the solar tides become merged into the greater lunar tides. Thus at the syzygies, when the sun and moon are, so to speak, pulling together, we have a very high or spring tide; and at quadrature, when their influences are acting at right angles to one another, we have a very small or neap tide. Spring-tides, therefore, occur both about the new and the full moon, and the neaps at the first and third quarters. As the earth rotates the tidal wave travels round, so as to keep as nearly under the moon as circumstances will permit; but this is accelerated or retarded

according to the relative position of the sun, and is also affected by the position of the continents and other minor obstacles. The form of the coast-line and the depth of the water greatly influence the amount of rise and fall; the greatest movements in this way round the British Isles taking place in the narrow portion of the Bristol Channel, where the difference between high and low water is about sixty feet. A continuance of strong winds often exercises a great influence both on the height of the tide and the time of its turning. Of course, in ordinary circumstances, at the spring-tides the water not only rises to its maximum height, but falls again to its lowest level; the neap-tides being characterised by the smallest deviation, either above or below the mean. Inland seas, such as the Mediterranean and the Baltic, have very feeble tides at all times.

Tidy.—A receptacle for odds and ends, which is hung against the wall. Those introduced into sitting-rooms are useful for ravellings, ends of cotton, and such-like scraps, which not only look untidy when left on a table or floor, but also give extra trouble when scattered. This tidy is generally ornamental. Very often a small cheerful pattern is worked on a strip of canvas with wool or beads; this is stiffened with card or millboard and lined with silk; it is attached to a back made in like manner, and the edges are trimmed with silk cord. A tidy is more especially useful in a bedroom, and may be considered a necessary appendage of the toilet-table, near to which it should be suspended. The combings from brushes, bent hair-pins, faded flowers, and the like, which if left about are soon scattered by the wind, should be diligently put into the tidy, instead of being thrown into the grate or into the wash-hand basin—this latter plan often causing the stoppage of pipes, for knots of hair are very liable to adhere to them. The contents of the toilet-tidy can thus be taken away each day by the maid and burnt. A tidy for this purpose is often made of cardboard, plain or perforated; also of holland trimmed with braid. Any of these inexpensive materials can be frequently renewed.

Tierce is a liquid measure containing the third part of a pipe, or 42 wine gallons, equal to 35 imperial gallons. It is also a weight by which provisions are sold, especially in Ireland. The tierce of beef for the navy is 304 lbs., and for India 336 lbs. In heraldry, it is the division of a shield into three equal parts; in music, the interval of a third; in card-playing, it is a sequence of three cards of the same colour; in fencing, it signifies a thrust. Tierce is also the term which is used in the Roman Liturgy for one of the canonical hours for prayers, viz., eight in the winter and ten in the summer, at night.

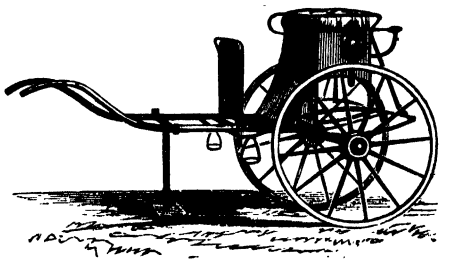
Ties (Neck, &c.).—The material, of whatever kind, should be cut cross way when these are for the neck. The ties will then lie in more graceful folds, and a better bow can be formed than when the piece is taken the straight way of the material. For men's wear the strip should be folded double, when of cambric or muslin; the ends should be hemmed, but the folds should not be fastened together, for the band should be doubled each time after it is ironed. When of silk, the edges are run together, and very often a strip of flannel or domett is inserted to give substance. Ribbon is better for the ties of shoes than shoe-laces, because the former gives no trouble, while the latter, whether of mohair or silk, are continually coming untied.

Tiffany. — A very delicate material of French manufacture, which is made of silken tissues, and resembles fine gauze in appearance.

Tiffin.—A repast partaken of in the morning; another name, in fact, for luncheon. It is a term more in vogue in India than elsewhere, being rarely used in England, save by Anglo-Indian residents.

Tiger.—A name colloquially given to a servant in livery, especially to a youth who rides out with his master or mistress, and is also employed about the house.

Tilbury.—A light two-wheeled carriage without a top, the body being made without a boot under it, as in the Stanhope. The shafts are very much hooked, to allow the whole being hung low. It is most in request as a park carriage, and is made additionally easy and



TILBURY.

light by means of three standard irons standing on the cross-bar of shaft, carrying a cross-spring, this spring being connected at the ends with two cross-springs from the body, and the front being suspended in like manner by a short elbow-spring, connected either with brace or shackle to the cross-bar.

Tiles, Encaustic. (*See* ENCAUSTIC TILES.)

Tiles, Flooring.—Tiles used for flooring are commonly of red clay which has been exposed to the air, worked in water, sifted, and worked into cubes, to be afterwards cut with a wire into thin slices or plates of the requisite thickness, dried, and baked. They are sometimes rendered ornamental, having a geometrical ornament sunk in the upper surface, to be filled in with clay of some other rich colour. They are used plain and glazed. Plain tiles are those which are perfectly flat for flooring; pantiles are the curved tiles used for roofs. In the Middle Ages tiles were very extensively employed, glazed and richly decorated, for the flooring of churches. Amongst the earliest specimens of glazed decorated flooring tiles were those discovered forming the pavement of

Castle Acre Priory, in Norfolk, and now preserved in the British Museum.

Till.—This is a drawer usually constructed in the counter of a shop for the purpose of holding money.

Tilt.—A covering. The name is occasionally given to a tent, but more commonly to the movable cloth covering of a cart or wagon, and also to an awning over the stern of a boat. A covered boat called a tilt-boat formerly conveyed goods and passengers, as, for example, between Gravesend and London.

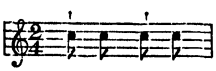
Tilt, Cask.—This is an arrangement for holding casks in a sloping position. It is an admirable contrivance, and invaluable in households where beer is kept, for by means of a spring upon which the cask rests the barrel can be tilted at will, so that when the contents are running short the cask need not be lifted, thereby avoiding shaking the beer or wine—an arrangement which is essential with malt liquor, &c.

Timbal.—The French dish known by this name is not unlike our English raised meat pies, with the exception that the outer case is not in all cases made of pastry. Macaroni, rice, and other substances are frequently used instead, the inside of the dish consisting of fowl, game, fruit, or sweetmeats. Though delicious in flavour and ornamental in appearance, timbals are difficult to make, and only those initiated in the art can produce them properly.

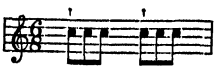
Timber Measure. (*See* Weights and Measures.)

Timber, Preservation of. (*See* Wood, Preservation of.)

Time, in music, is popularly understood as a division of melodies into "bars" of equal length, with a regular succession of accents, or "beats." Musical time is of two principal classes, (1) duple and (2) triple. Duple time consists of two, four, eight, or sixteen notes to a bar, the accented notes being the first, third, and so on, according to the number of principal notes in the bar—*e.g.*:



Triple time consists of three, six, nine, or twelve notes to the bar, of which the first and fourth notes, &c., are accented—*e.g.*:



In both duple and triple time the principal accent is always given to the *first* note in each bar, and in very rapid music it is the only accent heard.

Time Bargains.—Engagements or contracts for the sale or purchase of consols, stocks, or shares at a certain price on some future day, the party selling or buying being of course liable to complete his sale or purchase, whatever variation in price may occur, and of course taking the benefit of such variation if in his favour. Time bargains are sometimes described as "puts and refusals." They are a species of gambling of a very pernicious description; and as long ago as 1732 an Act, known as Sir John Bernard's Act, was passed, rendering such bargains illegal, and enacting that every bargain or contract for the purchase and sale of stock which is not made *bonâ fide* for that purpose, but is entered into as a speculation upon the fluctuations of the market, should be void, and all parties engaging in the same liable to a penalty of £500 for each transaction. This law, however, soon ceased to be effective in preventing the evils aimed at, but became the means of protecting those who refused to pay their losses, as the bargain could not be enforced against them. It was therefore repealed. In the year 1821 the Committee of the Stock Exchange adopted a resolution subjecting any member dealing in options—that is, instead of actually buying and selling stocks, &c., bargaining to have the option of doing so at a certain price, within a fixed period—to expulsion; and another rule was adopted to the effect that the Committee would not recognise any dealing in letters of allotment, either in loans or shares. The former rule was, however, shortly afterwards rescinded, and the other went but a little way in repressing the pernicious speculations which had been previously carried on. In 1867, an Act (the 30 Vict. c. 29) was passed, notwithstanding considerable opposition, providing that contracts for the sale of shares in Joint-stock Banking Companies should be void, unless the numbers by which such shares are distinguished or the name of the registered holder were set forth in the contract. The Act referred to only applies, however, to Joint-stock Bank shares, all other stocks and shares being still left to the mercy of speculators. The mode of operation is as follows:—On the Stock Exchange there are what are termed "settling" days, which in English and foreign stocks (excepting consols) and shares are twice in every month, the middle and the end; the settling days in consols are once a month, generally from the 1st to the 5th. Now, a speculator for the account nominally buys or sells for the forthcoming fortnightly settling day, without any intention of paying or receiving the whole sum, the buyer speculating upon being able to sell at an advanced price before the account day arrives. The parties having made their purchases and sales for the settling day, the policy of the purchaser is to raise the market price of the shares he has bought, and that of the seller to depress it, hence the former becomes a "bull" and the latter a "bear," in Stock Exchange language; and it is to the strenuous efforts both parties make to effect their purpose that a considerable proportion of the fluctuations in prices is attributable.

Time, Measures of. (*See* Weights and Measures.)

Timepieces.—Timepiece is a term which includes clocks, watches, and other contrivances for measuring the progress or ascertaining the duration of time. The ancients were acquainted with them in the form of the *common sun-dial* and *water-clocks*, or vessels filled with any

liquid, which was allowed to descend in drops, so that the portion thus disengaged in an imperfect manner indicated the length of time which had elapsed; the latter appliances were afterwards superseded by *hour-glasses*. The present mechanical timepieces with the pendulum were probably invented in Italy towards the end of the thirteenth or the beginning of the fourteenth century; but watches were not known in Europe till the middle of the seventeenth century, when the steel spring was employed as a substitute for weights, and the spiral or regulation spring instead of the pendulum. The merit of this invention is claimed by the city of Nürnberg, whence Oliver Cromwell was furnished with an oval watch that is still to be seen in the British Museum. The timepieces now used for the mantelpiece are constructed of various materials, being usually of a character more or less decorative. The more costly kinds are made of ormulu, bronze, marble, alabaster, fancy woods, &c. &c. Chronometers, clocks, and watches will be found described under their respective headings.

Tin.—A valuable metal, the ores of which are not so generally distributed as most of the metals in common use. Up to a comparatively recent period the supplies were nearly all drawn from two sources, Cornwall and Devonshire in England, and Banca in the Eastern Archipelago. Since the discovery of gold in Australia, tin has been found there in large quantities; the heavy black sand which settled at the bottom of the gold washings having attracted the attention of those miners from the mother-country who were familiar with the weight of tin ore and the appearance of stream tin. It is found in small quantities in other countries. Tin has been worked from time immemorial in Cornwall, and it is believed to have been taken by the Phœnician traders for supplying the markets of Greece and Rome, though some tin is found in Spain and Hungary. In England the raising and the smelting of this ore have always been the subject of special privileges confined to the two counties in which it is mined, and are regulated by law courts called the Stannary Courts. The ordinary tin of commerce is called *block-tin*; there is a finer description made which is called *grain-tin*. It is one of the soft metals, is malleable, and melts at a comparatively low temperature—442° Fahr. It is very slightly acted upon by the atmosphere or by weak acids. Its uses are important and various. It is largely employed in making tin-plate, which consists of thin sheet-iron coated over with tin; the latter metal forms an alloy with the iron, so that the tin cannot be separated again, and so long as the tin coating continues perfect the plate is very durable, but if the tin should be worn away, or the iron be exposed at the edges where it has been cut, rusting will take place very rapidly, owing to a galvanic action between the two metals. The insides of copper culinary utensils should always be tinned, and for this purpose pure tin should always be used. Lead is sometimes, very improperly, mixed with the tin, because it is cheaper, and looks equally as well as pure tin when new. This fraud can be detected by drawing a piece of white cloth rather heavily over the surface, which will be discoloured if lead is present. Sometimes so much lead has been mixed with the tin that the food cooked in the vessel has caused all the symptoms of lead-poisoning. Tin enters into several important alloys, such as Britannia metal, queen's metal, bronze, bell-metal, gun-metal, &c., for references to all of which, *see* their respective headings. Tin and lead, in the proportion of four of the former to one of the latter, form pewter, which is used for drinking-mugs. Sometimes a larger proportion of lead is used for sake of cheapness; but this common pewter will be affected by the acid always present in beer, and it is therefore unfit for use. The solders used by tin-smiths consist of alloys of lead and tin in various proportions: fine solder contains two parts of tin to one part of lead; common solder, equal parts of the two metals; and coarse solder, two parts of lead to one of tin. Other kinds of solders in which tin takes a place will be found under the heading of BISMUTH. Tin is beaten out into leaves to make tinfoil (*which see*). Pins and other small metal articles in common use are coated with tin. The bisulphide of tin is a flaky substance, having a brilliant golden lustre, and is sold under the name of bronze powder. (*See* BRONZING.) The two chlorides of tin, and the stannate of soda, are very largely used by dyers and calico-printers, the last-named (called by them *tin-prepare liquor*) being one of the most favourite mordants.

Tin Covers, To Clean. — The chief requirement is that these should be perfectly freed from grease; if they are thoroughly cleansed with soap and tepid water, by the help of a clean flannel, the task of making them shine will be soon accomplished. After being washed in this way and wiped quite dry, they should be well rubbed with an old wash-leather which has previously done service in cleaning silver—one that has been used with rouge is the best for the purpose, as rouge gives a dark glow to tin, which is preferred to the white shining caused by whiting. When the latter is used it should be carefully pulverised before it is moistened, because it is liable to scratch the metal unless it is reduced to very fine powder. The handles of the covers, if ornamental, require to be brushed with a plate-brush, in order to brighten the interstices into which the leather cannot reach.

Tin Goods, Care of.—It is essential that these articles should be kept perfectly dry. Hot-water cans, and others which are only occasionally used, should be wiped inside with a dry cloth before being hung up or put in the cupboard; if this is not done, rust will destroy the bottoms of the cans. Tea and coffee pots made of tin should be drained and have their lids left open; if closed when damp, a disagreeable smell will ensue, and they will not be fit for use. All tins should be rubbed over occasionally with a dry cloth or leather, especially when kept in a damp atmosphere or in the neighbourhood of the sea, in which latter places there is always a certain amount of moisture which clouds and dims the brightness of tin goods.

Tin-tacks.—These are ordinary small iron tacks, tinned for the purpose of preventing oxidisation or rust. (*See* TACKS.)

Tinctures form a very numerous group of medicines in the Pharmacopœia. They are simply solutions of the active properties of certain drugs in one or other of the following spirits—viz., rectified spirit, aromatic spirit of ammonia, spirit of ether, and proof spirit. Rectified spirit is used when the drug is only sparingly soluble. Aromatic spirit of ammonia, from its alkaline properties, is a powerful solvent of resinous acids, and in making tinctures it is employed not only for this purpose, but on account of its own medicinal qualities. Spirit of ether is used not only for its solvent, but also for its anti-spasmodic properties. Proof spirit is used when the active principles are partly soluble in water and partly in spirit.

Tinctures (Heraldry).—In this term are included the metals, colours, and furs recognised in heraldry. There are two metals, severally known as or (gold) and argent (silver). There are five colours:—Azure, *blue;* gules, *red;* sable, *black;* vert, *green;* purpure, *purple.* There are eight furs, designated as follows:—Ermine, ermines, erminois, pean, vair, counter-vair, potent, counter-potent. All these are comprehensively known as tinctures, and are represented by dots and lines. This method of representation did not come into use until after the Commonwealth.

Tinder consists of charred linen rag, which, on a spark falling upon it, will continue to smoulder for some time without bursting out into a blaze.

Tinder-box and Steel.—An important article in every household before the invention of lucifer matches, which have now quite superseded it. The box was generally circular, about four inches in diameter, with shallow sides, and furnished with a flat disc, which served as a lid and an extinguisher at the same time. The box and lid were made of tin, the lid having a handle in the centre by which to lift and replace it. A few layers of tinder were placed at the bottom of the box; the lid being taken off, some sparks were struck with a flint and steel, so that they might fall upon the tinder and set it smouldering. A match tipped with brimstone was then applied to the tinder until the match caught fire. The lid of the tinder-box was then replaced, and the smouldering fire in the tinder thus extinguished.

Tinder, German. (*See* AMADOU.)

Tinfoil.—Tin, being malleable, is beaten out into thin leaves, which are used for wrapping up articles of food, &c., with the object of preserving them more effectually from the effects of the air and moisture. Thicker foil, and of inferior quality, often containing 30 to 40 per cent. of lead, is used for lining boxes, covering the corks of bottles, &c.

Tinned Meats, &c.—The method of preserving provisions in tins has undoubtedly been attended with great success. Not only meat of every description, but fish and fruit are preserved in the same way; and though none of these preparations can possibly equal fresh food, many of them are undoubtedly excellent in quality, and, in consequence of their being so easily obtained, are very convenient. Unfortunately, the heat required to preserve the meat is so great that it becomes over-cooked; the fibres are greatly loosened, and the meat itself is often not very agreeable in flavour, and is not easily masticated. The gelatinous substance always found clinging to the meat in the tins is of great value, and should be carefully served with the meat, whatever form it is made to assume, as in this jelly are contained the real essence and flavour of the meat. Salmon, lobster, herrings, sardines, plums, apples, and numberless other edible substances are preserved in tins. (*See* AUSTRALIAN FOODS; MEATS, PRESERVED; PRESERVING PROVISIONS.)

Tinning.—The process of applying a surface of tin to a metal of some different description, such as brass, copper, &c., to prevent rusting, staining, and the formation of chemical poisons, is one of great usefulness. To prevent various articles from rusting, they are coated with tin. Cast-iron saucepans and pots, pans, &c., are tinned, and tin is applied to protect copper from certain destructive agencies. The vessel to be tinned is first cleaned, and usually then made hot. Grain-tin, a peculiar kind of the refined metal procured in small grains, is then melted and poured into the vessel, which is turned about in various directions until it has received a complete coating, the surface being rubbed with cloth or tow, and powdered resin employed to prevent the formation of oxide. If the vessel is not made hot, an amalgam of tin and mercury takes the place of the pure grain-tin. Bridle-bits, stirrups, the best pins, cast-iron tacks, &c. &c., are all tinned. Tinning iron-work was practised in the Middle Ages. The iron gate which enclosed the shrine of St. Erkenvald was tinned.

Tinsel.—This term is applied to a thin tissue loosely woven with shining threads of gold or silver. It is used largely for many theatrical purposes; the harlequin is often dressed in a complete suit of tinsel. It is also often introduced into embroidery, more especially when on velvet, cloth, net, or gauze; the wrappers of bonbons and crackers are frequently of tinsel. It can be bought in thin sheets, and cut into the desired shapes. For decorations seen by night, tinsel is very effective; its glittering appearance is attractive, and gives an idea of richness and splendour. By daylight the effect is not so delusive, and its real character is more apparent.

Tint, Neutral. (*See* NEUTRAL TINT.)

Tinto Wine. (*See* TENT WINE.)

Tints.—These are not colours properly so called, but the shades which give variety to colours. Thus red may have a blue tint, yellow may have a green tint, green may have a brown tint, and so on. In this sense the word is often the same as "tinge." Painters give the name of tints to many modifications of colour, however effected.

Tinware.—Cheap kitchen utensils, such as saucepans and kettles, which have the

appearance inside and out and which are spoken of as being made of tin, are really made of iron plates coated on both sides with tin. Vessels of this kind are very useful and inexpensive, and they can easily be cleaned, but they have not much wear in them, and they spoil easily, especially if carelessly left on the fire for ever such a short time when dry. They possess this advantage—they heat more quickly than utensils made of thicker metal, and they also cool quickly. The great secret of preserving them is to dry them thoroughly after using them, and to keep them in a dry place. New tin saucepans should be washed thoroughly with strong soda and water before being used, as new tin is sometimes poisonous.

Tippets (from the Anglo-Saxon word *tæppet*).—An article of dress worn about the neck, which is circular in shape, covers the shoulders, and sometimes descends to the waist. Some years ago tippets were worn by women as well as by children. They were usually made of fur, of grey squirrel, of ermine, or of sable; for children, of velvet or merino, which was lined and wadded for additional warmth, because children wore at that period dresses which were cut low at the neck. When not made of fur, tippets should match the material of the dress or coat worn; they generally also accompany the short coats worn by little children.

Tippling Act.—The Act 24 Geo. II. c. 40, s. 12, enacted that no person should be entitled to or should maintain any action or suit for any debt for any spirituous liquors unless such debt should have really been contracted at one time to the amount of 20s.; nor should any particular article or item in any account or demand for spirituous liquors be allowed or maintained where the liquors delivered at one time, and mentioned in such article or item, should not amount to the full value of 20s. By 25 & 26 Vict. c. 38, the above enactment is repealed so far only as relates to spirituous liquors sold to be consumed elsewhere than on the premises where sold, and delivered at the residence of the purchaser thereof in quantities not less at any one time than a reputed quart. By 30 & 31 Vict. c. 142, it is provided that no action shall henceforth be brought or be maintainable in any court to recover any debt or sum of money alleged to be due in respect of the sale of any ale, porter, beer, cider, or perry, which, after the commencement of the Act, was consumed on the premises where sold or supplied, or in respect of any money or goods lent or supplied, or of any security given for, in, or towards the obtaining of any such ale, porter, beer, cider, or perry.

Tips.—A tip is the point or extremity of something; hence the tip of the finger, the tip of the nose, &c. The word has other meanings, and is applied to the mount which is placed upon the extremity of an article; hence a staff tipped with silver or other metal, from which we get the word tipstaff. The metal plates fastened under the heels and toes of boots are called tips. Then a tip is a gift; thus a tip to a servant, &c. In betting slang a tip is the gift of a particular kind of information.

Tipstaffs were officers formerly appointed by the Marshal of the King's Bench Prison or by the Warden of the Fleet Prison, but who now, under the Queen's Prison Discontinuance Act, 1862, are appointed by the respective chiefs of the Chancery, Queen's Bench, Common Pleas, and Exchequer divisions of the Court. They attend the courts with a rod or staff tipped with silver (hence the term), and take into their charge all prisoners committed by the Court.

Tisane.—This is sometimes written *Ptisan*, and is described by Cooley as "a decoction made of pearl barley, liquorice, raisins, and other like vegetable matters, either alone or so slightly medicated as to be taken as a common drink in fevers, catarrhs, &c." Elsewhere he says:—"This form of medicine is much used in France. Tisanes may be readily prepared by slightly medicating barley, rice, or tamarind water, lemonade, &c."

Tissue-paper.—A very thin, gauze-like description of paper, as transparent as tracing-paper, but of a frail, loose texture, used for the purpose of protecting engravings or pencil-drawings in a portfolio or book. It is manufactured in pink and blue and white. There is a better description of this kind of paper, which is white, and of a somewhat firmer quality; it is called "silver-paper." Also another sort, which is glazed on one side, and is sometimes sold in colours.

Tissues.—These are the elementary structures which, in their simplest form, consist of nucleated cells embedded for the most part in intercellular substance. It is from these elementary tissues that the various organs of the body are formed to attain their full development. Tissues are remarkable (1) for their capacity for self-formation from very dissimilar materials, and for their self-maintenance; (2) for their power of contractility, as seen in muscular tissue; and (3) for their capability of transmitting impressions, as seen in nerve-tissue.

Tissues (Textile).—A general comprehensive term which includes all fabrics that are made of threads interlaced by means of a shuttle. Amongst the plain tissues may be reckoned muslins of every description, calicoes, batiste, and the like. Amongst those which are twilled and figured are cashmere, merino, serge, brocades, damasks, besides the lighter kinds, such as crape, taffeta, and gauze. There is a fabric known as tissue; this is a cloth woven with gold and silver or with varied colours.

Tithes.—A tenth part of the increase yearly arising and renewing from (1) the profits of lands, (2)the stock upon lands, and (3) the personal industry of the inhabitants, appropriated to the clergy for their maintenance. It is in legal estimation an "incorporeal hereditament." (*See* HEREDITAMENTS.) The first species of tithe is usually called predial, and consists of corn, grass, hops, wood, and the like; the second mixed, as of wool, milk, pigs, and consisting, it will be observed, of natural products, but nurtured and preserved in part by the care of man;

the third personal, as of manual occupations, trades, fisheries, and the like. In addition to this distinction, tithes have been divided into great and small, the former comprehending in general the tithes of corn, peas, beans, hay, and wood; the latter all other predial, together with all mixed and personal tithes. Tithes are great or small, according to the nature of the things which yield the tithe, without reference to the quantity. Thus clover grass made into hay is of the nature of all other grass made into hay, and consequently is a great tithe; but if left for seed, its nature becomes altered, and like other seed it becomes a small tithe. Tithes are now commuted into a rent-charge, the amount of which is annually adjusted according to the average price of corn. (*See* COMMUTE, COMMUTATION.)

Title, in law, denotes any right which a person has to the possession of real or personal estate of any kind.

Title Deeds.—The muniments, or written evidences, of ownership of real estate (that is, lands and houses). They consist mainly of the several deeds of conveyance under which the estate has passed to the existing owner.

Titles of Honour.—The legitimate titles of the Sovereign and royal family, and those of the nobility in general, are titles of honour. They differ from courtesy titles and other honorary distinctions, which are allowed to certain persons in consequence of their relation to titled individuals, or on other accounts. Titles of honour are, in fact, designations of rank, and are important in determining the precedence, &c., of those who bear them. The highest titles of honour among us are king and queen, after which come the Prince of Wales and the princes of the royal family, with the princesses of the same degree. Then follow dukes, marquises, earls, viscounts, and baronesses, with ladies of similar degree. Baronets and knights may also be mentioned, and archbishops and bishops. (*See* COURTESY, TITLES OF; PRECEDENCE; RANK.)

Toad.—The toad, called by the naturalist *Bufo vulgaris*, and belonging to the family



TOAD.

Bufonidæ, although somewhat repulsive in appearance, and bearing a bad character with ancient writers, is in reality one of the most harmless of reptiles. It is indeed the gardener's friend, its food consisting for the most part of worms, slugs, and insects, which are often such pests in our gardens. Toads are capable of being tamed, and are often made pets of by children.

Toad-eater.—A term of reproach, vulgarly applied to a fawning and obsequious person; a mere hanger-on, parasite, or sycophant. Toady has the same meaning. Various explanations have been given of the origin of these words, but they are all doubtful.

Toadstone.—A term by which a variety of igneous or basaltic rock is known.

Toadstool.—A name usually given to the darker and more poisonous-looking mushrooms that grow in woods and other unhealthy positions.

Toady. (*See* TOAD-EATER.)

Toast is the practice of drinking healths, the origin of which it is extremely difficult to trace. It was, however, a very fashionable custom on every occasion of a convivial kind in the seventeenth century, when the health of the entertainers, the guests, and the unmarried lady who was acknowledged to be the most attractive present, were drank. At all public dinners or banquets organised in connection with any charity or cause, or in honour of an individual, the health of the person, or the toast proposing prosperity to the object of the gathering, is always called the "toast of the evening;" the health of the Queen, the Prince and Princess of Wales and other members of the royal family, taking precedence.

Toast-racks.—Toast that is intended to be eaten cold and dry is, after being toasted, cut into pieces and placed in the toast-rack before being sent to table. Toast-racks may be obtained in almost every design. Some are made in china, prettily ornamented, and others in the stronger earthenware. The greater number are, however, made in silver and electro, and these are, of course, more durable, as well as being much more elegant in appearance.

Toasting Forks, &c.—In providing the ordinary requisites for kitchen use, a long fork for toasting bread is invariably included. This may be obtained made either of iron or of strong wire. A contrivance has been made for toasting bread by means of which the bread requires no holding; it is simply placed upon hooks, where it hangs until sufficiently brown.

Tobacco.—This narcotic plant (*Nicotiana tabacum*) is a native of America, whence it is exported in great quantities, in addition to the supplies of Spain, Portugal, Turkey, and India. There are about forty named species of it, but only about eight cultivated, the two principal varieties being known under the names of Oronokoe and sweet-scented tobacco. Both attain to the height of from six to nine feet, being distinguished only by their deep green leaves, the former of which are longer and narrower than those of the latter. When the plants are about two feet high they shoot forth branches, and as these draw the nutriment

from the leaves, it becomes necessary to top or nip off the extremity of the stalks, in order to prevent them from attaining to a greater height, and also to remove the young sprouts which continually shoot forth between the leaves and the stem. The ripening of the leaves is known by their becoming rough and mottled with yellow spots, and by the stalk



SPRIG OF TOBACCO PLANT.

being covered with a species of down. When this change takes place, the tobacco plants are cut off closely to the roots, and exposed on the dry ground to the rays of the sun till the leaves become so pliant as to bend in any direction without breaking. They are then laid in heaps under shelter for three or four days, in order to *sweat* or ferment, being turned every day. Next, the leaves are suspended on strings, at a small distance from each other, for the space of a month, at the end of which they are taken down, laid in heaps, and *sweated* a second time for a week; being then pressed, afterwards picked, and eventually packed for exportation. The principal places where tobacco is cultivated are Virginia, Maryland, Louisiana, Havana (Cuba), and St. Vincent, in America; the Phillipines and Borneo, in India; and Spain, France, Italy, Amersfoort (Holland), Belgium, the Levant, and the Ukraine, in Europe. The soil required for growing tobacco is that of a light, loamy description, and the manure should be adapted, as to strength or mildness, in accordance with the quality of the tobacco, the various kinds depending not only on the variety of the seed, but also on the soil and cultivation, and the liquor used in the final fermentation. Hence the striking difference betwixt the American, the German, Dutch, French, Manilla, and Havana tobacco. It is more than probable, says an authority, that all these tobaccos would more resemble the Havana were they manipulated by the Havanese, and still more were they grown in the same soil. The stem of the plant is divided by numerous branches, adorned with magnificent leaves, oval, lanceolate, alternate, and twenty-four inches in length by eighteen in diameter. The tips of the leaves are acute, their borders wavy, their surface velvety, and strongly marked with a mimic nervous system, dividing the leaves into spaces at right angles nearly from the central spine, and of a yellowish-green colour, glutinous to the touch and bitter to the taste. The flower is purplish; the fruit-pod is oblong, with two lobes containing an extraordinary number of exceedingly fine seeds. Tobacco was introduced into Europe by the Spaniards and Portuguese, who acquired the habit of smoking from the natives of America; and it was brought to England by Sir Walter Raleigh and his co-adventurers in 1586. Dealers distinguish between *strip* and *leaf*, or *strip-leaf* and *hand-work*, the former being the technical name for that from which the stem of the leaf has been taken away before the latter is packed, whereas hand-work is the leaf packed whole, stem and all. Upon the arrival of tobacco in England, it is lodged in bonded warehouses, where every cask is opened, and any portions found damaged and not worth paying duty on are removed and consumed. Afterwards it is conveyed to the manufacturer, who manipulates it into one of the three forms in which it is used—smoking tobacco, cigars, or snuff. Chewing is a habit rarely practised now in this country except by sailors, but it may be said to be a national custom of America; and snuff-taking, though at one time extremely fashionable, has of late years been greatly on the decrease.

Tobacco, Adulterations of, are effected by the use of water, sugar, treacle, and salts of various kinds. It is an article the adulteration of which it is extremely difficult to detect. One known process is to have a cask of dry shag from the manufacturer, then sluice it all through with treacle and water, and then make it hot by means of a plate heated with charcoal, and incorporate treacle and sugar with the tobacco.

Tobacco-boxes are small boxes, generally made of metal, for the purpose of conveniently carrying sufficient tobacco for the smoker's consumption. They have fallen into disuse since the introduction of tobacco-pouches.

Tobacco, Herb.—There are several recipes for producing this, the following being strongly recommended:—Soak some Bengal safflower, or the worn-out safflower of the dyers, in potass water, to which treacle—in the proportion of two pounds to the gallon—and a little coarse opium have been added, and then add one ounce of saltpetre to each gallon of liquor. If a light tobacco is wanted, leave out the potass, and put the imitative tobacco into a sieve or basket, and expose it to the fumes of ammonia.

Tobacco, Indian.—The flowering herbs and seeds of this plant have been extensively employed, especially in America, for their sedative, anti-spasmodic, emetic, and expectorant effects. Its uses are described under the heading of LOBELIA.

Tobacco-pipes. (*See* PIPES, TOBACCO.)

Tobacco-pouches are receptacles for carrying tobacco, and mostly made of india-rubber. The ordinary shape is that of a double pocket, one side of which folds over the other. They are superior to the old-fashioned tobacco-

boxes, being less cumbersome to carry, and the nature of the material is better calculated to prevent the tobacco getting dry.

Tobacco Smoking. (*See* SMOKING.)

Tobacco-stoppers are small metal instruments used for the purpose of pushing down the tobacco in a pipe after it has been smoked some time, and so saving the smoker from burning his fingers by using them for this purpose.

Tod.—A quantity of wool weighing 28 pounds.

Toddy.—This word is a corruption of *taudi*, the Indian name for the saccharine juice of palm spathes. The Sanscrit is *toldi* or *taldi*, from *tal* (palm-juice). The name is given now in the East Indies to the fermented juice of palms, from which arrack is distilled; while in Great Britain it signifies a mixture of whisky, sugar, and hot water, very popular in Scotland and Ireland.

Toddy-ladles.—Small ladles made of silver electro-plate, and used expressly for mixing toddy.

Toe-nails, Care of.—The nails of the fingers and toes are scientifically regarded as part of the scarf-skin, naturally modified to serve as a protection and defence. If not interfered with, they would grow to an inconvenient length; they therefore, like the hair, require periodical cutting. The toe-nails, with which we now have to do, require proper attention. If tight short shoes are worn, the great toe nail especially suffers; it becomes thick and hard, and spreads out at the sides, growing into the flesh, so making a case for the doctor, as Erasmus Wilson says. Sometimes the nail will be injured at the root, and only grow in thickness, which also may make a case for the doctor. In ordinary cases the toe-nails should be cut regularly, but not too short. If they have a tendency to grow in at the corners, the corners should be carefully removed. When disposed to be thick and hard, a little cold cream may be rubbed on them. They should be kept clean, especially at the sides; but they should not be scraped, nor should the skin around them be cut or pared, though it may be pressed back with an ivory presser. When, as sometimes happens, there is a kind of fungus growth at the extremity of the toe-nail, it may be pared down a little from time to time, after being softened with warm water; but there is some risk in such cases, and if the development is at all considerable, professional advice should be resorted to, as indeed it should be whenever a diseased condition exists. For a general rule, we should say keep the toe-nails clean and of a moderate length, and do not wear short boots.

Toffy, or Taffy.—This favourite sweetmeat is made of sugar cooked with butter. It needs to be carefully made to ensure its being crisp when cold. Everton, near Liverpool, is celebrated for its toffee.

Toile ciré.—A French name for the material known among us as waxed cloth (*which see*).

Toilenette (Textile).—A cloth of mixed materials, the weft being composed of woollen yarn, and the warp of silk and cotton. It is employed for men's waistcoats.

Toilet.—A comprehensive term applied to the general arrangement of a lady's dress and the care bestowed upon her personal appearance. The toilet of a young lady and the toilet of an elderly lady are spoken of as distinct; in both instances the term refers to the adjustment of dress, the arrangement of the hair, and the use made of the different articles known as accessories to the toilet. Every woman should be particular about her toilet, *i.e.*, should adjust her dress with nicety and care, cleanliness and neatness of which should be the chief characteristics. The so-called accessories are non-essentials, and the use of them will never compensate for the absence of the former requisites.

Toilet-covers.—These are usually made of a material known as marcella; they can be bought by the yard, or in lengths ready prepared for the table. The former plan is generally preferable, as the exact length required can be obtained, and also better fringe than that usually put on covers ready made can be sewed on. If a small set pattern is chosen, the absence of border at the ends is not noticeable. It often happens that the fringe on ready-made covers is not only of poor quality, but is too tightly stretched; consequently, after being washed, the edges of the cover are puckered. Cotton honeycomb covers are inexpensive, but do not lie so straight and smooth as other kinds. Very pretty and dainty covers can be made of checked or striped muslin; these should be the exact size of the table, and should have a broad plaited border edged with lace; under the cover should be laid coloured cambric or batiste, the prevailing colour of the room. Another ornamental style is that of procuring fine towelling the width of the table; the ends of the cover hang down and are fringed, and above the fringe a border is worked in red or blue crewels.

Toilet-glasses.—These, whether large or small, should be well made, for if the workmanship is not good, the glass will not keep its appointed place, but swings aimlessly to and fro in its frame; and if the framework is not strong, the weight of the glass forces it asunder. A very convenient form of glass is that which is placed on a small box, the lid of which can be opened at will; this serves as a receptacle for trinkets or small articles often required at the toilet-table. Another convenient arrangement is that of two pedestal-glasses placed at each end of a crescent-shaped toilet-table; these can be turned at pleasure, and thus the beholder can obtain a distinct view of all parts of the head. Round-faced glasses are more suitable for gentlemen's use than for that of ladies; and as the former do not require to change the position of the glass, those which hang against the wall are often more convenient, because they occupy less space.

Toilet-mats.—These usually differ in sizes and forms, but they should match in general appearance, and all of them that are in use in

one room should show that they are parts of a set. This generally consists of seven or eleven mats; the former number for the toilet-table alone, and the latter when any are required for the wash-stand. (Should this have a marble top or be of polished wood, mats are desirable, because they prevent the noise or the marks made when the service is used.) For the toilet-table a large mat is used for the brush and comb, and smaller ones in pairs for the candlesticks, pomade-pot, ring-stand, &c. There are many ways of making these mats ornamental. Braiding is the chief favourite, and this is often executed on fine jean or white cotton canvas; embroidered flowers in white flourishing thread or coloured wools are very effective; a series of outlined pictures in red or blue crewels, or in black silk, also look particularly well. A combination of lace and clear muslin over coloured silk can be made into very dainty mats. As a rule, only washing materials should be used for these mats; thus silk fringe of any description, beads, canvas, and such-like, are out of place.

Toilet Ornaments.—A set of these is usually supposed to comprise a pair of candlesticks, ring-stand, brush and pin trays, scent-bottle, and a couple of boxes for pomade and violet-powder. All these articles should match one another, and should agree in colour with the room in which they are placed. They are generally made of china or glass, and these, as a rule, look better than polished wood, alabaster, spa, and other substances which are sometimes employed. A pretty set of these ornaments can be made for a small outlay by purchasing a plain set of white china, and fixing on these coloured pictures—either birds, flowers, figures, or landscapes—by the art of decalcomanie (*which see*). If the china is carefully washed in cold water, the pictures so placed will remain uninjured for many years.

Toilet Service. (*See* SERVICE, TOILET.)

Toilette. (*See* TOILET.)

Tokay.—In Hungary, where wine is the universal beverage of the nation, the wine called Tokay, which is produced in the neighbourhood of that name, is a great favourite. The old Tokay wine, which is called "Vino vitranno," has been known to realise as much as £36 per dozen at Cracow, which is the principal depôt for it. Its extreme scarcity renders it an expensive luxury, the demand for it generally greatly exceeding the supply. Imperial Tokay is peculiar in flavour, but is very rich, luscious, and delicate in its taste. It is much sought after, being very choice and extremely rare.

Tokens.—A token is a sign of something; hence we speak of tokens of friendship, which may either consist in behaviour, language, or presents. The word has been extensively applied to certain pieces of metal like coins, intended for circulation, not as real money, but as substitutes for money. In the seventeenth century, before a regular copper coinage was introduced, a vast number of what were called tradesmen's tokens were struck and circulated. They bore the name of the proprietor, and he was pledged to return their value in lawful money. Usually they were farthings or halfpence. Late in the last century and early in this, another extraordinary influx of tokens took place, and passed for a halfpenny, penny, twopence, and even threepence, according to size. All the foregoing were of copper or brass; but early in this century banks issued what were known as bank-tokens in silver, for various amounts from sixpence to six shillings. Bank-tokens ceased in 1817, and at present, probably, no kind is circulated in the British Empire.

Toleration Act.—The 1 Wm. and Mary Statute 1, c. 18, confirmed by 10 Anne, c. 2, provided that all persons dissenting from the Church of England (except Papists and persons denying the Trinity) should be relieved from such of the Acts against nonconformists as prevented their assembling for religious worship according to their own forms, or otherwise restrained their religious liberty, on condition of their taking the oaths of allegiance and supremacy, and subscribing a declaration against transubstantiation; and in the case of dissenting ministers subscribing also to certain of the Thirty-nine Articles. The clause of the Act which excepted persons denying the Trinity from the benefit of its enactments was repealed by the 53 Geo. III. c. 160.

Tolls.—Duties or tributes, as turnpike tolls; liberty to buy and sell within the precinct of a manor; or a tribute or custom paid for passage.

Tolu Balsam.—This is a balsam obtained from a tree called by botanists *Myrospermum toluiferum*, which grows among the mountains of Tolu and elsewhere. It is employed in medicine as a stimulating expectorant, in some cases



MYROSPERMUM TOLUIFERUM.

of chronic cough and bronchitis, always provided there is no inflammatory action going on. Tolu lozenges are very good for coughs and colds. But this balsam, the dose of which is from ten to thirty grains, is seldom used alone, but is added to other pectoral mixtures to make them more effective and to pleasantly flavour them. Balsam of tolu also enters into the composition of friars' balsam (*which see*).

Tomato.—The vegetable called the tomato, or love apple (*Lycopersicum esculentum*), is a native of Mexico and South America, though it is now cultivated in many other countries. In Italy it appears with almost every dish, and in Britain and elsewhere its use is rapidly increasing. The fruit of the plant is the only part employed as food. This contains a particular acid, a volatile oil, a brown fragrant resinous matter, a mineral matter, and some salts, all of which characteristics combine to make it a delicious article of food. The more its merits become known, the more will it be appreciated. For ketchups, soups, and sauces it is well adapted, and the unripe fruit makes an excellent pickle. The whole plant has a disagreeable odour, and its juice, subjected to the action of the fire, emits a vapour so powerful as to cause vomiting.

Tombac is an alloy containing more copper than exists in common brass. Several compound metals have at different times been introduced to the notice of manufacturers as approaching nearer to the colour of gold than common brass. To these at one time were given the denomination of tombac, as indicative of a mixture of a deeper red than Pinchbeck's metal, which was very fashionable some years ago. It may be mentioned that among the various projects set afloat in 1678 under the patronage of Prince Rupert was one for the manufacture of this yellow brass, afterwards known as prince's metal. This was deemed so valuable a compound that in the above year the well-known Temple water-mill was erected on the river at Hackney for casting and boring cannon of this metal. White copper—an alloy formed of about three parts copper and one part arsenic, and used in the manufacture of buttons—is also known as tombac.

Tombstones. (*See* GRAVESTONES.)

Ton.—A denomination of weight, being equal to 20 cwt., or 2,240 lbs. (*See* AVOIRDUPOIS.) A measure of capacity, containing 252 gallons, is also called a ton, or, as it is more usually spelt when used in this sense, a *tun*. (*See* WEIGHTS AND MEASURES.)

Tongs.—From its orthography this word appears to be the same as *tongue*, *tongues*. It signifies a metal instrument, consisting of two long shafts joined by a pivot, and used for grasping objects, particularly those that are hot, as smith's tongs, blacksmith's tongs, fire-tongs, &c. The term is not confined to such, however, for there are also asparagus-tongs, sugar-tongs, ice-tongs, &c., the uses of all of which may be inferred from their names. Tongs have been made since very early times. They are said by Pliny to have been invented by Cinyra, the son of Agriopas. They were known to the Anglo-Saxons, by whom they were called *fyr-tange*; and they are mentioned as part of the furniture of Solomon's Temple, B.C. 1004.

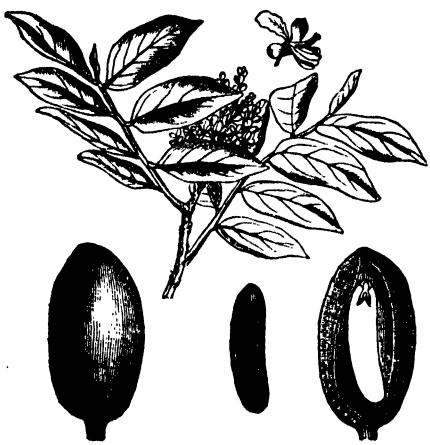
Tongue, Affections of.—This organ is the seat of a great variety of diseases, of which the most important are:—1. *Cancer*. This commences usually as a hard pimple or crack upon the side or tip of the tongue, which spreads rapidly, exciting severe pain, profuse salivation, fœtor of the breath, and subsequently enlargement of the glands of the neck, with the typical cancerous cachexia. Death usually ensues from the combined effects of exhaustion, pain, and starvation. The only treatment of any avail in this disease is the partial or complete removal of the tongue by excision. This frequently prolongs life, and makes death, when it does occur, less painful. In certain cases, where the pain has been excessive, the sensory nerve of the tongue has been cut across with great benefit. When the hæmorrhage is severe, the lingual artery may be tied with advantage. 2. *Tumours*. These sometimes occur on the tongue, and are usually encysted or fibrous. They require removal. 3. *Ulcers and fissures or cracks of the tongue*. These are formed on the sides and tip, and are caused for the most part by a bad digestion and decayed teeth. They may be very small, and readily disappear upon touching them daily for a few days with a little caustic, either nitrate of silver or sulphate of copper (bluestone), and administering a saline aperient, followed by a tonic, as tincture of iron in infusion of calumba. If there is acidity of the stomach, soda may be substituted for the iron, and a little sal volatile added. In more severe cases, when the general health is very bad and the ulcers show a tendency to eat away the tongue, strong gargles (*see* GARGLES) must be used, and the strength supported in every possible way, as in such cases the tendency is to death from worry and exhaustion. 4. *Psoriasis*. This is rather a common affection of the tongue, and is easily recognised by the peculiar leathery and furred appearance the organ presents. The disease is analogous to that which occurs in the palms of the hands, and in the tongue is most difficult to treat, from the impossibility of applying local remedies. Psoriasis is usually of syphillitic origin, and when this is the case it must be treated by the constitutional remedies for that disease. Plummer's pill and sarsaparilla are the medicines which appear to do most good. The tongue may be brushed at the same time twice a day with a weak solution of bichloride of mercury (two grains to the ounce of water). 5. *Nævus*. This peculiar strawberry growth is sometimes seen on the tongue, and if of any extent, causing deformity or interfering with speech or swallowing, it must be removed. 6. *Abscess*. This occurs rarely; when it does, it requires to be punctured. 7. *Inflammation of the substance of the tongue*. This is called glossitis, and is a rare affection. The symptoms are great swelling and protrusion of the tongue, with profuse salivation and threatened suffocation. Free incisions should be made on each side of the middle line of the tongue, to permit of the escape of serum and blood, when marked relief will usually follow. 8. *Ranula*. This is a tumour underneath the tongue. (*See* RANULA.) 9. *Tongue-tie*. This is a condition frequently found in the newly-born infant. It arises from the frænum, or bridle, of the tongue being too short, and thus preventing the protrusion of that organ, and often seriously interfering with the act of suckling. The remedy is to cut the frænum with a pair of round-ended scissors, taking care in doing so to turn the points of the

scissors downwards towards the floor of the mouth, in order to avoid wounding a small artery which lies behind.

Tonics.—These are medicines or medicinal agents which, either directly or indirectly, impart strength and tone to the system. They may be divided into:—1. *Blood tonics.* These improve the quality of the blood by supplying something which is wanting in that fluid. Iron is the best example of a blood tonic. 2. *Nervine tonics.* These give tone to the nervous system, and are largely used in neuralgia and intermittent fevers. Quinine, nux vomica, &c., are examples of this class. 3. *Vascular tonics.* These are medicines which increase the power and strength of the heart and circulation generally. The salts of iron and the mineral acids belong to this class. 4. *Stomachic tonics.* These improve digestion and increase appetite. (*See* Stomachics.)

Tonnage.—Originally implying the burden in tons which a vessel might safely carry, tonnage now denotes the cubical contents of a ship in tons, and affords the standard for the payment of port, canal, and harbour dues, &c. Hence the term is also applied to the toll or duty itself levied on vessels passing through a canal or entering a harbour.

Tonquin Beans.—These are the seeds obtained from the *Dipterus odorata*, which is a native of Guiana. From them a volatile oil is extracted, which is known as cormarine in



TONQUIN BEAN PLANT.

France, where it is much used. These beans, also called Tonka beans, possess an agreeable and powerful odour, and a warm and pungent taste. They are employed in perfumery, and for scenting snuff.

Tonsils.—These are two rounded, almond-shaped glands which are situated one on each side of the throat, immediately behind the anterior pillars of the soft palate. They vary considerably in size, and in some persons attain such dimensions, from hypertrophy, inflammation, and other causes, as to require the removal of at least some portion of them. This may be effected without any detriment to the future health or development of the child. (For the ailments which affect the tonsils, *see* Quinsy; Sore Throat.)

Tontine.—A life annuity, or a loan raised on life annuities, with benefit of survivorship. The term is derived from the name of the inventor, one Lorenzo Tonti, an Italian, who in the seventeenth century, when the Governments of Europe had some difficulty in raising money, started the idea. Louis XIV. first adopted the plan in France. A loan was obtained from several persons, an annuity being granted to each, conditional that if and when deaths occurred the annuities should continue payable to the survivors, and that the last survivor should take the whole. Of course, as deaths occurred the annuities of the survivors proportionately increased, and ultimately the corpus of the fund fell to the last survivor. Other nations adopted the plan; but it was not introduced into England till a much later period, and then not by the Government, but for the purpose of private speculations, where a combination of capital on such terms was desirable.

Tooth. (*See* Teeth.)

Tooth-brushes. (*See* Brushes.)

Tooth-cements.—Various substances are used by dentists for filling up or stopping hollow teeth. Some are vegetable and others mineral. The simplest is probably purified white gutta-percha, softened in hot water and applied at once. Of mineral cements, some contain metallic ingredients, and others lime, &c. We do not give recipes, as the stopping of teeth should always be performed by professional hands.

Tooth-pastes.—These are a form of dentifrice, used much in the same way as tooth-powders, and are in many cases substantially the same, only mixed with honey or some other ingredient, which makes a paste of them. The mouth should be washed after using them. They are sold in great variety by perfumers, and it is best to purchase them, as they are not worth the trouble of making.

Tooth-picks.—With many persons these are a real necessity, as well as a comfort. The most simple and harmless are made of quills cut to a point, or splinters of bamboo cut in a similar manner. The latter, when skilfully formed, are almost better than the quills. Metal tooth-picks are generally of silver or gold, and made like small pencil-cases. All tooth-picks should be used with care, or the gums may be lacerated and diseased teeth injured.

Tooth-powders. (*See* Dentifrice.)

Tooth-washes.—A tooth-wash is a liquid dentifrice of the class which the French style *eaux dentifrices*, and which are very popular among them. They are of a pleasant flavour and scent. One well-known preparation is the *eau de Botot*, the ingredients of which are aniseed, cinnamon, alcohol, and essence of mint, to which cochineal is added to give it a colour. Spirits of wine, eau de Cologne, myrrh, camphor, borax, honey, &c., are used in various preparations of the kind. Cooley gives for sweetening the breath and preserving the teeth—camphor, cut small, quarter of an ounce; rectified spirit

two fluid ounces; a few drops of which, when dissolved, may be added to a wine-glassful of water.

Toothache. (*See* TEETH.)

Top-boots.—Boots reaching to the knee, the upper part of which is made of white or coloured leather, which forms a wide band round the leg. This description of boot is worn in hunting and racing. In some countries it is universally worn as part of the national costume.

Top-coats.—A thick description of cloth coat, made large enough to be worn over another, or even over two. The colour, shape, and material of which top-coats are made vary.

Topaz.—This name is commonly given to a hard and beautiful gem of various shades of yellow, but actually found of several colours. Mr. Streeter says:—"In Australia the green and yellow crystals of topaz are found; in Saxony the pale violet; and in Bohemia the sea-green variety." Brazil supplies red and other varieties, and large numbers are collected from Siberia, Ceylon, Peru, Asia Minor, Great Britain and Ireland, &c. Some are colourless. Topaz occurs occasionally in large masses. It is not now fashionable, and is consequently very cheap. Pink specimens fetch a good price, and, like some other tints, may be taken for very different stones. The cairngorm is often sold for topaz, though inferior every way. It has been frequently imitated; and when genuine the colour, if pink, is probably due to the skilful application of heat.

Topaz, Oriental.—The Oriental topaz, or yellow sapphire, is a variety of corundum. Mr. Emanuel describes it as "of a yellow tint, seldom deep, but generally of a light straw-colour shade, and extremely brilliant; it is frequently mistaken for a yellow diamond, and is of very little value in commerce: even jewellers frequently confound it with the ordinary topaz."

Tops.—In ordinary dictionary phrascology, a top is an inverted conoid, which is made to turn on the point; its motion is caused, and in some instances continued, by different aids. There are three kinds of wooden tops. The oldest is that which is kept in motion by a whip, the lash of which is made of a broad strip of leather; when a top of this kind proves to be an unsteady spinner, a brass-headed nail driven into its centre will improve its rotations, also a nail driven in the pivot will keep the top longer in service, for the wood is soon worn down unless protected in this way from the stone on which it is spun. The second top is that known as a peg-top. This in form is like a wooden pear, which spins on an iron stalk; a piece of string is wound very evenly round the top, the commencement being made at the base; the spinner throws the top quickly on the ground, pulling off the string at the same time. The third top is of globular form, and is hollow, with a small aperture at one side. There is a long peg, in which is a hole; one end of the string is put through, and about half of the piece is wound evenly round the peg; this is put through two holes in the handle; the spinner takes the handle in one hand and the end of string in the other; holding the top near the floor, he pulls both hands suddenly and quickly apart. This top, properly managed, will spin for a considerable time, and will make a humming sound the while. Later inventions have succeeded the above-mentioned; in particular there is a metal top, which is made to spin by means of a screw; its motion is extremely steady. While spinning, little figures and flags can be placed in its cupola, and coloured devices arranged at its base. This top is called the colour top.

Toque and Toquet.— A certain kind of head-dress, of the hat description, small, and composed of velvet.

Torch.—A substitute for a lamp or candle, employed out of doors, composed of some combustible substance, as of resinous wood; a *flambeau*. Torches were used in England till about the early part of the present century, when gas was employed for lighting the streets, and large iron extinguishers may still be seen attached to the area-railings by the street-doors of houses of any pretension to importance for the benefit of the torch-bearers, who used to accompany the gentry to and from home at night. These torches went by the name of "links," and those whose business it was to carry them were called "link-men" or "link-boys."

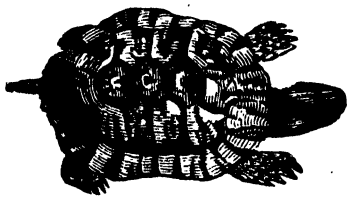
Torchon Lace.—A thick lace, made of coarse thread, which has lately come into general use; the imitations of this lace are made of cotton. It was originally a pillow-lace, fabricated at Madeira; its chief use was for trimming sheets and pillow-cases. In the latter it was often put as an insertion between the seams, and was frequently called at that period "seaming-lace." The fabrication of Torchon lace almost lapsed; it has now revived, and is in great demand. It looks most suitable when placed on linen or some thick material, and forms a pretty ornamentation for collars and cuffs for morning wear; it is also suitable for edging the cambric frills of petticoats.

Torpor.—Mental torpor is a condition in which there is more or less indifference or insensibility to surrounding objects and events. Bodily or physical torpor may result from prostration through over-fatigue, or from the presence of disease or poisonous matters in the body; or it may be a condition of laziness only. The term torpor, when applied to the liver, bowels, and other organs, signifies deficient activity in the organ to which reference is made.

Torque. (*See* RINGS.)

Torsade.— Something rolled or twisted. The word has been most used in connection with dress decorations; and sometimes the torsade has been a roll or twist of ribbon, and sometimes hair, or a combination of the two. A lady's long hair, loosely twisted, and worn in large fancy rolls on the top of the head, is, in brief, worn in torsades, or forms a torsade. A Frenchman might call a torsade a rouleau of ribbon, hair, &c.

Tortoise.—This reptile belongs to the family *Testudinidæ*, and the natural order *Chelonia*. The name tortoise is popularly used to designate the terrestrial Chelonians, while the marine Chelonians are called turtles. It is, however, sometimes given to the kinds that inhabit fresh water, as fresh-water tortoise, river tortoise. The species are numerous and widely distributed, and most of them are inhabitants of warm climates. The most common of them (*Testudo græca*) is a native of the south of Europe. It is from six to ten inches long, and has a broad and bulged carapace, beautifully marked and spotted with black and yellow. Its head is short, its jaws are horny, its



TORTOISE.

feet are short, and its toes, which are furnished with bent nails, are almost covered with the skin. It is a very cumbersome creature, and is remarkable for its tenacity of life; it lives to a great age—one hundred years or more. When it is found in cold regions, it burrows in the ground, and remains in a torpid state during the winter. The tortoise feeds entirely on vegetable food, and in summer time eats voraciously. Its flesh is used for food in some parts of the south of Europe. Dr. Livingstone partook of it when travelling in Africa, and he pronounced it a very agreeable dish. The largest variety of the genus is the Indian tortoise (*Testudo Indica*). This creature is particularly abundant in the Galapagos Islands. It has been found as much as four feet in length, and often weighs two hundred pounds. Its flesh is of excellent quality, and its eggs are regarded as delicacies, as indeed are also the eggs of all the species.

Tortoiseshell, and Care of, &c.—This beautiful material, so extensively employed in the manufacture of toilet elegancies, is obtained from the plates or scales covering the back of the hawk's-bill turtle (*Chelonia imbricata*). It is called tortoiseshell because the order of animals from which it is taken was formerly little known, and all the species were confounded under the general name of tortoises. The carapace of the hawk's-bill turtle is arranged in plates, which overlap each other like the tiles of a roof, and which are rarely more than the eighth of an inch in thickness. These plates are of a beautiful mottled colour, and are semi-transparent. They vary in size, according to the position they occupy. When polished they are exceedingly beautiful, and are used for making combs and fancy articles. In Great Britain alone, fifteen and a half tons of tortoiseshell are annually consumed in the manufacture of objects of this kind, and beautiful articles are also made of it in India, China, and Japan. Tortoiseshell needs to be carefully used. A comb made of it should never be left in the hair at night, and should be gently rubbed with a soft leather each time it is worn. When it becomes dim, which it will do with wear, it should be rubbed gently with powdered rotten-stone and oil until all the scratches are removed from it, and then it should be polished with a leather dipped in jeweller's rouge. To prepare it for the purpose, the rotten-stone should be pounded and sifted through fine muslin, then mixed with good oil. Tortoiseshell that has been broken may be joined. The ordinary method of doing this is to combine the effects of heat, moisture, and pressure. The two parts are bound together with wet cloth or a piece of linen, then pressed closely with hot irons.

Tortoiseshell, Imitations of.—Combs and fancy articles of a like nature, in imitation of tortoiseshell, are extensively made of the horns of animals, the horns chosen for the purpose being principally of a light yellowish colour, and brought from Spain. The imitation, however, lacks the transparency of the real article, and is easily detected by the experienced eye. It is effected by solutions of gold, silver, and lead. The horns are first steamed, pressed, and cut into the proper shape. They are then smoothed and polished, and in order to impart to them the mottled appearance that is required, the products are put into a solution of weak aquafortis, and dotted with a red paint-like composition, which is subsequently chemicalised and washed off, when the stains remain *à la* tortoiseshell.

Total Abstinence. (*See* TEETOTALLERS, TEETOTALISM.)

Touch-box.—A receptacle for lighted tinder, carried by soldiers when muskets made with matchlocks were in use, the match being lighted at it. In Edwards's *Damon and Pythias*, 1582, the Gunner's "Flask and *twiche-box*" are mentioned, as also by other writers.

Touch-needles.—These are thin bars of gold or silver, either pure or with a known proportion of alloy. They are used by refiners and assayers of the precious metals for testing the qualities of gold and silver. With the article to be tested a mark is made upon a touchstone; other marks are made with touch-needles; and by comparing the different streaks the expert is able to decide very nearly the true quality of the article experimented upon.

Touch-paper.—Paper which has been steeped in saltpetre, which burns slowly, and is used as a match for firing gunpowder.

Touch, Sense of.—The faculty by which we become conscious of impressions made by contact with external objects. One of the five senses, it is that of which all the rest may be considered as modifications. The special outward organs of touch are papillæ, or minute inequalities of the skin, covering the whole body, and connected with the nervous system. This sense may be partially lost, as the result of disease or injury; in which case we say the parts affected have lost their feeling. It may also be

cultivated and improved, as often happens with persons following particular professions, and with the blind. It may be deadened or destroyed by artificial means, and much use is made of our knowledge in this respect by dentists, surgeons, &c., when painful operations are to be performed. Things which produce this result are called anæsthetics—*e.g.*, ice, ether-spray, chloroform, &c.

Touchstone (also called basanite and Lydian stone).—A variety of flinty slate, of a black or greyish-black colour, and always found massive. It is found in Scotland and elsewhere. When polished it is used to try gold and silver upon by a comparison of colour, as described under the head of TOUCH-NEEDLES. From this use it derives its common name. Other substances are used as substitutes for it, especially fragments of the old black Wedgwood ware.

Touchwood. — Wood so decayed that when dry a spark will ignite it, and it will continue to burn like tinder, without a flame, and until it has smouldered away.

Toughened Glass.—Amongst the supposed lost arts of ancient times was recorded that of making unbreakable glass, on the strength of an extraordinary tradition of a Roman glass-maker who, in the days of Tiberius, made such glass, and was executed secretly and suddenly by command of the Emperor, in the interest of trade, that the secret of that art might die with its inventor. It is recorded that the art was re-discovered in France in the time of Louis XIII., and that the inventor presented a bust of unbreakable glass to Cardinal Richelieu, who shut him up in the Bastile, lest he should communicate his secret, and so destroy the glass trade of that country. There is also a tradition of manufactures in unbreakable glass carried out in Persia in the year 1610. In 1875 a French gentleman-farmer of a scientific turn, Monsieur de la Bastie, knowing that glass when heated to redness and kept at that temperature was curiously changed in its physical properties, or devitrified, based thereon a process for making toughened glass by dipping it when thus hot into an oily mixture—a process which he had arrived at after experiments extending over several years. A large variety of articles in domestic use are now manufactured in this toughened or unbreakable glass.

Toupée or Toupet, and Scalpette.—The names given by hairdressers to a kind of wig. They are sometimes distinguished, and then the toupée is an artificial ornamental construction of hair which covers the top of the head, and is worn along with the natural hair by fashionable ladies. The scalpette, with a general similarity, differs in this, that it covers only a portion of the head, and may be either a mere fringe in front, or something larger for those whose hair has partly fallen off or become thin.

Tourists, Hints for.—The tourist is a traveller whose object is health, change, or pleasure, whose course generally lies over beaten tracks, and whose resting-places are usually well-known resorts. The first points to be decided are where to go and how long to stay; and the next, whether the expense shall be as restricted as possible, or whether everything shall be on a liberal scale. If a well-known resort is to be visited, it is well to secure hotel accommodation beforehand, unless private apartments are preferred, when it will suffice to go to the place, and to sojourn in an hotel until proper quarters are found. In all cases it is desirable that there should be a regular agreement as to the accommodation to be provided and the charges to be made. Tourists do wisely to obtain guide-books to the localities they visit, and time-tables for rail or steamer. They should not take too much luggage, but, after drawing up a list of all that is likely to be needed, should pack accordingly, and carefully preserve the list. Wherever they go they should consider the special requirements of the season and other circumstances, and be prepared for exigencies, such as cold and wet, and even for indisposition. Among the sundries which should not be forgotten are a hand-bag for miscellaneous trifles, wraps or over-coats, umbrella, parasol, walking-stick, a readable book or two, opera-glass, or field-glass if desired, address cards, and, when going abroad, passport, whether said to be necessary or not. For a somewhat extended tour, take a through ticket, if it can be had; and if abroad, instead of much cash, take letters of credit or circular notes. Continental tourists should, if possible, have some knowledge of the language of the countries they visit; and this knowledge, even if limited, should include an ability both to understand what is said and to pronounce correctly. They should be readily able to settle the relative value of English and foreign money, so far as they require it; they should observe and conform to the usages of society wherever they may be, and must not insist on doing and having everything English fashion. To the best of their power, at home as well as abroad, in all circumstances they ought to make themselves agreeable, and avoid eccentric and overbearing ways. It is much to be able to make oneself at home, to submit to slight inconveniences, and steadily to aim at making others happy. More than this will not be expected, and less will not suffice.

Tourmaline.—A crystalline body often found in granite rocks. It is identical in composition with schorl, but the name tourmaline is reserved for the finer varieties. Good crystals are valuable to the physicists on account of their optical properties.

Tous les Mois.—A kind of starch prepared in the West Indies from the tuberous root of the *Canna edulis*. It is imported from St. Kitt's, and was introduced into England in the year 1836. To the naked eye it is very much like the finest quality of potato starch; but under the microscope its granules are found to be oblong, oval, and with a concentric structure, and they exceed in size those of all other starches. Tous les mois is used as a substitute for arrowroot; it is soluble in boiling water. It is very digestible, and particularly suited for invalids. In alimentary value it resembles the other farinaceous preparations.

Touting is the practice of seeking for custom by means of paid agents. It is mostly adopted by lodging-house keepers, hotel-keepers, and tradesmen at seaport towns, where they board the ships when they arrive, and pester and annoy the passengers by their persistent declarations of the superiority of the house they represent over any other house of a similar nature in the town.

Tow.—Tow resembles cotton, and can be prepared and spun on machines as cotton is. The fibres of flax when *hackled* are separated into two kinds, one fine and long, which is called *line*, and one short and coarser, which is tow.

Towel-horse.—This, when for bedroom service, should be of polished wood, and should match in character the wash-stand. The most convenient description of towel-horse is the one whose ends form arches, the bases of which rest on the ground; two rails extend parallel along the top, and two others are placed on a lower level. The advantages afforded by this arrangement are that, having rounded ends and no feet, it does not run the chance of being overturned by the passer-by, and moreover it stands steadily. Another form of horse is that of rails placed on perpendicular bars, which are set on feet; but however large the latter may be, the horse is easily upset by the weight of the towels, which render it top-heavy. This is the cheapest kind of horse, because it requires less wood and workmanship. Sometimes rails are placed on brackets fastened to the ends of wash-stands, which serve in lieu of towel-horse; this is a convenient method when practicable, as it is often difficult to find space for the horse in its proper position.

Towelling. — Fabrics woven of linen thread, more or less fine and more or less bleached, of widths suitable for towels of different descriptions. Economical housewives buy this material by the yard, and make the towels themselves, as these towels are found to be stronger and more serviceable than those which are ready made. Huckaback towelling of a medium quality is about one shilling per yard; this material is suitable for chamber towels. Linen crash is generally chosen for roller towels; this averages sixpence per yard. For kitchen purposes the white loom towelling for better use, and the Forfar towelling for rough usage, are considered to be the most satisfactory.

Towels.—For chamber use the length of these should be a yard, for if shorter they rarely stay on the rails, but repeatedly slip to the floor. For ordinary use, huckaback towels are serviceable; for the service of guests, and for those who prefer a soft smooth towel, linen diaper and damask can be chosen. These can be made ornamental by the ends being fringed, and also by a border being worked across the ends, or a monogram or name in one corner in red or blue crewels, or embroidered in white flourishing thread; any of these additions improve the appearance. Turkish towels (*which see*) are generally used in the bath-room. Another kind for this purpose can be made by knitting very thick knitting-cotton in plain rows backwards and forwards; a very soft thick towel is thus obtained, which is particularly well adapted for children's use. (For kitchen towels, *see preceding paragraph.*)

Town Clerk.—The most important paid officer connected with a corporation, his duty being to manage its business and carry out its directions.

Toxicology.—An important branch of science, the province of which is to investigate the nature of poisons, their action upon the system, and their antidotes.

Toys. — These playthings are made in numerous forms, and are of sufficient diversity to suit the requirements of children of all ages and dispositions. The least costly toys are those made of wood, and contained in white wooden boxes. They are carved by German and Swiss peasants, and in many instances by their children. Some of these toys are roughly made and rudely carved into shape, but they serve to amuse little children. Those of white unpainted wood are the best to select, because children are apt to put playthings into their mouths, and paint is injurious. For the before-mentioned reason, toys made of lead, such as soldiers and tea services, are not suitable for young children, because metal as well as paint is deleterious. Toys made of glass or china also come in the catalogue of those unsuitable for little ones; they are easily chipped and broken, and the sharp points and corners or roughened surfaces will cut and scratch. Another class of toys is that of animals covered with wool; these are intended expressly for the amusement of babies, being soft and unbreakable. But many have a great dislike to the touch of wool or fur; when this is the case, such toys should be taken away. Some mothers and nurses foolishly tease the little ones, and thus increase the original repugnance. An entertaining class of toys is that distinguished by mechanical inventions. The first, which appeared some thirty years ago, was the mouse which ran about on the table or floor; this was contrived by clockwork, which was wound up by a key previous to the exhibition. Since that time many clever ideas have been brought forward: miniature railway engines and steamships make their way by land and water, helped by this same contrivance; quadrupeds, such as poodles and brown bears (having wheels underneath their feet), walk across a room, to the astonishment of the beholders; a little man rushes along on a bicycle; a little nurse pushes a perambulator—these and many other amusing and wonderful toys are of American invention. Dolls (*which see*) are made in very large quantities in London and elsewhere.

Tracery.—The ramifications of the mullions in the ornamental stonework forming the upper part of Gothic windows bear this name, as do also similar decorations in the ceiling, panellings, &c., of Gothic edifices. It consists of two kinds—one called *plate tracery*, which is the earliest, and is formed by cutting through a flat plate of stone, producing the effects of curved bars; and *bar tracery*, in which foliated circles,

trefoils, and quatrefoils, and other similar forms, figure.

Tracing.—A mechanical copy of any subject, obtained by following the lines through the aid of a transparent medium. Tracings are effected by different varieties of transfer and tracing paper, which are described in the succeeding article, the instrument used being a point of ivory or other similar material.

Tracing Paper, Linen, &c.—Tracing-paper is made in various ways, and is of two kinds—the transparent, used for following with a pencil the outlines of any print or drawing over which it is placed; and the opaque, black, blue, or red paper, which is placed between the transparent tracing and the surface to which it is to be transferred. Properly speaking, the latter should be called transfer not tracing paper; but as this might beget some confusion, transfer-paper (*which see*) being used in a different way, it is usually called tracing-paper. The transparent paper is made by saturating it with boiled oil, oil and varnish mixed, or with a solution of colourless damar resin in benzole. The opaque tracing-paper is made by coating it with pigment, which is so loosely attached to its surface that pressure transfers it to any other surface with which it may be placed in contact. French tracing-paper of a superior kind is made from raw flax, and is known in France as *papier végétale*. A transparent tracing-paper, upon which washes of Indian ink may be used, is made by varnishing it with the Canada balsam in turpentine.

Trade Marks.—The right of a manufacturer to his own particular trade mark is similar to that of the owner of a patent or copyright. There is, however, this difference between the rights to a trade mark and a patent or copyright, viz., that the value of a trade mark is independent of the article itself, and consists entirely in the reputation of the individual who makes or sells it, which is not the case in patented articles or in copyright work. (*See* COPYRIGHT; PATENTS.) The law does not recognise any property either in trade names or in trade marks; nevertheless, it will not encourage a fraud or deception, and every one who has adopted a particular mode of designating his own manufacture has a right to say that other persons shall not sell the same article in such a way as to make purchasers believe that the article is his manufacture. The protection which the law secures to a trade mark is, therefore, only a particular application of the general rule of law that it is a fraud to represent what the party knows to be untrue, where such representation is calculated to induce another to act on the faith of it, so that he may incur damage, or where such representation will prejudice the reasonable profits of another man from his superior industry or invention. By the Trade Marks Registration Act, 1875 (38 & 39 Vict. c. 91), a register of trade marks is established, under the superintendence of the commissioners of patents; and it is provided that from and after 1st July, 1876, a person shall not be entitled to institute any proceeding to prevent the infringement of any trade mark, as defined by the Act, until and unless such trade mark is registered in pursuance of the Act (s. 1). Provisions are made for carrying that object into effect (ss. 2—9). And by s. 10, a trade mark for the purposes of the Act consists of one or more of the following essential particulars; that is to say, a name of an individual or firm printed, impressed or woven in some particular and distinctive manner, or a written signature or copy of a written signature of an individual or firm, or a distinctive device, mark, heading, label or ticket; and there may be added to any one or more of the said particulars any letters, words, or figures, or combination of letters, words, or figures. Also, any special and distinctive word or words, or combination of figures or letters, used as a trade mark before the passing of the Act may be registered as such under this Act.

Trade Winds are those winds which, with only slight and local exceptions, blow all the year through in the same general direction. This constancy has led mariners to avail themselves extensively of these winds, finding it good policy to deviate considerably from their direct course in order to take advantage of them; and from their being thus beneficial to trade, they have received the name they bear. The trade winds prevail in the open seas, away from land influences, throughout the equatorial regions, blowing from the north-east in the northern hemisphere, and from the south-east in the southern. They extend on both sides of the equator to about latitude 30°. The air about the equator, being heated, rises to the higher strata of the atmosphere, and its place is supplied by the colder air from the north and south. As, however, the rotation of the earth at the equator is more rapid than in the higher latitudes, the air-current does not proceed in a direct course, but acquires an easterly one. The extent of the range of the trade winds varies somewhat with the seasons, according to whether the sun's declination is north or south.

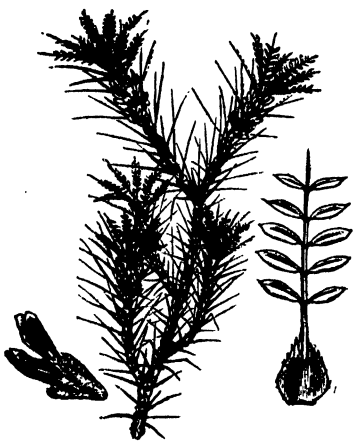
Trades Unions.—These are combinations or societies of men who belong to particular trades. They are regularly constituted, with officers, branches, scales of subscriptions, rules, &c., and their usual object is to protect and uphold the rights and claims of the men in relation to each other and to their masters. With them rests the power to seek an advance of wages, to discuss or to decide against a reduction, to determine the beginning, continuance, and end of strikes, to fix the number of hours for work, and many other matters. Some of them are powerful organisations, and not unfrequently they unite to assist each other in strikes and lock-outs. Without expressing any opinion as to the soundness of the basis on which they rest, it may be observed that they have played an important part, for good or for evil, especially during the last half-century.

Tradesmen.—Sometimes this word is applied to working men, but more commonly to retail dealers of all classes. In selecting tradesmen, some discretion is required, as there are great differences. Choose such as sell what is generally expected from them, who keep a good supply, who deal in the best wares, who

are honourable and exact in their transactions, and whose prices are fair. With such persons shopping may be safely carried on, as no improper advantage will be taken.

Tradesmen's Bills.—Supposing that the ready-money principle is not universally followed, and that accounts are kept with tradesmen, a suggestion or two may not be useless. Everything should be entered in a book belonging to the customer. This book should be carefully inspected to prevent errors of all kinds. The account should be made up at frequent intervals, and payment made in full, because long scores are objectionable, and payment of sums "on account" is a bad plan. See that the account is settled regularly once a week, fortnight, or month, as may be agreed. Have the tradesman's receipt written in the book every time it is settled, and see that a receipt-stamp is used whenever the sum amounts to £2 or upwards. Let tradesmen's accounts be not only as short but as few as possible; and, indeed, never have an account at all where it can be avoided. (*See* READY MONEY.)

Tragacanth, Gum.—This is a gum yielded by the *Astragalus*, a plant which grows



GUM TRAGACANTH PLANT.

in Armenia and Persia. It is used in medicine as a demulcent, and is given in doses of from ten grains to a drachm.

Train Bands, or Trained Bands, as they were usually called, were bodies of men who in former days answered to our present militia. They were substituted by James I. for that force, and in those days were mainly composed of apprentices.

Train (Dress).—A portion of a woman's outer dress which lies along the ground for a more or less length of space, according to the fashion of the day or the occasion on which it is worn. They are obligatory at Court. Trains of state, such as that worn by the Queen, fall from the shoulders, whereas the ordinary Court train may be attached to the waist. Both are made separate from the rest of the dress, and are composed of velvet, silk, brocade, &c. Trains intended for ordinary wear form only a part of the skirt of the dress, and are only half or quarter as long as Court trains. Those who are cleanly in their habits not only raise them from the ground in walking, both in-doors and out, but edge them with a frilling—white or otherwise—which preserves them from being soiled, and can be replaced when no longer fresh-looking. Trains are of ancient origin.

Train Oil.—The liquid known by the term of train oil is obtained from the blubber of the common Greenland whale. The term train is most probably a corruption of "drain," which word applies to the manner in which the oil is drained from the blubber. Train oil is thick, and has a very strong, coarse smell, and is principally used for lamps and machinery.

Training Schools.—As the name implies, these are schools in which the pupils are trained for some particular work or object. Training schools for teachers are schools, or rather colleges, in which future teachers of the young are prepared. To these institutions children's schools are commonly attached, in order that in them the pupil-teachers may exercise themselves and put into practice the lessons they have learned. There are other kinds of training schools, but these are the most common, and sufficiently illustrate the principle.

Tram. (*See* RAW SILK.)

Trance.—A peculiar condition which is neither sleep on the one hand, nor a swoon on the other, but in which the voluntary functions of the body are suspended, and the mind usually occupied with visions. It occurs in various degrees, and is said sometimes to accompany reaction from nervous excitement, and sometimes to be connected with hysteria. It must not be confounded with somnambulism, in which the sleeper walks and performs a variety of movements; nor with ordinary dreaming, which is a common attendant upon sleep. The subject of a trance does not move about, cannot be restored to normal consciousness by the most violent efforts, and can be fed while in that condition. It is said that people in a trance have not only had the visions above referred to, but have been known to preach sermons, &c.

Transept.—The transept gives to a church its cruciform appearance, and is any part of a church projecting from the body of the same of nearly the same height, and at right angles. The transepts in large churches are often numerous, but in that case they are always arranged in pairs to make the projections uniform. The transepts were in old times called "cross-aisles."

Transfer Days.—By this term is usually understood the days on which stock can be sold out or transferred at the Bank of England.

Transfer-paper is paper mechanically prepared for the purpose of transferring drawings or writing to stone, zinc, &c., which is effected by moistening the back of the paper, and evenly pressing it on to the stone, when a reversed copy is obtained, which may be used to print from, and will yield copies exactly resembling the original. There are several ways

of making transfer-paper. The following recipe has long been in use:—Starch six ounces, gum-arabic two ounces, alum one ounce. Make a strong solution of each separately in hot water; mix, and apply it while still warm to one side of leaves of paper with a brush. When dry, a second and a third coat may be applied in the same manner, the paper having been well pressed to make it smooth.
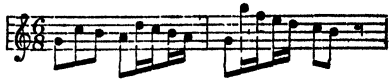
Transparencies are transparent paintings, usually executed on fine linen, silk, thin paper, &c., and made effective by means of illumination behind them. Those of a large character are mostly used for exterior decoration on occasions of public rejoicing, and for window-blinds. They are prepared by fixing the material on a straining-frame so as to place it between the eye and the light when necessary; the design is then traced, and the colour laid on. When the tints are got in, place the picture against the window or a pane of glass framed for the purpose, and begin to strengthen the shadows with Indian ink or with colours, as the effect requires, laying the colours sometimes on both sides of the paper, to give greater force and depth of colour. The last touches for giving final strength to shadows and forms should be done with ivory-black or lamp-black prepared with gum-water, as there is no pigment so opaque and capable of giving strength and decision. When the drawing is finished, and every part has got its depth of colour and brilliancy, being perfectly dry, those parts which are to be brightest, such as the moon and fire, should be touched carefully with spirits of turpentine on both sides, and those parts requiring less brightness on one side. Then lay on with a pencil a varnish, made by dissolving one ounce of Canada balsam in an equal quantity of spirit of turpentine. When the varnish is dry, tinge the flame with red-lead and gamboge, slightly touching the smoke next the flame; the moon should not be tinted with colour. The fine light should not be too near the moon, as its glare would tend to injure her pale silver light; those parts which are not interesting should be kept in an undistinguishable gloom, and where the principal light is they should be marked with precision. Groups of figures should be well contrasted, those in shadow crossing those that are in light, by which means the opposition of light against shade is effected. Transparencies on porcelain are used for lamp-shades with a singularly beautiful effect; they are painted very thin in the lights, and thicker according to the various depths of the shadows required, by which means the appearance is similar to an engraving in mezzo-tint, or a drawing in Indian ink, by the agency of the light alone in passing through the various thicknesses of the material.

Transparencies, Colours for. — All pigments that are not opaque are used for painting transparencies, amongst them being lake, verdigris, Indian yellow, gamboge, sap-green, Prussian blue, burnt umber, sienna, gallstone, yellow lake, purple lake, brown pink, sepia, &c.
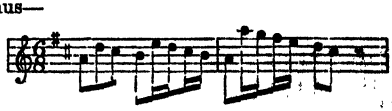
Transparent Fruits.—The making of these may be undertaken by those who are skilled in the manufacture of wax fruit and flowers. Certain fruits, such as are nearly transparent, cannot be well imitated in wax, but grapes, currants, &c., may be fairly copied in more ways than one. Very clever people have done this with isinglass, but the process is not easy, and the result is very fragile. Usually small hollow round or oval bulbs of glass are resorted to. For a bunch of grapes, as many bulbs as are required, and of the proper sizes, are selected; and the same number of stalk wires, each two inches long, must be cut. If black grapes are wanted, a mixture of Prussian blue and lake is stirred into melted wax. The stalks are attached by dipping the end of each in turn into this wax, and inserting it in the little hole of the bulb. An arrangement of the whole is made upon paper. The stalks are coated with green wax, which may also be used for making small green grapes. When the cluster is put together it may be dusted with powder blue, and the main stalk coated with green wax. For greenish-white grapes, light green wax is used for the bulbs, and the fruit is dusted with hair-powder. Currants are similarly imitated: white with wax tinged with yellow; red by dipping in wax of the proper colour, or by painting with carmine after dipping; black must be painted. The seeds which show through some fruits may be made to appear by dotting the bulbs beforehand with chrome yellow mixed with mastic varnish or thick gum. In all cases the process is one of some difficulty, and delicate manipulation is essential. Success will result from perseverance and skill, and failures must at first be expected. One important point is the dipping of the bulbs (after stalking them) into the melted wax of the proper colour, as each has to be withdrawn at once, and held with the stalk downwards until the wax is set. If this is done well a particle of wax will settle round the head of the stalk; should it be too large it can be cleverly pared away.

Transpiration, or Perspiration. (*See* PERSPIRATION.)

Transposing Instrument is a term given to musical instruments whose "key," or normal scale, has been raised or lowered from the natural scale of C (or Do). For example, the clarionet in C is non-transposing; the clarionet in B♭, on the other hand, demands that the part written for it should be transposed to the key of one note above that in which the composition is actually played. We will suppose that the composition is in the key of C. The following passage—

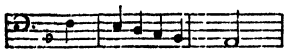


would be transposed for the clarionet in B♭ thus—
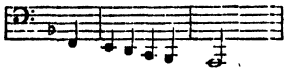


This practice proceeds from the notion that the clarionet-player must always *imagine* his

instrument to be in the normal scale of c. Other transposing instruments are the corno inglese (or alto of the oboe), the horn, the trumpet, and the ophicleide, when not c instruments. In a certain sense, too, the double bass is a transposing instrument, as its actual sounds are an octave below the written notes; thus—



would sound when played as follows:—



Trap, Bat, and Ball. (*See* BALLS, GAMES WITH.)

Trappistine. (*See* LIQUEURS.)

Traps.—Trap is the name given by some persons to whatever carriage or conveyance they possess. Those vehicles which are used by commercial travellers are frequently spoken of as "traps," and a small carriage drawn by a pony is often alluded to as a "pony trap;" but there is no particular vehicle bearing this name known by coach-builders.

Traps, Drain.—What are called traps are contrivances applied to sinks and drains, in order to shut off and prevent the escape of noxious gases and effluvia of all sorts. They are very valuable, not only for preventing unpleasant smells, but from a sanitary point of view, as affording protection against dangerous fevers and other forms of disease. Traps are made in a great variety of forms and of different materials, sometimes of metal, and commonly of stoneware. No open drain or sink should on any account be permitted in a house or in close proximity to it; the interests at stake are so serious that prudence will have every house-drain fitted with a trap. For some purposes, ventilating traps are best; but builders or plumbers, as the case may be, will know what kinds will be the most suitable in individual instances.

Traps, Vermin.—The traps manufactured for the destruction of vermin are of very great variety; some are made simply to catch the animals alive, while others are constructed so as to cause immediate death. The common wire spring trap that is baited with scorched oatmeal or toasted cheese, and which chokes the animal immediately, is among the best. It is advisable to remove a dead animal from a trap as quickly as possible after it is killed, so that no trace of it may remain when the trap is re-set. For small vermin, such as cockroaches, the best trap that can be devised is the simple one consisting of a basin containing a small quantity of treacle, and round which sticks are placed, so that the insects may creep up to the top of the basin and fall into the treacle. In this way scores may be caught at once.

Travelling.—Facilities for travelling, both by land and sea, are now so numerous that it is easy to visit the most distant regions of the globe with scarcely more preparation than is needed by ordinary tourists; indeed, the arrangements to be made by the one are nearly the same as for the other, the only difference being that in going to far-off countries a special outfit may be necessary. But even this is made easy by those who, under the name of outfitters, are prepared to supply all that may be necessary, and to give advice or reference to books containing the best information. Travellers who would explore strange countries are a special class, and their wants must be investigated and provided for by the best means within their reach. For the rest, *see* TOURISTS, HINTS FOR, where additional details are given.

Travelling Bags, Boxes, &c.—Travelling bags are bags usually made of morocco leather, and fitted with similar fittings to those contained in a dressing-case, which articles to some extent they have superseded. Those for gentlemen are much larger than ladies' travelling bags, many of them being so constructed as to contain a suit of clothes or change of linen, in addition to the toilet requisites, stationery, and cutlery ordinarily found therein. They vary considerably in cost, the simplest kind being obtainable for £2 or £3, and the handsomest ones, fitted with silver or gold articles, ranging to almost any price. *Travelling boxes* are made either of wood or tin, for the purpose of carrying ladies' wardrobes, &c., those made of tin being most in request. They contain trays and partitions for millinery, and may be said to generally resemble the old-fashioned travelling trunks.

Travelling Dress. — To curtail the amount of the traveller's luggage being a great object on several accounts, the following numbers in reference to the various items of a lady's dress should not be exceeded, but might be conveniently curtailed, depending, however, on the duration of the excursion. When a long voyage has to be taken, the amount of underlinen must be regulated accordingly. A basket-trunk and a small valise should hold all that is necessary, the latter to contain what is continually required for sleeping at the various halting-places, the former for dresses, wraps, and all things not so frequently required, and which need not be opened daily. The every-day travelling dress should be dark if for winter, with a jacket to match, and of grey or dust-colour if for summer. It should be rather short in the skirt, and quite fresh and new, not an old shabby article, such as is too frequently seen employed for that purpose. A thin light mohair or water-proofed alpaca cloak, or ulster-shaped coat called a "duster," is much to be recommended, and can be rolled up small to be strapped to the umbrella. A soft felt hat, which can be put into the pocket, is very desirable for night journeys or evening strolls. The straw hat, or the bonnet daily worn, should not be trimmed with ostrich feathers, as they uncurl; a bird's wing or some pretty plain trimming is preferable. The trunk should contain a good black silk and a thin cross-barred black grenadine suitable for a hot day or for evening wear; also a brown holland or "toile de Vichy" costume would be found a comfortable addition to the wardrobe, if the journey be a summer one. This gives the traveller four

dresses, counting the one she has on. The number may be augmented at pleasure by a slight light-coloured silk and another washing dress, but what is absolutely required for ordinary comfort is now stated. The valise will hold a change of under-linen, boots and shoes, brushes and combs, and a writing-case or blotting-book. Four of each article of linen, half a dozen pairs of new thread stockings at least, a pair of stout and another of thin walking-boots. One pair of new house-shoes and one of slippers will suffice. Pocket-handkerchiefs, habit-shirts, cuffs, gloves, and frills may be numbered according to the judgment of the traveller and the space left for them. A coloured gauze veil is an essential addition to the hat or bonnet. A pair of double-sewn, dark, olive-green or rifle-green kid gloves will be found to wear the longest for travelling. There should be a best bonnet in the trunk.

Travertine is a calcareous rock formed by the percolation of water charged with carbonate of lime in solution, and which in doing so has left the mineral matter behind. It is generally to be met with in volcanic districts, and forms thick beds in many parts of Italy. It is the common building stone in Rome, and has been used from the earliest historic period; the works of the ancient Romans afford good evidence of its durability.

Travesty.—Another name for a parody (*which see*).

Tray-cloths.—These are usually of uniform size, measuring thirty-four by forty-three inches, and their cost averages from one to three half-crowns apiece. The price is dependent upon the quality of the thread, upon the thickness of the damask, and also upon the simplicity or elaborateness of pattern. The thread should be purely flax, and not have any cotton threads intermixed. Double damask, being thicker, looks superior for table-napery, and is not so soon creased and crumpled as single damask. The least expensive pattern is the small spot; borders and larger designs add to the cost. Tray-cloths are placed on butlers' trays whenever used, and also on the breakfast, luncheon, and supper trays taken to invalids.

Trays.—A tray is a flat receptacle for holding dishes, glasses, cups, &c., the material and purpose of the article being usually indicated by its special name. Thus there are papier-maché, tin, and silver trays, tea-trays, bread-trays, &c.

Treacle.—The thick sweet liquid known by the name of treacle consists of the brown uncrystallisable syrup which drains from sugar during its formation. There are three varieties of this substance—molasses, treacle, and golden syrup. Molasses is the liquid that drains off during the preparation of raw sugar. That which is obtained from beetroot has a disagreeable taste, and is unfit for most cooking purposes. Treacle is the substance that escapes from the moulds employed for refined sugar; it is wholesome and agreeable in taste, and by some is used as a cheap substitute for sugar. Golden syrup is considered superior to both treacle and molasses, though really its sweetening properties are not so great. It is much lighter in colour and clearer than the former liquids, and is sold at a higher price. It is produced by re-boiling the liquid which drains from refined sugar, and then filtering it, thus constituting a purified form of treacle. Treacle is undoubtedly more laxative in its effect than sugar, and always contains more or less free acid. It is frequently employed by chemists in the manufacture of their drugs, and is also used in making beer and stout.

Treacle Beer.—This familiar refreshing beverage very much resembles ginger-beer in the method of its manufacture and in the purpose for which it is used, the essential difference between the two liquors being that treacle is employed in treacle-beer for sweetening, and sugar in ginger-beer. It contains about one per cent. of alcohol, a proportion just sufficient to render it invigorating as well as refreshing, and also to bring it under the rule of the excise, if it were strictly enforced.

Treacle Parkin.—In the south of England, treacle parkin is unknown by that name. What most resembles it are the large thick cakes of gingerbread that are cut and sold in small squares, though this is very much inferior to the real treacle parkin, which is made of oatmeal, butter, ginger, milk, and flavouring as preferred. In the north of England it is quite an institution that parkin should be provided for the 5th of November during the display of fireworks; indeed, many of the young people would hardly consider the performance complete if deprived of their parkin.

Treacle Venice.—London treacle, as this mixture is sometimes called, is a chemical preparation, and is used medicinally. It consists of many ingredients, all of which are reduced to a fine powder and then mixed.

Treasure-trove.—Money or coin, gold, silver, plate, or bullion hidden in the earth or other private place, the owner thereof being unknown, in which case the treasure belongs to the Sovereign, or some other claiming by the Sovereign's grant or by prescription. But if he that hid it be known, or afterwards found out, the owner, and not the Sovereign, is entitled to it. If it be found in the sea or upon the earth, it does not belong to the Sovereign, but to the finder, if no owner appear. In many cases treasure-trove is the property of the lord of the manor within whose limits it is found, by special grant or prescription. (*See* PREROGATIVE.)

Treasurer of a County.—An officer who keeps the county stock; the county banker. There are two for each county, chosen by the justices of the peace, &c., at the Easter sessions. They are required to have £10 a year in land, or £150 in personal estate. Their office endures for one year only, and they have to account at the Easter sessions, or within ten days thereafter, to their successors, under certain penalties.

Tree, Boot. (*See* BOOT-TREE.)

Trefoil.—1. In botany there are plants of many species of the genus *Trifolium*, including the white and red clover, sorrel, and notably

the Irish shamrock, called in ancient Irish *seamrog*, or trefoil. This plant has had some importance attached to it from the fact that it was cited by St. Patrick as a simple illustration of the nature of the Holy Trinity, as three in one, when endeavouring to explain the deep doctrines of the Christian faith to one of the chiefs of that country, whose conversion and that of his followers were the remarkable result of the happy idea. 2. In architecture, the term "trefoil" signifies an ornament of three "cusps" in a circle, sometimes rounded like the leaves of a trefoil, and sometimes forming obtuse points.

Trellis-work.—A framework composed of thin slats of wood laid across one another at regular intervals, leaving open spaces; a lattice-work attached to walls or houses for the support of vines or other climbing plants, and for the construction of arbours which are to be covered with such-like vegetation, giving shade from the sun. In the Tyrol, long lanes in the vineyards are enclosed with trellis-work, over which the vines are trained, and the clusters of grapes hang down through the open spaces between the cross-bars of wood.

Trenchers.—Wooden platters, formerly used to place meat upon at table, now used principally for bread. They are usually made either of sycamore or maple. The trencher was the *quadra* of the Romans and the cessorium of the Middle Ages. A great eater is frequently spoken of as a good trencher-man.

Trespass (from the Latin word *transgressio*) is, comprehensively, any transgression or offence against the law of nature, of society, or of the country in which we live, and this whether relating to person or property. In a more limited sense it indicates an injury committed with violence, actual or implied, and the law will imply violence, even though none be used, when the injury is of a direct and immediate kind, and committed on the person or tangible and corporeal property of the complainant. Of actual violence, an assault and battery is an instance; of implied violence a peaceable but wrongful entry upon a person's land. For the above an action lies. Where trespass is done to lands or real property, it is called *trespass quare clausum fregit*, an entry without lawful authority, and to support such an action the plaintiff must have been in the actual possession of the land at the time of the trespass committed. On the other hand, where the trespass is in respect of goods or personal property, it is termed *trespass de bonis asportatis* —an action which equally with the other rests upon possession, but the possession here may be actual or constructive—constructive possession being that which ownership or property brings with it by implication or construction of law.

Tressel. (*See* TRESTLE.)

Tresses.—Johnson says this word has no singular form; and it is but seldom used. Originally denoting, as it would seem, a threefold twist or plait, the word came to mean especially the curly, knotted, or plaited locks or ringlets of hair.

Trestle, or Tressel.—A word derived from the Dutch *dreistal*, a tripod, from *drie*, three, and *stal*, a place. 1. A movable support consisting of three pairs of legs fastened into a top formed of long bars of wood. This description of horse is employed to support a coffin in a church or mortuary chapel, and for sustaining or acting as scaffolding for masons and carpenters. It is also a kind of framework of strong piles and cross-beams for the support of a bridge or a railroad. 2. The frame of a table. 3. Two strong bars of timber fixed horizontally on the opposite sides of the mast-head of a ship to support the frame of the top are called *trestle-trees*.

Tret. (*See* TARE AND TRET.)

Trials at Law.—The examination of a cause, civil or criminal, in a court of law, and the adjudicating upon the facts in dispute in such cause. There are several species of trials, according to the nature of the subject-matter to be tried. A trial at bar (which is a kind of trial now seldom resorted to, except in cases where the matter in dispute is of great importance and difficulty) is a trial which takes place before all the judges at the bar of the court in which the action is brought—hence the term. The case of Regina *v.* Castro, otherwise Tichborne or Orton (1872-73), is an instance of a trial at bar.

Triangle.—1. In geometry, this signifies a figure bounded by three lines, and containing three angles. Triangles vary in the relative proportions of the three sides one to the other, and are divided into five forms, viz.:—(1) the equilateral, (2) the isosceles, (3) the right-angled, (4) the obtuse-angled, and (5) the scalene triangle. The numbers 1, 2, and 5 are likewise acute-angled triangles. 2. In music, a triangle signifies an instrument made of a round steel rod, bent into the form of a triangle, but left open at one corner, where the ends are turned outwards. To produce a musical sound the inner side of the instrument is struck with a small rod of the same metal, which gives a tone like a small gong or bell. 3. In astronomy, the triangle is a small constellation situated between Aries and Andromeda. 4. The military term in former times for a sort of erection, made by sticking three halberds into the ground which are locked together at the top, to which soldiers used to be bound when undergoing punishment.

Trichiasis.—This is an in-growing of the eyelashes, and is a very troublesome and painful affection. It must be distinguished from a somewhat similar condition called entropium (*which see*), in which both the lashes and lids are inverted. The two are, however, often combined. The practice usually recommended in trichiasis of extracting the lashes one by one as soon as they become offenders utterly fails, as a rule, owing to their speedy growth and re-appearance. A delicate surgical operation will be necessary in most cases in order to effect a radical cure.

Trichina.—The *Trichina spiralis* is a parasitic creature which inhabits living flesh, and continues alive after the animal it infests

is dead. It occurs in pork; and a minute white speck, barely visible, shows its nest, in which one or two curled-up specimens may be detected by the microscope. It multiplies very rapidly, but meat containing it may be eaten with impunity if it has been exposed throughout to a heat even less than that of boiling water. Drying, salting, and smoking meat at a low heat do not kill it; it is therefore unwise to eat sausages, ham, &c., which have not been properly cooked. The neglect of proper precautions has in more than one instance been followed by very grave consequences in Germany, America, and sometimes in our own country. The resulting disease is, however, treated in the next paragraph.

Trichiniasis.—Reference to this disease is made under the heading of Bacon, and the worm which causes it is described in the preceding paragraph. Uncooked or under-cooked meat, especially pork, has sometimes contained the trichina, and the animal has found a convenient habitat in the human system, penetrating the tissues of the body of those who eat it. In Prussia, Dr. E. Smith says, that of 103 who ate meat so infected twenty died within a month. In Massachusetts a family was thus poisoned, the symptoms being pain and swelling in the eyes, stomach, bowels, and limbs, which latter became rigid, and could only be moved with intense suffering. There were also diarrhœa, vomiting, and profuse perspiration. The trichinæ had pervaded the whole muscular system and multiplied prodigiously. Cases are extremely rare, but if one happens recourse should at once be had to the most skilful medical advice that can be had.

Trick (at Cards).—In card games, when each person has played a card in succession after the older hand (*i.e.*, the person who leads), the cards played in that round are called a trick, which thus consists of as many cards as there are individuals in the party playing. The card which ranks highest in value of those played wins the trick, provided it be of the suit led; but it should not be forgotten that the cards rank differently in value in different games.

Tricycle was one of the earliest forms of velocipede, which fell into disuse after the invention of the bicycle. This description of vehicle (the tricycle) has, however, been revived, with many elaborations and improvements upon the old machine, and for those persons who are unable to manage a bicycle it is an excellent substitute. One invention of this kind has a large or driving wheel to the left-hand side of the rider, and two small or guiding wheels on the right. The seat, which is balanced upon four S-shaped springs, is fixed to the framework of iron or steel tubing between the wheels, and the propelling power is given to the driving-wheel by pedals, which are connected to a cranked axle of that wheel under the seat. The two small or guiding wheels are connected with a rod fastened to the outside of the front wheel fork, and inside the back, so that upon the least movement to the right or left being given to the guiding-handle, which is close to the seat, it acts alike upon both wheels; consequently a rider can thread his way wherever he pleases, can describe the figure 8 in twelve feet of space, and can perform similar feats to those of the cleverest performer on the bicycle.

Trifles (Cookery).—A sweet dish made of sponge-cakes, macaroons, and jams, flavoured with brandy and various liqueurs, covered with whipped cream laid on lightly, and piled up as high as possible, is denominated a trifle. It is a favourite dish for ball suppers and juvenile parties, though it has frequently been found to be more delicious than wholesome.

Trimming.—1. An ornamental addition to any garment, whether composed of its own material, and arranged as tucks, frills, puffings, flounces, and otherwise, or of a different description of fabric, such as ribbon, lace, embroidery, velvet, beads, silk, braid, spangles, fringe, gimp, gold and silver lace, or other decorative designs, of whatever nature, employed to beautify any article of dress; those which pertain to house furniture, such as curtains, chimney and bed hangings, tablecloths, cushions, &c., and to ecclesiastical appliances, whether personal or applying to the church itself. 2. The active participle of the verb "to trim," to cut off or pare away what is superfluous. This expression is borrowed to describe the act of one who fluctuates in his adhesion between two parties, desiring to keep well with both, even at the expense of straightforward dealing and principle. A "time-server." 3. A trimming likewise serves to express the act of inflicting punishment.

Trinity House. — This is a society incorporated by King Henry VIII., in the year 1515, for the promotion of commerce and navigation, by licensing and regulating pilots, and ordering and erecting beacons, lighthouses, buoys, &c. The Trinity House, by 17 & 18 Vict. c. 104, appoints and licenses pilots for the following limits:—1. The "London District," comprising the waters of the Thames and Medway, as high as London Bridge and Rochester Bridge, and the seas and channels leading thereto or therefrom, as far as Oxfordness to the north, and Dungeness to the south, but so that no pilot shall be licensed to conduct ships both above and below Gravesend. 2. The "English Channel District," comprising the seas between Dungeness and the Isle of Wight. 3. The "Trinity House Outports Districts," comprising any pilotage district for the appointment of pilots, within which no actual provision is made by Act of Parliament or charter. And, in general, the employment of pilots in the first and third of these districts is compulsory; but the following ships, when not carrying passengers, shall be exempted from compulsory pilotage in the London District and the Trinity House Outports Districts. 1. Ships employed in the coasting-trade of the United Kingdom. 2. Ships of not more than sixty tons burthen. 3. Ships trading to Boulogne or to any place in Europe north of Boulogne. 4. Ships from Guernsey, Jersey, Alderney, Sark, or Man, which are wholly laden with stone the produce of those islands. 5. Ships navigating within the limits of the

ports to which they belong.' 6. Ships passing through the limits of any pilotage district on their voyage between two places both situate out of such limits, and not being bound to any place within such limits nor anchoring therein.

Tripe.—The variety of food called tripe is prepared from the stomach and intestines of the ox and cow, with the fatty structures adhering to them. Excepting in the case of the pig, no part of the alimentary canal of any other animal is applied to our use. Tripe is prepared by first well cleansing the organs, and then gently boiling them in clean water; after this the tripe may be cooked in a variety of ways, and may be converted into very delicious food. The muscular fibres belonging to tripe are very different to those of ordinary meat, consequently the food is very easy of digestion and is soon masticated. But although considerable nutriment is obtained from it, tripe is not very satisfying food—a peculiarity that renders it well adapted to the sick and weakly. To be suitable for invalids, however, it must not contain too much fat. Fatty tripe is rich, and only fit food for the strong and healthy.

Tripod.—Something with three feet, as a small table, a stool, a kind of iron kettle, otherwise called a gipsy-kettle. It was on a tripod that the Pythian priest in the Temple of Apollo at Delphi sat when giving the responses of the oracle. The words tripet, trippet, and trivet are all modifications of tripod.

Tripoli.—The name of an infusorial earth, first discovered in Tripoli, consisting almost entirely of the silicious cases of diatoms. Similar deposits are found at Bilin and Eger in Bohemia, Richmond in the United States of America, &c. It is used in polishing stones.

Triptych.—A name given to three leaves or tablets joined together by hinges. The name originates from the Greek words *tris*, thrice, and *ptysso*, I fold. These tablets, which are usually small in size, exhibit different scenes, each of which is framed around and quite distinct from its companions; sometimes the pictures are painted, sometimes carved in wood. A triptych is occasionally placed in sacred buildings, and forms a small reredos.

Trivet.—A useful accompaniment to a fire-grate which is not provided with hobs. It is a flat piece of open iron-work which has three legs, and a projecting handle of china or wood by which it is carried to and fro. Its purpose is to support the kettle when brought into a room. The trivet is placed on the top bar of the grate, and on it the kettle can rest steadily.

Troches.—This is the popular term for medicinal lozenges, a favourite mode with some people of taking medicine. Troches, or trochisci, as they are technically called, appeared for the first time in the English Pharmacopœia in 1867. There are now ten of these preparations in the British Pharmacopœia—viz., of tannic acid, bismuth, catechu, reduced iron, ipecacuanha, morphia, morphia with ipecacuanha, opium, chlorate of potash, and bicarbonate of soda. Besides these there are some patent medicines which are made up in this form. Those just named are, however, the only officinal troches.

Troco. (*See* Lawn Billiards.)

Trolly Lace. (*See* Lace.)

Trotters.—The feet of sheep, usually known by the name of trotters, are in the estimation of many a very excellent dish. Containing, as do the feet of all animals, much gristle and gelatinous matter, they require to be cooked long and slowly, in order to extract the amount of nourishment contained in them, and also to render them a digestible article of food. There are many ways of preparing them for the table; on the Continent they are served plain boiled, accompanied with oil and vinegar. Whatever the method may be, however, that is adopted, the great point to be observed is that they should be thoroughly cooked.

Trou Madame.—A game played on a bagatelle board in exactly the same way as Mississippi, described under the heading of Bagatelle, with one exception: the balls are played straight from the end of the board through the bridge without first hitting the side cushion.

Trousers.—A loose covering for the legs, covering the body up to the waist and reaching to the feet. This garment differs from breeches both in its length and looseness. It is mentioned in the time of Queen Elizabeth, and was written *trosser*. In Ben Jonson's *Staple of Newes*, it is said that Peniboy junior "walks in his gowne, waistecoate, and trouses," while expecting to receive his tailor. Trousers are made of a great variety of materials, and selected for wear to suit the season, climate, and condition and avocation of the wearer. The precise form in which they are cut varies with the fashion and nationality. Those worn by sailors of all countries are of blue woollen serge or white duck, and are very tight in the body and exceedingly loose in the legs.

Trousseau.—A French term which is now universally adopted to designate the outfit of a bride. It is customary for a father to provide his daughter with a complete set of garments and articles for personal use on her marriage; the size of the set and its costliness depend upon the wealth of the father and the future requirements of the bride. The most prudent course is that of spending comparatively more on the under than on the outer garments, for the fashion in the latter changes continually, and therefore any large supply of dresses or articles of millinery is an outlay which often proves unsatisfactory. Should many dresses be bought, the making-up of some can be reserved until their services are required. When economy has to be studied, the under-garments should be made at home; pieces of calico and flannel and embroidery can be bought for much less money when the whole length is taken than when bought by the yard. The selection of all the articles for the trousseau should be made with a view to the future requirements of the bride, according to whether her home is to be in town or country, in the colonies, in India, or

other foreign land, and regard should also be paid to the position she will occupy.

Trout.—The common trout is called by naturalists *Salmo fario*, and belongs to the family *Salmonidæ*. It is found in abundance in nearly all the rivers and lakes in Europe, being, unlike the salmon and salmon trout, a fresh-water fish. It is very beautiful both in colour and shape, yellowish-brown on the back, yellowish on the sides, and spotted with red, while the belly is quite white. The trout sometimes attains a great weight, specimens being taken weighing from ten to fifteen pounds. It is not only esteemed very highly as a table dainty, but affords the very best sport an angler could wish. There is also the grey trout, the flesh of which is not considered so good; it is found, however, in greater abundance. This last is called by naturalists *Salmo ferox*. We have also the salmon trout (*which see*).

Trover (from the French word *trouver*, to find).—This was the description of a special form of action adapted to try a disputed question of property in goods or chattels. The term is derived from the supposition (generally a fiction) that the party proceeded against—the defendant—found the goods in question; and the declaration, after stating such supposition, proceeded to allege that the defendant converted them to his own use, and then claimed damages for the injury which he had sustained by such wrongful conversion. In order to maintain an action of trover, it must appear—(1) that the plaintiff had either an absolute or special property in the goods, the subject-matter of the action; (2) that the plaintiff had the right of possession in the goods; (3) that the goods are the subject-matter of the action; (4) that the defendant has been guilty of a wrongful conversion. Trover, as a special technical form of action, is abolished by the Judicature Acts; but the above principles, nevertheless, apply to any action founded upon the wrong described.

Trowels.—There are several varieties of these instruments, those used by bricklayers and gardeners being the most common. A bricklayer's trowel is used for taking up mortar, &c., and the gardener's trowel for the same purpose in connection with mould.

Troy. — An English system of weights, chiefly used in weighing gold, silver, precious stones, &c., and in philosophical experiments. The standard for the measure is a cubic inch of water, at 62° Fahr., with a barometric pressure of 30 inches; this weighs 252·458 grains troy. The following is the table of troy weights:—

24 grains = 1 pennyweight (dwt.).
20 pennyweights = 1 ounce (oz.) = 480 grs.
12 ounces = 1 pound (lb.) = 5,760 grs.

In weighing diamonds, &c., a special weight, termed a *carat*, is used; it is equivalent to $3\frac{1}{8}$ grains.

Truck-system.—The system of paying wages, in whole or in part, in goods. This was once very common, and masters added materially to their profits by compelling workmen to take bread, apparel, and a host of other things instead of money. Sometimes the goods were kept by the employer on his premises, and sometimes he issued tickets for the goods to be supplied by some tradesman. What is known as the Truck Act, passed early in the reign of William IV., made all this illegal, and a servant or workman is entitled to his wages in money. The truck-system did not at once disappear on the passing of the Act, and ingenious devices were resorted to in order to evade the law; but it received its death-blow, and the working class has long been practically relieved from what was too often an instrument of oppression. It must be noted that the Act does not extend to agricultural, domestic, or mercantile servants, unless they agree with their master for certain wages.

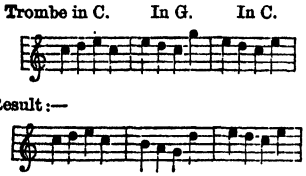
Truckle-bed. — A bed that stands on wheels, the word "truck" being derived from the Greek of a "wheel" and "to run." One supplied with a small wheel under each of the legs, so as to be moved about with ease.

True Love Knot, or True Lover's Knot.—A knot formed by holding one end of the cord or ribbon in the left hand, folding over it a portion of the rest of the cord with the right hand so as to form a loop, then folding over another piece so as to make a second loop, which should be half-way over the first. Then with the left hand draw the second loop underneath through the first loop, simultaneously drawing with the right hand the underlying portion of the first loop up through the second, so forming a tie consisting of two loops and two ends, confined in the centre the more firmly as the loops are drawn, but undone in a moment by drawing the two ends. This knot has been adopted to be an emblem of interwoven affections.

Truffles.—Although it is certain that the truffle possesses organs of reproduction, it has hitherto been impossible to subject it to a regular culture. It is a kind of fungus, varying in size from that of a large plum to that of a large potato, and belongs to the family of the mushroom, which, in the estimation of many, is considered equal, if not superior, to the truffle. There are three varieties of the species—the black, the red, and the white. The black are the most valuable, the white are almost worthless, and the red are so rare that their use is restricted. In addition to their flavour truffles emit a delicious perfume, which, however, is only in perfection when first unearthed; the scent very soon fades—indeed, in truffles that are not decidedly fresh the perfume is sometimes scarcely recognisable. In this country the common truffle is found on the downs of Hampshire, Wiltshire, and Kent. It abounds in dry, light soils, and more especially in oak and chestnut forests. In France and Italy truffles grow to great perfection; they are large in size and rich in flavour and perfume, though these qualities are considerably deteriorated during importation. In places where they abound many people are employed in gathering them. They grow in clusters underground, nothing on the surface of the soil indicating their presence; consequently dogs are trained to seek them, the scent of the truffles

guiding the animals. Pigs also are very fond of truffles, and often lead to their being found by rooting up the ground in search of them. Truffles are seldom eaten alone, but on account of their agreeable flavour are greatly used in soups, gravies, and highly-seasoned dishes. Their chemical composition is peculiar. Upon analysis they are found to contain, not only the usual components of the vegetable kingdom, such as carbon, oxygen, and hydrogen, but also a large proportion of nitrogen. These components united approach very nearly to the nature of animal flesh, which fact accounts for the rich flavour imparted by them. When taken alone they should be eaten in moderation, as they are difficult of digestion, and are both stimulating and heating to the system. Though many virtues have been attributed to truffles which they do not possess, they are unquestionably worthy of being ranked among the numerous delicacies that are placed upon our tables. They are to be had fresh and in perfection at Christmas, and when not in season may be obtained in a dry state reduced to powder. The best plan to adopt in cultivating them is to take the truffle from the place where it is found growing, and lay it in a somewhat similar situation.

Trumpet.—The natural "treble" in the family of brass instruments, but containing an extensive compass, from a low bass, C or D, to about G or A above the treble clef, and so on, according to the key of the instrument. The natural or "open" notes of the trumpet, like those of the horn (*which see*), are practically identical with the natural harmonic series belonging to any tube or string. The "closed" notes are difficult, dull, and sometimes uncertain, especially in the higher range of the instrument. Trumpets are made in various keys; and two or more of them in different keys may be used in the same composition, the one supplying open notes in which the other may be deficient; *e.g.*:—



Trumpets are classed, therefore, as "transposing instruments," and are scored for as though they were always playing in the key of C. Keyed or valved trumpets are now made, but they have not the purity of tone which characterises the older instruments.

Trumpet, Ear. (*See* Ear-trumpet.)

Trumps (at Cards).—In card games, when a card is turned up after all the players have received their portions, that card is the trump, and in games where all the cards are dealt out it belongs to the dealer. All the cards of the same suit as the trump are also termed *trumps*, and the smallest card of that suit ranks higher in value than the best card of any other suit.

Trunks, To Pack. (*See* Packing.)

Truss.—This is an instrument now in general use for the support of hernia, or rupture of the bowels. It consists of a soft pad, which is adapted to the seat of rupture, and kept in position by a metal spring and some leather straps. Trusses, when properly constructed, have the effect not only of preventing the rupture from protruding, and thereby endangering life by becoming strangulated, but they serve also, especially in young people, to bring the edges of the aperture together, and in this way may effect a permanent cure. They should also be so made as to allow the wearer the unrestrained motion of his body, fitting him perfectly, and not chafing anywhere. A badly-fitting truss is worse than useless—it is dangerous. When rupture has taken place on both sides of the body, a double truss must be worn; and when the protrusion is irreducible, what is called a bag truss is necessary. A truss should be put on before getting up in the morning, care being taken that there is no trace of swelling or other indication that the rupture is not completely back. It should be taken off on getting into bed. A good instrument and a perfect fit are the essentials of a proper truss, and to ensure these every precaution should be taken. (*See* Hernia.)

Truss (Bundle).—In a general sense, a truss is a bundle, as a truss of hay or straw. A truss of straw varies in weight according to the locality. A truss of hay is 56 pounds, or half a hundredweight, and 36 trusses make a load.

Truss (Cookery).—To truss anything, in cookery, is to put it into the proper form, bind and skewer it firmly, in order to prepare it for the saucepan. In London it is customary for the poultryman to send out game and poultry ready trussed, but in many country places this is not so usual, and therefore a knowledge of the art of trussing (which can scarcely be imparted verbally) is indispensable to a good cook.

Trust.—In commerce, a term used to denote credit given without security of any kind.

Trust Deeds. (*See* Trusts, Trust Deeds.)

Trustee.—The person to whom property is committed for the use and benefit of another person, called the *cestui que* trust. The trustee has the legal interest in the property, and the *cestui que* trust in whose favour the trustee holds the estate enjoys the equitable estate. (*See* Statute of Uses.) A trustee must be capable of taking and of holding the trust property, and great care should be exercised in the choice of persons fit for the office. It may be generally said that all persons capable of holding and dealing with property are lawfully able to fill the office of trustee, although it may not be advisable for them to be appointed. A married woman may be a trustee; but this is unadvisable, as she cannot pass the legal estate without the concurrence of her husband. Infants or relatives, though not disqualified by law, should not be made trustees. The primary duties of a trustee are, first, to carry out the directions of the

person creating the trust, and secondly, to place the trust property in a state of security. It is an established rule that trustees, executors, administrators, or others standing in a similar situation shall have no allowance for their care and trouble; and this proceeds upon the principle of equity that a trustee shall not profit by his trust, and so, if he has made any profit out of the trust estate, he must account to his *cestui que* trust. Defaulting trustees are now criminally punishable, for by 24 & 25 Vict. c. 96, s. 80, it is enacted that "whosoever being a trustee of any property for the use or benefit, either wholly or partially, of some other, or for any public or charitable purpose, shall, with intent to defraud, convert, or appropriate the same or any part thereof to or for his own use, or the use or benefit of any other person, or for any purpose other than such public or charitable purpose, or otherwise dispose of or destroy such property or any part thereof, shall be guilty of a misdemeanour, and liable to penal servitude for any term of not more than seven, nor less than three (now five) years, or imprisonment for not more than two years. But no proceeding or prosecution for any such offence shall be commenced without the sanction of the Attorney-General, or, if that office be vacant, of the Solicitor-General; and where any civil proceeding shall have been taken against any person to whom these provisions may apply, no person who shall have taken such proceeding shall commence any prosecution under this section without the sanction of the Court before whom such proceedings shall have been had or shall be pending."

Trusts, Trust Deeds.—A trust is a confidence reposed by one person in some other person, and in law means the beneficial ownership of real or personal property, unattended with the possessory or legal ownership thereof. A trust of property must, by the Statute of Frauds, be manifested and proved by writing, but any form of writing in which the trust is made clear is sufficient. Trusts are of several kinds. 1. Simple, as where property is vested by deed in one person in trust for another, in which case that other person, the *cestui que* trust, has the right to be put into actual possession. 2. Special, as where a conveyance is to trustees upon trust to sell for the payment of debts. Trusts are also public and private. The duration of a private trust is by law limited to the life or lives in being at the time of the commencement of the trust and twenty-one years afterwards. A public or charitable trust is, however, not limited by duration. A trust can be created by the act of the party or by operation of law. A trust by the act of the party must be created by some person, generally called the settlor, who may, if he is competent to deal with the property, vest it in a trustee to execute his (the settlor's) intention. No particular form of expression in a trust deed is necessary to the creation of a trust if, on the whole, it can be gathered that a trust was intended, but the words, the property, and the persons or objects of the trust, must be clearly defined and certain. A trust never fails for want of a trustee; for if no trustee is appointed, or dies, the Court will provide a trustee and appoint a proper person to execute the trust. Every kind of property in which a legal interest may be given, whatever may be its quantity or quality, if it will yield a profit, may be impressed with a trust, which equity will carry out without regard to form, provided its purpose do not contravene the policy of the law or the principles governing the rights of property.

Tube-wells.—The apparatus of these most useful contrivances consists, in the first place, of an iron pipe an inch or two in diameter. This is driven vertically into soft ground by an iron rammer suspended over it, and worked with a pulley by two men. The lower end of the tube is closed and pointed, but there are numerous small lateral orifices near the bottom. When the tube reaches a watery stratum, a small pump is attached to the top of it, and water is speedily brought to the surface by this means. The tubes used for this purpose are not more than fourteen feet in length, so that when the water is situated at a greater depth than that, two or more tubes are screwed together. This description of tube-wells (some of which were found of great service in the Abyssinian Expedition in 1868) is considered to be a modern invention, being first used in America in 1866, and in England in 1867; but the principle has been known for many years, M. Cadet de Vaux, about the end of the last century, having suggested the following means to be employed:—The soil should be perforated with a borer; a wooden pipe is then to be placed in the hole and driven down with a mallet; after which the boring must be continued, in order that a pipe may be driven to a greater depth. As the auger becomes filled with earth, it ought to be drawn up and emptied, so that by the addition of fresh portions of the pipe the boring is carried to a considerable extent underground. Wells thus formed are preferable to those dug in the usual manner, being less expensive, while the supply of water is more copious and certain, it often happening in the common practice of digging for wells that the workmen are obliged to fix the windlass in order to prevent the springs from gaining on them; by this means a small quantity of water is the necessary consequence, which is apt to fail during dry summers. Hence M. de Vaux advises the earth to be perforated, a cylindrical pipe to be inserted, and to search for that element at a greater depth in the manner before suggested. This method is stated to be very useful in camps or fortresses; and in case the fluid near the surface be neither sufficiently sweet nor of a good quality, he supposes his expedient to be the best that can be adopted for obtaining water of a purer kind at a greater depth. In addition to this, when wells have in large towns been rendered unfit or useless, in consequence of the ground having become tainted from various causes, if such reservoirs be emptied and the bottom perforated in a similar manner so as to reach the lower sheet of water, the fluid, being thus contained within the cylindrical pipe, will rise in a pure state into the body of the pump fixed for the purpose. The chief object, however, of a tube-well is to obtain a small quantity of water in the quickest possible time, and when

the water is situated within a few feet of the surface this invention will speedily effect this purpose.

Tuberose.—This is the *Polyanthes tuberosa* of the botanist, and makes one of our very prettiest garden flowers. The best kinds to grow are three—namely, the Italian, the American, and the American Pearl. The American is an early kind, which flowers freely and gives out a sweet perfume; the American Pearl is a dwarf variety, and the flowers are not only very large but very fragrant.

Tubes are made of wood, leather, gutta-percha, india-rubber, lead, iron, stone, pottery, &c. *Wooden tubes* are used principally for the conveyance of water, and are bored by means of large iron augers, worked by one or two men, who commence with a small bore, and increase it as the work proceeds by changing the auger to a larger size, which are sometimes extended to eight or nine inches in diameter. The tree in the process of boring is laid horizontally upon trestles constructed to support and hold it firmly, and the augers are similarly supported and guided so as to pass centrically through the tree. The manual operation is, of course, slow and extremely laborious, so that this work is now usually performed by machinery worked by steam or other power. *Leather tubes* will be found described under the heading of Hose. *India-rubber tubes* are mostly employed for the transmission of gas and corrosive liquids, and are manufactured in the following manner:—Round a cylindrical rod of iron of the desired length is closely coiled annealed wire in the manner of a spiral spring, care being taken that the edges of the coiled wire shall touch each other, but shall not, at the same time, be so firmly wound as to prevent its slipping off the rod; then the wire is covered with tape spirally from end to end, and upon it laid strips of india-rubber, wound in a similar manner, with their fresh-cut and clean edges lapping upon each other. These are then bound down tightly with another coil of tape. After this the rod is withdrawn and the tube boiled in water for an hour or two. When cool, the wire and tapes are removed, and an india-rubber tube will be produced which, though rough, will be perfectly sound if this process be properly carried out. *Lead tubes*, which are used as conduits for beer, wine, vinegar, and other acid liquors, are made in a great variety of ways, the characteristics of their manufacture depending on the properties of the metal. A short thick cylinder of lead is cast with a bore of the proper size. A steel mandrel is thrust through the bore, and then the cylinder is passed many times between rollers having grooved surfaces; smaller and smaller grooves are employed as the work proceeds, until the cylinder is reduced to the external diameter of the intended pipe, and lengthened in proportion the mandrel preventing the internal diameter from being reduced, and the lead being hardened, compressed, and smoothed by the operation. *Iron tubes*, used chiefly for the conveyance of water and gas, are of two kinds—wrought and cast, the former being manufactured by machinery as follows:—The sides of the metal being bent up with swages, so as to bring the edges nearly together, the tubes so prepared are introduced into a furnace, and, when brought to a welding heat, to the operation of a small tilt-hammer. The face of the hammer, as well as that of the anvil, has semi-cylindrical grooves corresponding with the size and shape of the tubes under manufacture, and between these the tube is gradually passed along, receiving in its progress a rapid succession of blows from the hammer. When the welding is thus completed the tubes are in a rough state; they are therefore again heated in the furnace, and passed between large round rollers, which give to the tubes a smooth exterior surface. As they emerge from the pressure thus given they come in contact with a fixed round rod, of the proper size of the bore of the tubes, over which they are forced by the rollers, and thus the interior, as well as the exterior, is brought to a smooth and true cylindrical surface. *Stone tubes*, also used for conveying water, are manufactured by fixing the block of stone to be perforated in an upright position, and in the centre of the top of the block a step is fixed to receive the toe of a vertical spindle, which derives its motion from a pulley turning in plummer-blocks in a fixed frame above; this axis is considerably longer than the pipe to be formed, having the faculty of sliding vertically through the before-mentioned horizontal pulley, over which it is suspended by a rope that passes round a vertical pulley, and thence is connected to a winch to wind up the axis at pleasure. The saw employed is at the edge of a hollow cylinder, and this hollow cylinder is turned by the spindle through the medium of cross-arms, through which the axis slides; and in order to give the requisite force to the annular saw, the top of the tube to which it is fixed is loaded, provided its own weight be insufficient, the motion given to the saw, though circular, being reciprocal.

Tubs are open wooden vessels formed with staves, heading, and hoops, and used for various domestic purposes, as washing, making cheese, &c. The special use for which a tub is intended gives to it its distinctive name, as mash-tub, meal-tub, wash-tub, &c. Wooden tubs when not in use should have a little water left standing in them, or the wood may dry and the tub fall to pieces. Tubs that have been unused for some time, and consequently from which water runs, may frequently be made quite right by being left to soak for awhile.

Tuck.—A word having more than one signification. 1. In dress it means a fold of the material, with a running thread passed through at the top of it, in a parallel line with the straight edge of the fold, to keep it in place, either for the purpose of ornament or to shorten or take in the garment. When made for decoration, several of these folds or tucks are run in the dress, as in the robes and petticoats of infants, one close to the other, or divided respectively by bands of worked insertion. 2. A long narrow sword, and sometimes signifying a dagger, inserted or tucked into a pocket made for it in the side of the scabbard of a

sword. It is also the name of a small dirk worn by artillerymen. It is derived from the Gaelic *tuca*, or Welsh *twaca*, signifying a sword. The use of the word tuck is applied to express other ideas. 3. The verb "to tuck" means to fold in, so as to hold by the compression of each side, as to tuck in bed-coverings. 4. Tuck signifies food, the expression being derived from the gourmand "Friar Tuck," one of Robin Hood's boon-companions. 5. A tuck also means a net, or tuck-net, used in fishing. 6. Another signification of the term is that part of a ship where the ends of the bottom planks are collected, under the stern.

Tudor Style.—This term has been employed in various ways to the Perpendicular style in Gothic architecture, but chiefly to indicate its latter period and the mixed style which arose out of its decline. It is sometimes called Elizabethan. Henry VII.'s Chapel at Westminster is an excellent example of the Tudor style.

Tufa.—This is a porous stone, deposited by calcareous waters, of a very light kind, suggestive in its appearance of petrified sponge. It is very durable, and was largely used by the Romans for the external surfaces of their buildings.

Tuft-hunter.—Noblemen and other persons of quality were colloquially styled tufts, from the tufts worn by them in their caps. Hence, a hanger-on of such persons was called a tuft-hunter.

Tulip.—This well-known and beautiful spring flower, of which there are so many different varieties, belongs botanically to the genus *Tulipa*, and the natural order *Liliaceæ*. The word is probably a corruption of *thoulybán*, or *toleban*, signifying in the Persian the name given to this flower, and also a turban. The wild tulip, or *Tulipa sylvestris*, is a native of this country, and is found growing on chalky soils in our own



TULIP.

land, as well as in Germany and many of the southern countries of Europe. It blooms in the spring months, and increases itself by growing as a creeper, stalks being thrown out which root as bulbs and produce a new flower. The tulips, however, which are such choice spring ornaments for our gardens, are single flowers growing from bulbous roots, and the rearing of them forms to many amateur gardeners quite a hobby. Raising tulips from seed is a somewhat tedious process, as it is many years—from five to seven—ere they blow. However, by this plan, many new and beautiful varieties are obtained. If it is meant to grow tulips in this way, a sowing should be made each year about the end of September or during October. The pans may be about six inches deep, having holes to drain off the water at the bottom, and a layer of broken potsherds, over which must be placed pieces of slate horizontally; this, while admitting of drainage, prevents the downward growth of the roots and helps the bulbs to form. The mould is formed of sandy loam mixed with decayed horse-manure, and the seed should be sown thinly. When it is desired to cultivate tulips from the offset, the latter should be broken from the parent bulb about the middle of July, after the drying has taken place. The old bulbs should be stowed away in bags, but the young ones had better be planted early—at all events before November. The offset bulbs take fully a year to reach maturity. Care should be taken not to bruise the bulbs in any way. Plant them in an open airy aspect, not exposed to the north winds, but not in the shade. The best mould is a loam of rotten old pasture turf, with a few inches of cow-manure two or three feet underground. Plant the tulip bulbs six inches apart each way, and three deep. They should be got down early in November and protected from frost; they will show leaf in February. When the plants show flower, the rule is to protect them by an awning from the midday sun, but still to let them have plenty of air. When the seed-pods form they should be removed; and when the leaves die down and turn yellow, it is time to take up the bulbs and carefully dry them.

Tulip-tree.—This tree is called by botanists *Liriodendron tulipifera*, and belongs to the natural family *Magnoliaceæ*. There are several varieties of it, known as white-wood, canoe-wood, Virginian poplar, and tulip-bearing lily-tree. Although cultivated in England and most parts of Europe, the tree does not grow to any great height, but in North America it is one of the most magnificent denizens of the forest, being sometimes one hundred feet in height, and from two to three feet in diameter of trunk. It well repays cultivation, however, and is best grown from seeds obtained from America, sown in autumn in a fine mould or healthy sandy loam; but it should be borne in mind that although the tree may be propagated by budding or grafting, it does not bear transplanting well.

Tulip-wood.—This is the wood of the tulip-tree, considered of great value in America. It is a light wood with a very fine grain, and receives a very nice polish. It is mostly used by cabinet-makers and coach-builders, and being light is also used for the construction of canoes.

Tumbler Pigeon.—A variety of the common or domestic pigeon, so named from a

curious habit it has of turning somersaults during flight.

Tumblers. (*See* GLASSES.)

Tumours.—These are growths, varying in size and importance from a simple wart to a malignant cancer. They are far too numerous and complicated to be described in a work of this kind. Those which are best known and which occur most frequently, such as cancer, will be found described under their respective headings. It is sufficient to say here that tumours are usually divided into two great classes, viz., benignant and malignant, and that both as a rule require, at some period or other of their history, surgical attention and treatment.

Tun.—1. A large oblong vessel, flat at the two ends, and made of separate boards of wood, perfectly fitting one to another, and girt round with circular hoops of iron, the centre portion of the tun (between the two ends) bulging and being greater in circumference than at the ends. It is a cask of large dimensions. 2. A measure. (*See* TON.)

Tune.—1. A melody, or well-ordered succession of musical tones. A four-line hymn-tune is generally divisible into four phrases, the third and fourth of which should correspond or "answer" in some degree to the first and second. It is usual for the "tune" to be given as the highest part in a composition for voices, but this was not always the case. Up to the sixteenth century it was oftener the custom to place the melody in the tenor part, the treble and alto voices singing a kind of descant or counterpoint upon it. 2. Pitch or accord. When a composition is said to be sung or played "out of tune," it is owing to the want of precise agreement in pitch or accuracy of the voices or instruments employed.

Tunic.—Originally this name was given to an under-garment worn by the Romans; it was worn under the toga, and stood in the place of the shirt as used in the present day. At that period the tunic was made of woollen material. In the present day the title of tunic is understood in various ways. It is represented by a short loose garment which covers the body and descends a short distance below the waist; it is also given to a long under-garment worn under the chasuble by Roman Catholic priests when officiating. Another kind of tunic is in the form of a frock-coat which is worn by soldiers of French infantry. The name of tunic is also applied to a short upper skirt which is worn by women.

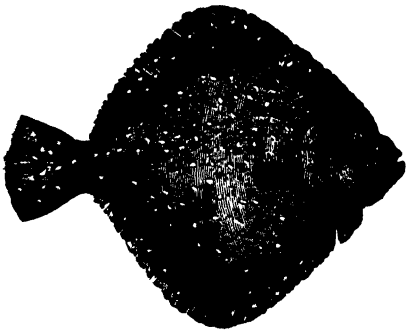
Tuning-fork.—A useful little instrument which is brought into requisition for tuning pianos, and also for striking a key-note in the absence of other instruments. The ordinary tuning-fork is made entirely of steel; it has two prongs of equal length which extend from a handle. When struck sharply, a certain note is sounded, which is plainly detected when the fork is held to the ear or placed on a sounding board; this will always be a true and pure note, and serve as a sure guide. The note chosen in England is A, while in Germany c is selected. The tuning-fork used in the latter country slightly differs from the above described, to which it is supposed to be superior. Tuning-forks have different standards that can be adjusted by a movable brass slider which is fitted with a screw; indications of these adjustments are shown on the prongs. The three different standards are severally called concert pitch, orchestral pitch, and opera pitch. The last-named is the highest of the three standards.

Tunny.—This is the *Thynnus vulgaris* of the naturalist, and belongs to the *Scomberidæ* family, to which also the mackerel belongs, which fish the tunny somewhat resembles. Although found in abundance on some parts of our own coasts, it is not often sought for, but in the Mediterranean the tunny fishery grounds are very extensive. The fish are caught in a series of nets called a madrague, being driven from one to the other until they reach the last, which has a floor of netting, and is called the chamber of death. The tunny is a large fish, some measuring as many as eight feet long, and weighing some four hundred pounds.

Turbans.—Wrappers placed round the head, worn by Orientals; these are of ancient institution, and beyond the reach of history. They consist of long pieces—sometimes several yards in length—of fine linen, muslin, silk, taffeta, or of fine woollen material, which is twisted and coiled round the head in a cushion-like form. Turbans are worn by all classes, and both in-doors and out of doors. The turban is the Turk's winding-sheet, instituted, according to their assertion, by their prophet Mohammed; it was doubtless used for the purpose by his savage warriors. In Turkey turbans vary in size and material, according to the occupation, rank, or country of the wearer. Learned men affect a full white turban; the descendants of Mohammed always wear a dark green turban, and no one less privileged is permitted to trespass on this exclusive right. The Christians of Lebanon wear a very gracefully folded white turban; the Zeibecks adopt striped coloured silks with fringes; they place several fezzes one over the other, making a cumbersome conical mound, and round these they wrap the silken scarves. In modern Turkey the fez, with a great show of dark blue flossy silk, has been extensively adopted in place of the turban, and the custom of wearing the fez alone is at the present time very general, especially on the sea-coasts. Turbans are now seldom seen but on elderly Turks, except in the interior of Asia Minor, where olden customs are more prevalent. In India the use of the turban is being rapidly discontinued by the higher classes, who have adopted in its place a brimless cap, the appearance of which is very frequently enriched by exquisite embroidery in gold, silver, or silken threads on coloured velvet.

Turbot.—This is the *Platessa maximus* of the naturalist, and belongs to the same family as the sole, the plaice, and flounder, viz., the *Pleuronectidæ*. It is a very large flat fish, of a brownish colour on the back, and studded with

small hard tubercles. It is rather plentiful on our own coasts, and is greatly esteemed for



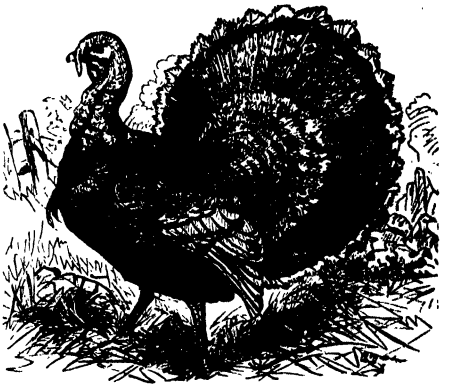
TURBOT.

table use, owing to the delicacy and flavour of its flesh.

Turbot-kettle.—A turbot-kettle is shaped differently to an ordinary fish-kettle, being wider, shallower, and more pointed at the sides; it is, in fact, made to suit the shape of the fish intended to be boiled in it. Like other kettles, however, it is provided with a drainer, upon which the fish can be laid and on which it can be lifted out of the water.

Tureens.—The French word for tureen is *terrine*, meaning a pan made of earth. All complete dinner services are supplied with a certain number of tureens, each one being adapted for a special purpose. One larger than any of the others is designed for soup, two or more for vegetables, and two or more for sauce, according to the size of the dinner service.

Turkey.—The largest and one of the most valuable of all our poultry is the turkey (*Meleagris gallopavo*). In some places it is now naturalised, but was originally a native of North America, and appears to have been introduced into Europe in the beginning of the sixteenth century. The flesh of the turkey is very delicious, and its eggs are large in size and rich in flavour. Its food usually consists of grain, bran, boiled potatoes, and similar food, to which is very frequently added chopped nettles or minced dandelions; the latter are better than anything else, and when they cannot be obtained it will be found worth while growing them for the turkey's special use. As young birds, turkeys are more difficult to rear than any other domestic fowl; the usual mortality in turkey chicks is sometimes tremendous, and quite sufficient to destroy the smallest chance of profit. For the first six weeks they are very liable to injury from wet, even damp ground being the cause of disease; and in order to keep them alive it has been proved that a spacious shed floored with plank should be provided, so that the young birds need never be exposed to the changes of the weather. As soon, however, as the red naked protuberances appear about the neck and throat, when the chicks become poults, the delicacy of constitution disappears, and the birds, instead of requiring extra care, are soon hardier than any other fowl. Turkeys have been known to reach a very large size, weighing as much sometimes as forty pounds, and at poultry shows thirty pounds is quite an ordinary weight. Such birds, though remarkable as specimens of successful rearing, are not considered profitable. The flesh of a turkey cock weighing from fifteen to twenty pounds, or of a hen weighing from ten to twelve pounds, which are the usual weights at Christmas, is



TURKEY.

more likely to be white, tender, and delicate in flavour than the flesh of an unusually large bird. The best and hardiest breeds of turkeys are the black Norfolk, the Cambridge, and the American. The bird called the dark Cambridge usually takes the most prizes, and attains the greatest size. The whiteness of the flesh of the turkey depends upon the bird being fastened up by the feet immediately after being killed, so that it may bleed freely.

Turkey Cambric.—Cambric coloured with a permanent red dye, like the twilled fabric called Turkey or Turkish red (*which see*).

Turkey Carpets. (*See* CARPETS.)

Turkey Leather, otherwise called Morocco leather, is prepared from goat-skin. At present it is brought from the Levant, but originally came from Morocco. The greater part of that sold is prepared in this country. (*See* MOROCCO LEATHER.)

Turkey, Red. (*See* RED, TURKISH.)

Turkey Rhubarb. (*See* RHUBARB.)

Turkish Bath.—Under the heading of BATHS AND BATHING we have already referred to this bath. With regard to the advantages, medical and otherwise, to be derived from its use, they may be summed up in a few words. Cleanliness, with its attendant healthy results, is promoted to a degree far exceeding any ordinary process of ablution. There is no doubt also that many complaints and even diseases may be checked at their outset by the full and eliminative perspiration which the bath induces; and probably all those affections which have their origin in perverted or depraved nutrition, as consumption, cancer, &c., if they cannot be cured, can at least be relieved by it.

Be this as it may, there is no doubt that some forms of asthma, catarrh, rheumatism, and other similar affections, are often left behind in the bath.

Turkish Lace. (*See* LACE.)

Turkish Red. (*See* RED, TURKISH.)

Turkish Slippers.—These are distinguished by the following characteristics:—The sole is pointed and turns up at the toe, over which lies a cover or cap; there are neither sides nor heels to the slipper; and the foot retains its hold by means of the cap which covers the toes. This cap, and also the inside of the sole, are frequently embroidered. Turkish slippers are usually yellow in colour.

Turkish Towels.—These are made of soft cotton, and have a raised furry surface; they are used for bath towels because they quickly absorb moisture; they are very suitable for children's use on account of their peculiar softness of texture. Towels of this description, if of good quality, are expensive; they are distinct from another kind of bath towel made of crash, which is harsher and rougher than a Turkish towel, and for that reason is preferred by many persons who desire friction after the bath.

Turmeric is the rhizome of the *Curcuma longa*, a plant of the same family as the ginger, a native of the East Indies, which yields a very large quantity of yellow colouring matter. It is one of the ingredients of curry powder, and to it the colour of curry is due. It is used as a dye-stuff to some extent, but the yellows produced by it are very fugitive, fading rapidly when exposed to sunlight. Paper steeped in turmeric is used as a test for alkalies, as they cause it to turn brown in colour.

Turn-table.—This is a circular table, supplied with cross-rails and rollers, so arranged that it can be readily turned on a central pivot, and used for turning in any given direction whatever may be placed upon it. It is largely used for moving railway carriages from one line to another running in a different direction.

Turncock.—An official who has charge of the keys of the water-plugs of the parish, and to whom information should at once be given in the event of fire breaking out, as until he arrives the engines are powerless.

Turnips.—The common turnip (*Brassica Rapa*) so familiar to us as a vegetable has been for many years in cultivation. In England it grows wild, as it does also in most other parts of the temperate and cold parts of the world, though the wild plant is supposed to form the original of the Swedish turnip, which is too coarse for human food, but is very good for cattle. The varieties of both garden and field turnips are very numerous. The cultivated garden turnips are generally comparatively small in size, rapid in growth, and delicate in flavour. The Swede is very large in size, dark in colour, and strong in flavour. There are also very rich juicy kinds, which the Russians eat raw as appetisers before dinner. The form in which turnips are generally served in England is when thoroughly well boiled and mashed. In ancient times turnips were grown by the Romans for cattle, and in many other countries they have long been raised for the same purpose. In the cultivated state, it is generally supposed that they were introduced into England from Hanover in the time of George I., though this fact has been doubted, as George II. desired that a description of the Norfolk system of turnip culture should be sent to his Hanoverian subjects. As a field crop the introduction of the turnip has proved to be of immense importance to British agriculture. By providing a supply of winter food for cattle and sheep, which formerly depended entirely on the pasture, a more constant provision of butchers' meat has been secured. Notwithstanding, however, the value of the turnip in many ways, it contains little nutritive matter, and is good for human food only when taken with other articles of diet. When eaten alone it creates flatulency. Unlike the potato, it possesses little starch, but a jelly-like matter instead, and in the best kinds a slightly acid quality also. To those afflicted with chronic visceral irritations, turnips are very beneficial. The French *navet* is a variety of the turnip, but instead of being globular has more the shape of the carrot. Two or three of these will give as much flavour as ten or twelve of the common turnips, and on the Continent they are much esteemed for soups and made dishes. The peculiar flavour of this variety exists in the rind, which is only scraped instead of being cut off. French *navets* have been grown in England, but are now very rarely seen, excepting those that are imported to the London market. For the successful cultivation of turnips, moist cloudy weather is most favourable. In dry weather, and also when the seed is sown too early, the plants frequently throw up flower-stems, which is a fatal sign to the gardener. Garden turnips may be allowed to grow much closer than field turnips, and the thinnings may be used when the roots are quite small. The precise mode of culture depends upon the quality of the soil. The green leaves of the turnip, which are known as turnip-tops, are extensively used as greens, and when freshly cut are very delicious. The slightly bitter taste they possess is to many very pleasant, though in order to be delicate the young leaves only should be used. When they have withstood the summer in order to be tender, they should be allowed to have a touch of frost.

Turnover Apprentice.—An apprentice under an assignment of indenture.

Turnovers (Cookery).—The name of turnover is given to an article of pastry made in the shape of a half circle, and baked without being placed in a tart-tin. The pastry is simply cut into a circle, upon half of which the fruit or meat is laid; over this the other half of the pastry is folded, and it is then baked on a cake-tin.

Turnspit.—The long spit upon which large joints of meat were formerly roasted in the kitchens of the gentry was turned by a menial

servant who was called a turnspit. The same task was performed also by means of a dog trained for the purpose. (*See next paragraph.*)

Turnspit (Dog).—This is a breed of dog, now seldom seen, which was formerly utilised, as the name indicates, for turning the roast. This was always a cruel and sometimes a thankless occupation, which we are not sorry to say machinery has now usurped. The turnspit was a long low terrier, with bandy legs, not unlike the modern dachshund, or German badger hound. Small as they were, however, turnspits were capable of performing wonderfully long journeys. One is described by a sporting writer as not seven inches high, with legs not more than two and a half inches long, but which, nevertheless, followed a coach for 180 miles at the rate of nine miles an hour, without being either over-tired or foot-sore.

Turnstile is a revolving contrivance placed in a foot-path, by means of which only one person can pass at a time. Of late years they have been much used at public buildings, museums, &c., and, fitted with an instrument of the tell-tale nature, they chronicle the number of persons passing through.

Turpentine.—This is the sap or juice of the pine and fir, which flows naturally from those trees, or is obtained from them artificially, and separated from the resin which is combined with it by distillation. It is a volatile oil which constitutes the spirit, oil, or essence of turpentine. The most common is that which is procured from the North American *Pinus sylvestris*. From the turpentine in its crude state the turpentine procured varies from 5 to 25 per cent. When re-distilled and rectified it yields the spirit *camphine*, which is the purest form of turpentine. *Venice turventine* is procured from larch-trees; *Strasburg turpentine* from the *Pinus pinea;* and *Bordeaux turpentine* from the *Pinus abies*. *Canada balsam* and *frankincense* belong to the same class of vegetable sap, as do also the Chian or Cyprus turpentine, from the *Pistacia Terebinthus*.

Turquoise.—This precious stone is very extensively imitated, and the genuine article is of sundry degrees of merit and value. It is to be noted that the fine blue stones alone are of much worth. They are not found in crystals, but in small lumps of various sizes, and for jewellery are cut and polished with a rounded top. Persia is the source of the best, but inferior sorts occur in China, Thibet, Silesia, Saxony, and near Mount Sinai. These last are darker than the Persian, but are apt to lose colour. Mr. Emanuel says they may be readily distinguished from the real turquoise, *de vielle roche* (as the finest are called), by the stratum, in most cases apparent at the back, being of a pale yellowish-red colour instead of dark brown. The Persian turquoise may also change colour; but if not brought into contact with acids, musk, camphor, or other scents, it retains its hue for many years, turning at last to a green or a white. In one instance a fine old Persian turquoise has been known to change to a bluish-green. The turquoise is very popular, but, as happens with other gems, prices vary with the size and quality of specimens. There is a so-called fossil turquoise found in Languedoc, but it is merely fossilised bone coloured by phosphate of iron, and is in all respects inferior. This is sometimes called the turquoise *de nouvelle roche*, and is said not to be liable to change of colour. In the East the turquoise is frequently engraved, and the ancients used it for cameos and intaglios. It is so seldom of a very large size that a perfect stone of the size of a shilling and of good depth has been sold for £400.

Turtle.—Among the reptiles used as food the turtle (*Chelonia*) is the one most highly appreciated. In England it is a most costly and favourite food, and a most elaborate soup is prepared from it quite beyond the reach of ordinary households. There are numerous varieties of turtle, and amongst them is the edible turtle (*Chelonia virgata*) of the East Indies, and the hawk's-bill turtle (*Chelonia imbricata*), inhabiting the Indian Ocean and the warmer parts of the Atlantic Ocean, both of which are valued for their flesh and shell. The only kind, however, which is imported into Britain for aldermanic and other feasts is the green turtle (*Chelonia mydas*). This creature abounds in the West India Islands. It attains to a large size, being sometimes as much as six or seven feet in length, and weighing from seven hundred to eight hundred pounds. It lives mostly in the water, and its movements when in its favourite element are quick and even graceful. It comes to the shore, however, to lay its eggs, scooping a hole in the sand for the purpose with its hind feet. It lays its eggs several times a year, from a hundred and fifty to two hundred eggs at one time. The young are hatched by the heat of the sand alone, and as soon as they come out of their eggs they crawl away to the water, and receive no care from their parents. These eggs are highly esteemed in the tropical countries where the turtle is found, and when fresh they are doubtless very good, but they soon lose their freshness, and then are no longer fit for food. It is a curious fact that the inhabitants of the region where the turtle is found do not care for turtle flesh, and sailors and others who temporarily dwell there soon lose their appetite for it. It is, indeed, very cloying, and though when first tasted it is found to be tender, palatable, and wholesome, every one who has much ends sooner or later by being thoroughly surfeited with it. The natives adopt various expedients in order to keep their appetite for it. Mr. Bates, an eminent naturalist, tells us that the native women cook it in various ways. The entrails are chopped up and made into delicious soup called *sarapatel*, which is generally boiled in the concave upper shell of the animal, used as a kettle. The tender flesh of the breast is partially minced with farina, and the breast shell then roasted over the fire, making a very pleasant dish. Steaks cut from the breast, and cooked with the fat, form another palatable dish. Large sausages are made of the thick-coated stomach, which is

filled with minced meat and boiled. When surfeited with turtle in all other shapes, pieces of the lean part, roasted on a spit and moistened with vinegar, make an agreeable change. The native estimate of turtle is, however, very different to that of civilised nations, who receive it with great favour, and are willing to pay a very high price for it. The reason is doubtless to be found in the mode of preparation, for the flesh is never served separately, but is made into soup prepared with high culinary skill, and served with various condiments, *recherché* wines, and other agreeable adjuncts. Turtles are imported alive into this country, and the most usual method of capturing them is to turn them on their backs when they come ashore, in which position they are helpless and cannot escape. A small fresh-water turtle called the terrapin (*which see*) is eaten in America, and imported to this country. (*See* CALLIPASH AND CALLIPEE; TURTLE SOUP.)

Turtle Dove.—This is a very pretty pigeon, called by naturalists the *Turtur communis*, and belonging to the *Columbidæ* family. Although found in our islands, it really belongs to Africa, and only comes to England as a summer visitor.

Turtle Soup.—It is from the green turtle (*Chelonia mydas*) that the celebrated and costly soup served at civic feasts is made. This soup is prepared with high culinary skill; it is luscious and rich, is flavoured with a great variety of condiments, and served with costly viands and superior wines. It is possible, however, that if it were cheap and common, instead of being rare and expensive, the appetite would soon reject it, and disease rather than health would follow its use. Turtle soup is very difficult to prepare, so that it is seldom made in private houses. When wanted it is bought ready made, the usual price being a guinea a quart. It may, however, be made from tinned turtle instead of live turtle, a small tin supplying enough for six or eight quarts of soup. Sun-dried turtle is now imported to this country from the West Indies, and it may be bought in small quantities of any respectable Italian warehouseman at a cost of about ten shillings a pound. Soup for at least a dozen persons may be made from a quarter of a pound of the dried flesh. (See "Cassell's Dictionary of Cookery.")

Turtle Soup, Mock.—This is one of the staple soups of English life, and is met with everywhere. It is properly made of calf's head, although it is very frequently made of pig's head and even of cow's heel. As its name implies, it is an imitation of turtle soup. It may be either clear or thick, according to taste.

Tuscan Straw-work.—The platting of straw in Tuscany is chiefly carried on in the neighbourhoods of Florence, Pisa, and Sienna. The straw employed is grown in mountainous and barren districts; the wheat from which it is produced is said to be like that of the Cape, and bears a very small grain. The upper portion of the stalk being hollow is easily dried, and though slender it has much consistency. It is pulled up before the grain begins to form, and after being freed from the soil attached to the root it is made into small sheaves for winnowing. Then the part above the last joint of the stem is plucked off, the ear remaining upon it, and the straw is bleached alternately by dew and sunshine. Rain is very injurious, and destroys the colour. The lower part of the stem is treated in the same way, and is employed in forming "flats" of an inferior quality. The large flat circular plats, in which Tuscan straw is made, are known by the name of "flats." The upper, or superior quality of straw, broken off just at the knot, is sorted according to its several degrees of fineness. This "stapling" is done with much care, as straw of three different prices is usually thus obtained. For example, a quantity of unsorted straw, worth but 4½d., will be sold, after this process, for 4s. 7d. The "tress" is formed sometimes of seven or nine straws, but usually of thirteen, which is tied at one end, divided, and platted by hand, until a piece of about twenty yards or upwards is completed. As fast as worked it is rolled on a cylinder of wood, when the process of pressing and clipping the edges is accomplished. The "tresses" when prepared are used so that a complete hat shall be made of one piece. Raw silk is employed for sewing them together; and though the number of turns which the plat has to make varies, owing to the difference in the fineness of one make from another, the diameter of every description of hat is much the same. The turns range from twenty to eighty; the number regulating the cost of the hat, from 9s. to £20. Baskets, mats, and matting are made up of this straw. There is an imitation of Tuscan straw-work produced in England, Ireland, and America—a species of grass growing in these countries having been discovered which is equally fine, and answers as well as the original. This grass is called the "crested dog's tail," and grows on otherwise poor and barren soils. The Irish call these stems "Trawnyeens," signifying that they were useless for the grazing of cattle. The manufacture from this grass of the Leghorn plat is carried on to a certain extent in the County Carlow, as well as in various other places.

Tuscan Style.—This had its origin in the north of Italy, when the free cities adopted it at the time of their first revival of the arts. It has not been largely used in this country, although many uphold it as a style of architecture peculiarly well fitted for our adoption. Sir Christopher Wren adopted it for porticoes in St. Paul's Cathedral, and the first church of St. Paul in Covent Garden was built in this style by Inigo Jones.

Tussore Silk.—The material known as such is made of that silk in its natural colour, and is therefore always of a yellowish hue; it is woven plain without cord or pattern. The genuine tussore silk is expensive, but is an extremely serviceable fabric for dresses, for the reasons that it does not soil very quickly, that it is strong, being superior to foulard in that respect, and that it can be washed satisfactorily.

It is also light in weight, soft to the touch, and is a particularly cool material for summer wear, although it is not specially thin in substance.

Tutenag.—This is sometimes corruptly spoken of as tooth and egg; an alloy of copper, zinc, and nickel. Some call it white copper, others Chinese copper, pale brass, bell-metal, and German silver; and in India zinc is termed tutenag. The ingredients are not always in the same proportions; for this reason the alloy differs considerably in quality and sometimes in colour. (*See* GERMAN SILVER.)

Tutor.—Strictly speaking, a guardian, or one who has in charge a child or pupil. In common parlance the word denotes an instructor or teacher of a superior class. A private tutor is employed, with or without residence, to teach the sons of gentlemen, especially when a public school is objected to, or when the education is to be conducted with special care and attention. The duties of a resident tutor go beyond the mere teaching of book lessons. A college tutor generally attends to particular departments, such as the mathematical, classical, &c., and teaches classes in his own subjects. (*See* EDUCATION.)

Twankay. (*See* TEA.)

Tweeds.—These very useful cloths were first introduced about the beginning of the present century. As the name suggests, they are made in the neighbourhood of the Tweed. Selkirk, Hawick, and Jedburgh are the principal centres of their manufacture. The wools employed for the commoner tweeds are those of South American and Danish growth; for the finer qualities, Saxony and Australian wools are selected. In this cloth the yarn is dyed before it is woven, and in some cases yarns of several colours are twisted together to make a variation of cloth. Its distinctive features are that the weaving is visible; also that the threads used are not so finely spun, the fabric not so closely woven, and the whole not felted in the same degree as is usual in English cloth. Tweeds are soft and flexible; they are specially comfortable as well as durable, and wear when made of wool only, and not mixed with either shoddy or cotton; they are consequently extensively used by all classes for suits of clothes, waterproof cloaks, and Ulster coats.

Tweezers.—These are small instruments of pliant metal for the removal of superfluous hairs, thorns, &c. They are composed of two small blades, which are brought together by pressure.

Twelfth Cakes.—The twelfth cake is a large rich cake, tastefully decorated, and intended to be eaten on Twelfth Day, that is, on the 6th of January, twelve days after Christmas. The peculiarity about a twelfth cake is that it contains a bean, and whoever, when the cake is divided, obtains possession of this is declared king of the day, and called Knight of the Bean. In England, a queen as well as a king is usually thus chosen. The celebration of Twelfth Day, with its accompanying cake, has been observed from very early times; the day itself is one of the festivals of the Church—Epiphany—and is held in commemoration of the manifestation of Christ to the Gentiles, especially to the three Magi, or wise men of the East, sometimes called the three kings. The drawing of the king and queen is said to be a relic of the Roman Saturnalia. At the close of this festival the Roman children drew lots with beans to see who would be king. Some years ago the confectioners' shops at Christmas-time were filled with twelfth cakes of all sizes and degrees of richness and elaborate ornamentation, varying in price from a few shillings to several guineas; but the observance of Twelfth Day has now much declined in this country.

Twelfth Day.—The feast of the Epiphany in the Ecclesiastical Calendar, or the twelfth day after Christmas. (*See* EPIPHANY.)

Twill. — Perhaps more properly called "tweel," the term being derived from the verb; "tweeling," in the process of weaving, being to pass the weft thread across diagonally, forming small ribs—the weft going over one and under two warp threads, or over one and under three or more, instead of over one and under the next in regular succession, as in plain weaving. Silk, woollen, and cotton fabrics are manufactured in this way, and are considered stronger to resist wear and tear than those woven after the ordinary method — as, for example, umbrellas of twilled silk are superior to others.

Twine.—1. A double thread or fine cord composed of two or three strands of hemp twisted together. It is sold in different colours, or undyed, and is used for tying parcels, sewing sails to their bolt ropes; for making nets also, and for binding books. 2. A convolution; thus the verb "to twine" signifies to turn round. A creeping parasitical plant is said to twine or entwine round one of a stronger description, as ivy encircles a tree, or a vine trellis-work.

Twist.—A kind of cotton yarn of several varieties; also a closely twisted strong sewing-silk of which purses are made, and which is likewise employed in embroidery. Saddlers and tailors make much use of it.

Twisted Net.—This is the ordinary kind of net, which is so called because the threads of which it is formed are twisted round one another at each juncture, and are not knotted together as in netting. In all cross-woven goods of a light description the threads of the weft are twisted round those of the warp. For further description, *see* NET.

Tympanites.—This is the term used to signify a highly distended, drum-like condition of the bowels due to flatus. Tympanites may be only temporary, and if so it will readily yield to the application of turpentine stupes and some sedative medicine, as extract of opium, &c. (purgatives generally do harm); as a rule, however, when it occurs in fever and other morbid conditions, it is a very bad symptom, and often indicates approaching dissolution. It must be manifest that in the latter cases, treatment, local or otherwise, can be of little avail. To relieve the

distension when excessive, it is a good plan to introduce an enema pipe some distance up into the bowels in such a way as to allow the air to escape externally. The abdomen is sometimes punctured externally with a fine hollow needle for the same purpose. The term tympanites is derived from the Latin *tympanum*, a drum.

Tympanum.—This is the anatomical name for the middle ear, a small irregular cavity in the petrous bone, filled with air, and communicating freely with the internal ear or labyrinth, and also, through the Eustachian tube, with the back part of the throat. It is separated from the bottom of the external opening of the ear by the membranum tympani, or, as it is commonly called, the drum of the ear. The tympanum is traversed by three little bones, which are frequently the seat of disease in some forms of deafness, and which have received the following names: (1) *malleus* (hammer-shaped); (2) *incus* (like an anvil); and (3) *stapes* (like a stirrup). These little bones connect the drum with the internal ear, and help to convey to the latter the vibrations made upon the former from without, thus materially assisting the sense of hearing.

Typhoid Fever.—This is a continued fever from which this country is now seldom if ever free, and which in certain localities is frequently epidemic to an alarming extent. Typhoid fever—called also gastric, enteric, common continued, and bilious fever—is usually ushered in by the following symptoms:—After a variable period of depression, languor, abdominal discomfort, with some diarrhœa, headache, &c., other and more urgent symptoms manifest themselves, as, for example, cold shivering, bright and circumscribed flushing of the cheeks, especially in the evening, anxious expression of countenance, increased diarrhœa, enlargement and resonance of the abdomen, with tenderness and gurgling frequently upon pressure on the right side. Some time between the seventh and the fourteenth day an eruption, generally slight, but sometimes considerable, of slightly elevated and rose-coloured pimples, makes its appearance on the abdomen, chest, and back. These so-called rose-spots disappear for the moment when pressed by the finger, remain visible for three or four days only, and are succeeded again and again, whilst the fever lasts, by fresh crops of similar pimples. This rash, though occasionally absent in children and in a few exceptional cases, is characteristic and diagnostic of typhoid fever, and when once fairly recognised no doubt can remain any longer as to the exact nature of the disease. Typhoid fever usually runs a course of from three to four weeks, but is liable to so many complications, and occasionally to relapses, that it is almost impossible to predict with any certainty its termination; but this much, at least, is generally conceded, that it will be three or four months before the sufferer from a severe attack of this disease is able to resume active work. We have just said that typhoid fever is prone to be accompanied or followed by certain complications; of these the most important are excessive and exhaustive diarrhœa, profuse hæmorrhage, congestion, ulceration, perforation of the bowels at the seat of disease, viz., Peyer's glands in the small intestine (*ileum*), pneumonia, bronchitis, tubercular deposits, &c., all of which require special observation and treatment, and render the disease so uncertain as to the result. The temperature of the body in this fever deserves notice, as it is to a certain extent typical, and at any rate affords a good indication of the progress of the disease towards recovery or otherwise. For the first four days the temperature rises gradually about one degree each day, the morning temperature being usually two degrees lower than the evening. During the second week the evening temperature is usually between 103° and 104°, the morning about 102°. When it exceeds these numbers at this period the case is likely to be a protracted one. About the third week certain characteristic differences between the morning and evening temperature manifest themselves, these amounting to as much as three or four degrees, and even more. This may be looked upon as a most favourable sign, indicative, if all goes well and no complication arises, of a speedy convalescence. On the other hand, when the temperature persistently exceeds 140° in the evening, and does not fall in the morning to any extent, then there is good ground for considering the case a most serious one. With regard to the treatment, it may at once be acknowledged that the Pharmacopœia contains no specific for typhoid fever. All that can be done medicinally is to treat symptoms as they arise. Diarrhœa when excessive—only then—should be checked with a few doses of one of the mineral acids combined with sedative solution of opium, or by an injection of starch. If the bowels are very much distended, turpentine stupes may be applied with benefit; and this medicine it may be necessary to administer internally also if hæmorrhage is troublesome; pneumonia and other complications must be dealt with as directed in these diseases. But though medicine cannot effect much in typhoid fever, good nursing is of incalculable benefit. The temperature of the room should be uniformly about 60°, and the ventilation should be perfect. The diet also, which is the all-important matter in the treatment of this disease, must be of the lightest kind, and always fluid; the least attempt to deviate from this, for some weeks at least, may be attended with the most disastrous results. Over and over again it has happened that just when recovery seemed almost complete, and when another day or two would with certainty have placed the patient beyond the reach of danger, a solid meal, kindly but inconsiderately given, has entailed fatal consequences on the sufferer. Milk, then, must be the staple article of diet, but may be varied with jellies of different kinds, sago, rice, barley, arrowroot, &c; all of which must be given often and in small quantities only. If there is much exhaustion, brandy or wine and ammonia will be necessary, and in the subsequent convalescence both wine and tonics will be of service. If the tongue is much furred and dry, preventing the patient from swallowing with comfort, a tea-spoonful of lemon-juice and

water should be put into the mouth before food is given; this will soften and moisten the fur, and enable him to take the food.

Typhus Fever.—This fever will be found described under the heading of BRAIN FEVER, by which name it is more popularly known.

Typographical Errors. (*See* PROOFS, CORRECTION OF.)

Tyre.—In some parts of India where rice abounds, and where it forms the staple food of the inhabitants, a preparation known by the name of tyre is much used. It is composed of milk and rice; and although in England rice in many ways is very frequently cooked in milk, the exact method of making tyre according to the Indian fashion is peculiar to the rice countries.

U

Ulcer, Gastric. (*See* GASTRIC ULCER.)

Ulceration (of Intestines, &c.).—This may occur in any part of the bowels, and when it does it usually takes the same course, and is attended by the same complications and results, as those which have been fully described under the heading of GASTRIC ULCER. The most common seat of ulceration, however, is in Peyer's glands in the *ileum*. These are the glands which are found ulcerated in typhoid fever, and from which the hæmorrhage and other serious symptoms so characteristic of that disease arise. (*See* TYPHOID FEVER.) Ulceration may be defined to be a process of destruction of tissue, which is usually followed by one of repair. The first process is termed sloughing, the second granulation and cicatrisation. (*See* GRANULATION.)

Ulcers.—These present a great variety of forms, and are usually divided first of all into specific and non-specific ulcers. To the former belong the scrofulous, cancerous, lupoid, and syphilitic ulcers; to the latter any breach of skin or tissue in which the ulceration process has begun. (*See preceding paragraph.*) Ulcers are again divided into (1) healthy, (2) weak, (3) indolent, (4) irritable, (5) inflamed, (6) varicose, (7) hæmorrhagic. A healthy ulcer presents a circular or oval surface slightly depressed, studded with pink granulations discharging healthy pus, and exhibiting a tendency to contract and heal. A weak ulcer shows pale granulations, and more tendency to slough than to heal. Indolent ulcers occur most frequently in the legs, and are characterised by irregularity and want of vitality of the granulations, and by the general insensibility of the part, which shows no tendency to heal. The best treatment for indolent ulcers is, in the first instance, a free application of caustic (nitrate of silver), then poulticing for twenty-four hours with linseed meal; after which the ulcer, including two inches above and two inches below it, should be strapped with pieces of soap plaster about an inch and a half wide and about eighteen inches long. Each piece of plaster should be so applied as to cover at least one-third of the one preceding it; it should also be smooth and even, and be covered with a bandage long enough to embrace the whole limb. If there is much matter, a little aperture may be made in the plaster over the ulcer, through which the matter can escape. The dressings should be changed every other day. This treatment will generally convert the indolent into a healthy ulcer, when it may be treated in the usual way with astringent lotions, as zinc, &c., and by the administration of tonics, as iron, &c. Irritable ulcers are characterised by excessive pain, and by an unhealthy discharge, which is frequently tinged with blood. They are best treated by the application of caustic, followed by the lead and opium lotion, and by attention to the general health. A pill of extract of opium (one grain for an adult) taken at bedtime, and in severe cases in the morning also, will often facilitate the cure; but this should only be taken under advice. Inflamed ulcers present the usual appearances of inflammation, viz., redness, swelling, pain, heat, &c., and the discharge is offensive and often tinged with blood. These require the application of leeches and cold lotions. Sloughing ulcers exhibit a tendency to spread, have an angry or ash-coloured appearance, and are generally accompanied by a good deal of fever. The treatment consists in attention to the general health, in the administration of opium in suitable cases as previously recommended, and in the application first of all of warm lead and opium lotion, and subsequently carbolic acid lotion. Varicose ulcer is so called from its occurring in connection with a varicose state of the veins. It is often difficult to heal, and is very liable to bleed. (*See* VARICOSE VEINS.) Hæmorrhagic ulcer is a purplish sore of an irritable character, which occurs to women who suffer from amenorrhœa, and is prone to bleed at certain fixed periods. The only treatment of any avail in this ulcer is constitutional. A pill containing aloes and iron, and which should be taken twice a day, will be found most serviceable. For ulcers of the mouth, stomach, &c., *see* GASTRIC ULCER.

Ulema.—This word designates a peculiar class of persons who, in the Turkish Empire particularly, are the authorised expounders of Mohammedan law, basing their decisions upon the Koran and its commentaries. The Ulemas have two immediate superiors called Kadiasks, or Kadilesks, otherwise they are only subject to the Grand Mufti, or Sheik-ul-Islam. The imams, or priests, are chosen from among the Ulemas, but when appointed come under the control of the Kislar-aga, or chief of the black eunuchs. From the better class of the Ulemas who teach and expound the law, the Mollahs and Cadis are selected. The Mollahs are superior judges, and expound civil and criminal law, and the religion of the state. The Cadis are judges entrusted with the administration of the law. The Ulemas are regarded as superior to the Mollahs, to whom, again, the Cadis are subject. Many privileges are enjoyed by the Ulemas, who pay no taxes, nor can be condemned to death or even deprived of their property in any court of law. In extreme cases, however, they can

be deposed and banished. The corresponding class in Persia generally resembles that in Turkey, but with some modifications.

Ullage.—A term used in commerce to denote that quantity which a cask wants of being full.

Ulster.—A description of large loose overcoat, cut in straight breadths and sewn in wide box-plaits. It reaches to the feet, has a small cape, and is confined to the waist with a belt of the same material. Ulsters were formerly worn by men only, but at present they are equally fashionable for both sexes. The material sometimes employed is a double-faced thick cloth, of one uniform colour on one side, and with a coloured plaid pattern on the other. Ulsters are adapted for summer as well as winter wear, the material being substituted by alpaca for the former season. It is a convenient kind of outer covering, as it is well supplied with pockets.

Ulster, Red Hand of. (*See* RED HAND OF ULSTER.)

Ult., or Ultimo.—A term used to denote the month preceding the present, in the same way that *instant* denotes the present month, and *proximo* that which is to follow.

Ultima Thule.—A phrase derived from Virgil, who uses it to denote some very remote place, the most distant islands in the northern parts known or heard of by the Romans, perhaps Iceland. Various applications are made of the words. Thus, *Ultima Thule* may mean the extremity of the earth; or it may signify the farthest point reached or aimed at; or it may indicate the extreme of anything. Hence we read:—"The pseudo-gentleman, or mock gentleman, is in appearance and manner the caricature of a fop, and may very properly be designated the *Ultima Thule* of frippery." The word *Thule* is, of course, pronounced as two syllables.

Ultramarine.—A term compounded of two Latin words (*ultra*, beyond, and *marinus*, sea-colour). A blue pigment obtained from the lazulite, of great beauty, the only one that resembles the blue of the prismatic spectrum.

Ultramarine, Factitious.—An artificial imitation of the beautiful blue pigment of this name, composed of silica, or pure silicious sand in fine powder, re-crystallised, alum calcined, sulphur, finely-powdered charcoal, and dry carbonate of soda, all mixed together so well that under a powerful magnifier it appears of one uniform colour. The mixture is then exposed to a moderate red heat in a closely-covered crucible for a certain length of time. The powder is next mixed with sulphur and soda, and burnt as before, and then washed. A layer of sulphur is afterwards laid over a cast-iron plate, and upon it a layer of the dried powder, after having passed it through a gauze sieve. The plate is heated, so as to burn away the sulphur at the lowest temperature, the pigment reduced to a fine powder, and the burning with sulphur and pulverisation continued till the colour is perfect.

Umbelliferous.—This is a botanical term signifying "pertaining to the *Umbelliferæ*," a large natural order of exogenous plants, the distinguishing characters of which are that their kind of inflorescence is always that of the umbel, a good example of which is the common hemlock that grows by the wayside. The order includes over one thousand species, many of them, such as conium, containing acrid and poisonous qualities. Others contain a volatile oil, and are used as condiments, such as anise, dill, caraway, or coriander; others, again, secrete gum resins, which are greatly valued as medicines. The roots, too, of many of the species—the carrot, for example—are used for food.

Umber. (*See* GRAYLING.)

Umber, Burnt, is a native earth, extensively used in all kinds of painting. The colour is a warm rich brown.

Umbles, or Humbles (the latter form occurring but rarely).—Correctly speaking, umbles are the inward parts of a deer, such as the heart and liver. Dr. Brewer says they were the perquisites of the huntsman. When the lord and his household dined, the venison pasty was served on the daïs, but the umbles were made into a pie for the huntsman and his fellows. Hence, to eat humble pie, with an alteration of the ordinary spelling of umbles, was invented to describe the humiliation of any person, by disgracing, degrading, or making him ashamed of himself. Recipes for making umble pie are given in old cookery-books, that of Mrs. Sarah Harrison, of Devonshire, for example, in the 1743 edition of which is the following:—"Take the umbles of a buck and boil them, and chop them as small as meat for minced pies, and put to them as much beef suet, eight apples, half a pound of sugar, a pound and a half of currants, a little salt, some mace, cloves, and nutmeg, and a little pepper; then mix them together, and put it into the paste; put in half a pint of sack, the juice of one lemon and orange; close the pie, and when it is baked, serve it hot."

Umbrella.—A portable appliance designed to give shelter from the rain. It resembles the pole and covering of a tent, and is made of silk, alpaca, gingham, or cotton, stretched over ribs of whalebone or steel, which again are supported by short steels, all fastened into a ring which surrounds the stick or cane in the centre, and slides up and down upon it, according as the user desires to open or to close the umbrella. In its general features it has remained unchanged in form from the twelfth century B.C., at which date we find it represented upon the bas-reliefs discovered at Nineveh, where it was customary for an attendant to bear it over the head of the sovereign, and was an indication of the high rank of the personage so covered. It is always represented on these sculptures with an open edge, and with a decoration of tassels, and on the top of the stick a flower or other ornament. A long piece of embroidered silk on linen falls from one side like a curtain, in order to protect the monarch more completely from the sun. The primary use for which the

umbrella was designed was to give shade from the sun, but where rain is more to be guarded against than sun, it has been entirely devoted to this purpose; and a smaller and more ornate description of article has been found amply sufficient, in European countries, to protect the head and shade the eyes from the sun. In a curious book relating to Chinese rites and ceremonies, translated by M. Biot, there is a description of a kind of dais, which is easily identified with an umbrella. The work in question was written in the beginning of the twelfth century B.C. by the brother of the then reigning Emperor. The umbrella he named had twenty-eight ribs, and the central stick was in two parts—the upper a rod, the lower a tube into which it slid when closed. In Greece and Rome the umbrella or parasol was both a mark of distinction and an article of luxury, and was made of leather or skin, as a shelter from the sun when the covering of the amphitheatre could not be spread. In the seventeenth century the umbrella was used in Italy, more especially by horsemen, who, steadying the stick with the hand, fastened the end against one thigh. It was also used in Spain and Portugal. Ben Jonson mentions the umbrella as a shade from the sun in 1615, Beaumont and Fletcher in 1640, and Evelyn in 1664. From a very early period it was used in church processions and in the regalia of the Roman pontiff; and in India it is still used in that of the native princes, the ribs and stretchers of the state umbrella being gilt, the handle of gold or silver, and the silk covering splendidly embroidered with gold and silver ornaments. The use of the umbrella as a protection from rain dates back no further than the last century. The earliest made in this country were of oiled silk, very heavy, and difficult to open when wet. Split and dried rattan canes succeeded the use of whalebone. There was a ring attached to a string, by which the umbrella was kept closed, now superseded by an elastic band and button. The contadini in Italy still employ gigantic specimens of yellow oiled cotton ones. A very large description of umbrella is used by our own coachmen, which is held over them by the footman, or fastened into a socket made for the purpose. There are several ways of repairing old umbrellas; re-covering the framework, and covering the worn folds with narrow strips of ribbon, are the best. Twilled silk wears better than the plain make. When wet it is advisable not to leave them stretched, but only loose—that is, unbuttoned. A case is recommended in travelling when it is strapped up with others; but the constant drawing on and off of a cover tends to wear out the silk at the folds.

Umbrella Stands.—These stands are very varied in their forms and kinds, some being constructed of wood, others of metal. In some they are combined with hat-pegs, a drawer or box for the clothes-brushes, &c., a kind of shelf, and other conveniences suitable for the entrance-hall of a house.

Umpire, Umpirage.—When matters in dispute are submitted to two or more arbitrators, and they do not agree in their decision, it is usual for another person to be called in as umpire, to whose sole judgment the question is then referred. The word "umpirage" has, in reference to an umpire, the same signification as the word "award" has in reference to arbitrators, but the term award is usually applied to the umpire's decision, as well as to that of the arbitrator. The submission to arbitration ought to provide that the arbitrators shall appoint the umpire, or he should be expressly named therein. The appointment of an umpire should always be made a condition precedent to the reference. The appointment of an umpire must be the act of the will and concurring judgment of both or all the arbitrators. The umpire's authority commences when arbitrators are unable to agree; but if there be a time limited for the award, his authority absolutely commences from such time. The umpire, when required to act, is generally invested with the same powers as the arbitrators, and bound by the same rules, and has to perform the same duties.

Uncial Letters.—Literally, letters an inch long; hence large capital letters. The oldest Greek and Latin inscriptions and manuscripts are wholly in uncial or capital letters, which were the earliest form of the alphabet. Some draw a distinction between uncial and capital letters, but it is unnecessary. The manuscripts of ancient books during the first four or five centuries of our era, if Greek or Latin, are always called uncial manuscripts. Subsequently what are called minuscules gradually came into use, but they were only modifications (for greater ease and rapidity of writing) of the old uncials. The change was gradual, and in some cases the difference is rather one of size than of form.

Under-butler.—This class of servant is of necessity only employed in large establishments, and is entirely under the control and direction of the butler. He cleans all the plate, the parlour knives and forks, lays the cloths, sets out the sideboard, and assists to wait at table. As he is supposed to be busily employed after dinner in the butler's pantry cleaning the plate, he is not usually expected to answer the bells at that period. He trims the lamps belonging to the dining and drawing rooms, and is frequently required to assist the butler in cleaning his master's clothes and shoes. As the under-butler, generally looks forward to the situation of butler, and as even in his present station he will have occasion for more particular directions, he will do well to refer to the hints given to the butler. (*See* BUTLER.) A chief part of his duty consists in assisting in the rough work of the butler, such as brewing, bottling, and cellar business in general, in all which he should be as expert as the butler himself. He takes good wages.

Under-clothing.—Within this term all the garments worn underneath the dress are included. It is a mark of refinement that this, although out of sight, should be neatly made and in good condition; darns and patches, if necessary, are more respectable than holes and rents. Fine material and rich embroidery con-

siderably enhance the appearance if the garment is well-shaped and sewed with neat stitches. The latter will look respectable without the former, but the presence of the former will seem out of place if combined with careless cutting out or ill-done needlework. Under-clothing will wear much longer if such parts of it as are possible be made at home and stitched by the hand. (*See* NIGHT-CAP; NIGHT-DRESS; SHIRTS; SKIRT; STAYS; STOCKINGS AND SOCKS; VESTS.)

Under-lease.—A lease granted by one who is himself a lessee of the property. The same principles and rules apply to such an instrument as to a lease. (*See* LEASES.) When part of a leasehold estate is sold, it is very usual for the owner to convey the portion sold by way of under-lease at a nominal rent instead of making an assignment; and there are, in consequence of the indivisible character of the rent and covenants in the superior lease, many advantages in so doing.

Undergraduates.—These are members of a university who have not yet taken a degree, *i.e.*, who have not graduated. (*See* UNIVERSITY.)

Underlaying.—When it is desired to form raised designs upon cloth, velvet, or silk, it is necessary to underlay the work previously. For monograms or devices of that nature, cardboard cut in the exact form is laid on the ground, and threads of silk or of gold are taken across and laid side by side until the whole is covered. This plan of underlaying is most adaptable when the designs are on a small scale. For those of larger size extra aid is required; an even layer of wadding, more or less thick, is placed on the top surface of the cardboard and bound on to it by thread before the design is put in position. When the worker intends to use gold or silver thread, layers or folds of thick linen should take the place of wadding. Another form of underlaying used is that of whip-cord; this is sewed in a pattern on the material, after which the silk or passing is taken over it as well as the ground on which it lies. (*See* LAYING.) For embroidering on washing materials, an underlaying of cotton is made; the worker always runs the thread across the flower or leaf a great many times before proceeding to embroider it.

Underselling.—This name is given to a practice sometimes resorted to, by shopkeepers more particularly, and which consists in selling goods at a lower price than their neighbours. Thus, supposing the regular price of bread in a locality is 6d. a loaf, the underseller will ticket [illegible] is at 5½d., or even 5¾d., in order to exhibit [illegible]wer figure. This system is reprehensible [illegible]cove[illegible] tradesman resorts to it for the purpose [illegible] a petty advantage over his neigh- [illegible]soda, and [illegible] the more so if, as may happen, [illegible] layer of sul[illegible]ugh similar in appearance, are [illegible] iron plate, ar[illegible]so much as theirs. It is con- [illegible] powder, after h[illegible]e sieve. The plate [illegible]o be regarded with some [illegible] the sulphur at th[illegible] another form of under- [illegible] pigment reduced to [illegible] from different causes. [illegible] burning with sulphur who deal in certain [illegible] tinued till the colour is [illegible]ment of some sort, charge more for their goods than they ought according to their fair market value; then, it may be, some enterprising man undertakes to sell at a lower price, and one which ought to be asked by the others. In this case the lower price is the proper one, and the dealer who takes it is only acting justly towards the public.

Undertakers.—This is a name borne by a class of tradesmen who manufacture coffins and usually undertake the entire business of funerals. (*See* FUNERAL ARRANGEMENTS.)

Underwriter.—An insurer of ships and vessels. He is so called from his name being written by him under the policy of insurance. (*See* INSURANCES.)

Undress.—This term is usually applied to the dress of men rather than of women. Military men have a special uniform called undress, consisting of a black frock-coat braided, a small cap, and a crimson silk sash. The men also have an undress—as, for instance, the Horse Guards wear a shell-jacket in lieu of the metal cuirass, and trousers instead of tight wash-leather breeches and top-boots, and a small cap instead of a helmet. Any style of dress for men or women suitable for morning wear may be called "undress;" and even an ordinary afternoon costume, such as would be perfectly *comme il faut* for visiting, would be considered undress if worn in the evening. So, also, an ordinary evening costume would be regarded as undress if improperly worn at Court.

Undue Influence, in a parliamentary sense, is any force, violence, or restraint, or the infliction or threat to inflict any injury, or the practice of any intimidation in order to induce any person to vote or refrain from voting for any candidate. Every person so offending is guilty of a misdemeanour, and liable to forfeit £50; and if any candidate shall be declared guilty of this offence, he is incapable of sitting in Parliament for the particular county or borough where the offence is committed during the ensuing Parliament. (See 17 & 18 Vict. c. 102, ss. 5, 36; amended and continued by 21 & 22 Vict. c. 87, and 26 Vict. c. 29.) Undue influence, as applied to the execution of wills and deeds, is fatal to them when proved; but the influence must amount to force and coercion, destroying free agency. It must not be the influence of affection and attachment; it must not be the mere desire of gratifying the wishes of another; for that would be a very strong ground in support of a testamentary act. Further, there must be proof that the act was obtained by this coercion, by importunity which could not be resisted; that it was done merely for the sake of peace, so that the motive was tantamount to force and fear.

Unencumbered Estates.—Estates free from any claim or charge of mortgagees, annuitants, judgment creditors, and the like.

Unfermented Bread.—This is simply bread that has been made without the addition of a ferment, such as yeast, or leaven. Ordinary

sailor's biscuit, passover cake, and oat-cake are representations of it, as well as the varieties of patent unfermented bread, which are vesiculated by the addition of carbonic acid. (*See* AËRATED BREAD.) The Assyrians, Greeks, and Egyptians made unfermented bread; and though the Scriptures inform us that leavened bread was made by the Israelites, the exact date when fermentation was introduced is not known. The memorable cakes neglected by King Alfred were unfermented; and even as late as the sixteenth century unfermented bread was the only kind known to the inhabitants of Norway and Sweden. It is supposed that fermentation was discovered accidentally by a slave at Athens, in the beginning of the thirtieth Olympiad. One day, after making some dough, a small portion was forgotten and left in the pan. When going to it again it had turned sour, and, instead of throwing it away, the slave, from fear of detection, mixed it with the new dough. The result was so satisfactory that investigation was made. The secret soon spread widely, and what was called leavened bread became quite a common article of food. The action of ferment upon the dough is that it changes the tasteless and insoluble starch of the flour into glucose or grape sugar; hence the sweet, pleasant flavour of good wheaten bread. All unfermented bread is deficient in glucose, consequently the flavour is dry and insipid, and the bread, though equally nutritious, is indigestible. Instead of the starch in the flour being converted into glucose during the kneading and baking process, the change takes place ultimately in the stomach, the result being that digestion is prolonged. In the south of Spain, where delicious white bread is made, very much less leaven or yeast is employed than in our English bread. Instead of using what we should consider an ordinary amount of yeast, the bread is kneaded with immense force, which renders it white, close, and yet very light. The fault of much of our English bread is that, to avoid the trouble of kneading, more fermenting substance is used in proportion to the flour than is absolutely necessary. (*See* BREAD.)

Unfermented Wines.—The name of unfermented wine is given to pleasant, simple beverages, made from the juices of different fruits, which have not (like ordinary wine) been submitted to the process of fermentation. These liquids are drunk chiefly by those who advocate the cause of temperance, and are also employed by others for the use of children, for whom they are preferred to the more stimulating drinks. Some wines, however, that profess to be unfermented are not perfectly so, in the real sense of the word, but have been fermented partially, in order to ensure the prevention of mould and acidity. All juices of fruits which have not been subjected to fermentation must be used immediately, and real unfermented wines are of this nature. The genuine unfermented wine is a beverage that both now and for many hundreds of years has been drunk in Syria and elsewhere. It is simply the juice of the grape in its pure unadulterated state; and, as may naturally be supposed, this wholesome drink is, by those who habitually partake of it, considered superior to any fermented liquor.

Unfurnished Apartments. (*See* LODGERS; LODGINGS.)

Unguents. (*See* OINTMENTS.)

Unicorn (Heraldic).—One of the various chimerical figures represented in heraldry. The form of this fabulous animal is that of a horse with a single horn issuing from its forehead. The appearance of this fantastic invention is common in British coats of arms. In the Royal arms the unicorn is always placed opposite to the heraldic lion; the former occupies the right hand side, and bears a small crown on its head.

Uniforms.—Strictly speaking, this term applies only to the regimental dress of a soldier, but of late years it has been more generally extended, and the meaning now attached to uniforms is that of a dress of the same kind by which persons who belong to the same body are purposely assimilated. Thus, the police wear a uniform. Naval officers wear uniforms of dark blue cloth, ornamented with gold bands and buttons. The various Rifle corps have adopted uniforms; some are distinguished by grey and scarlet, others by dark green, &c. Soldiers' uniforms differ with each regiment. The infantry, or regiments of the line, wear scarlet, made distinct by variety of ornamentation. The cavalry regiments, such as the Hussars and Lancers, are dressed in more sober hues; the facings of the former consist of bars across the front of the regimental coat; those of the latter are in the form of a breast-plate, which is of a different colour to the uniform.

Union Cord.—A firm, round, white cord, made of a combination of cotton and linen threads. The union of linen with cotton gives a stability to the cord, and the presence of the cotton gives a softness and pliancy which are not found in that made of linen only. This cord is used for lacing stays.

Union Jack.—An English flag, technically known as the Jack, formed by the intersection of red and white crosses, and used in the Royal Navy. For the merchant service it is bordered with white. When it is seen with the union (the red and white crosses) down, it is regarded as a signal of distress. It is usually made of a worsted material known to seamen as bunting.

Union (Workhouse).—A place where indigent, vagrant, and idle people are set to work, and supplied with food and clothing. (*See* WORKHOUSES.)

Unions (Textiles).—Fabrics woven with a mixture of cotton and linen threads are known by this designation. They are employed for linings when strong ones are required, but their principal use is for window-blinds. The introduction of cotton cheapens the material; the presence of linen threads is necessary to give stiffness and smoothness to it. The width of unions is regulated by inches; thus the width required for windows of different sizes is, as a rule, always obtainable. In cases where this is not so, the best plan is to choose one which is wide enough to allow of a bread hem being turned down each side, for

a blind cannot be tidily drawn up if one side is turned down and the other is left single. Unions do not look so well when washed as linen; therefore when the former are used for blinds the best plan is to buy an inferior quality, and renew it when soiled. The stiffness and smoothness of the glaze prevent the coarseness of texture from being noticed.

Unity of Possession is, in law, where one has a right to two estates, and holds them together; as, for instance, if he take a lease of property at a certain rent and afterwards buys the freehold: here a unity of possession occurs, the effect of which is that the lease becomes extinguished or technically "merged in the freehold;" for he who before had the occupation of the premises only at a rent is now become lord and owner of them.

Universal Joint. — A joint usually arranged on the ball-and-socket principle, so that it will move in any required direction.

University. — Universities, which are in all civilised countries the most advanced centres of general education, owe their origin to the Middle Ages. At the time of their introduction the Latin term *universitas* signified a community of teachers and students assembled together for purposes of education in a building of their own, and having certain corporate rights and privileges. Later on the term was held to imply that in a university every branch of study—universal knowledge, in fact—was taught. In its modern sense, however, a university is held to be something more than this: the term denotes an establishment, more or less under State control, where all the more important branches of learning are taught, and which has the power of conferring certain honorary distinctions or marks of knowledge known as *degrees*. (*See* ARTS DEGREES; DEGREES, COLLEGIATE.) One of the oldest and most celebrated universities of the Middle Ages was that of Paris, founded about A.D. 1200 by the union of the various schools of theology, philosophy, and rhetoric under one head, styled the *rector*. The subjects taught were divided into four faculties—theology, law, medicine, and arts, the latter including rhetoric, logic, grammar, geometry, arithmetic, astronomy, and music. (*See* FACULTY.) The degrees granted in each faculty were those of Bachelor, Licentiate, and Master, the latter degree corresponding to that of Doctor at Bologna and other universities. In England the two great national universities of Oxford and Cambridge are of very early foundation. Established originally very much in the same way as the University of Paris, their after-constitution was greatly affected by the increasing growth and influence of the colleges and halls. The halls were originally hostels or boarding-houses in which the students attending the university lived under some sort of superintendence (*see* COLLEGES), and were from time to time endowed by royal or private persons with funds for the maintenance of junior students, or *scholars*, and a higher class of students (generally termed *fellows*), and engaged more or less in the tuition of the scholars. The colleges too, according to the ancient system, were founded either by the Crown or by private individuals, with a sufficient endowment to maintain a head or principal (*see* WARDEN), a certain number of fellows, and a certain number of scholars. By degrees, however, the colleges began to receive independent students, under the tuition of the fellows, while, as already explained, the halls partook more and more of the collegiate character. By the university system in force for more than two centuries, and until a comparatively recent date, no student was admitted to a degree in the university until he had completed the recognised course of study in a college or hall under the superintendence of the college tutors. Now, however, at both Oxford and Cambridge, persons are permitted to become students and members of the university without being attached to a college or hall, thus enabling them to save much of the expense of a university education. Such persons are known as *unattached students*, and keep their statutable residence in licensed lodgings, with the same rights of profiting by university professors' lectures, of competing for university prizes, of obtaining distinctions in the public examinations, and of being admitted to degrees and to all the consequent privileges, as are enjoyed by other students. At Oxford and Cambridge, as at most other universities, large endowments exist, which are applied to provide *scholarships*, *fellowships*, &c., for the benefit of industrious scholars; these distinctions may be classed as university and collegiate, the former being provided for from the university funds and generally being open to all members of the university alike, the latter being confined to members of the particular college to which the endowments belong. University *scholarships* are attainable for the most part by undergraduates (*which see*), and they consist of certain emoluments to be held for a stated number of years, generally from two to five. Collegiate scholarships were originally open only to persons educated at particular schools, natives of certain parts of the country, founder's kin, &c., according to the direction of the founder; but in the lapse of time they have become more open, and a large number of collegiate scholarships are now offered for competition to all comers. University and collegiate *exhibitions* consist of certain annual allowances to students; they are attached, as a rule, to public schools, and are given to members of those schools on their departure for the university, to be held by them during the number of terms required to obtain a degree. Collegiate *fellowships* are the highest and most important order of endowment. They are of considerable value (£300 per annum may perhaps be taken as a fair average of each), and are tenable either for a stated number of years (usually five or ten), during life, or while the holder remains unmarried. They are confined to graduates of the university, and some of them are clerical fellowships, only open to graduates in holy orders. University fellowships are few in number, and of slight importance as compared with the numerous collegiate fellowships. The Universities of Durham and Dublin are constituted very much on the model of Oxford and

Cambridge, except that at Dublin the tutorial and professorial elements are more or less combined. The Scotch universities, however (Edinburgh, St. Andrews, Glasgow, and Aberdeen), resemble rather those of Germany, being far more democratic in their constitution and government than the other universities of Great Britain. Other distinguishing features are the combination of the tutorial and professorial elements, and the lowness of the class fees—tending to throw open the advantages of university training to even the poorest students. London University, founded in 1836, is clearly distinguished from all the other universities; it is an examining body alone, and except in the faculty of medicine, the acquisition of a degree depends solely on the success or non-success of the candidate in passing the appointed examinations, there being no regulations as to residence, course of study, attendance at lectures, &c. For this very reason, however, the examinations at London University are advanced in character, and prove severe tests of the student's knowledge. The examinational fees are very low, and the total cost of a bachelor's degree in Arts, Laws, Science, or Music is only £12, inclusive of the fee for matriculation.

Unripe Fruit.—Fruit is wholesome only when it is ripe, but not over-ripe. When immature it is green, and is of much the same chemical composition as the leaf, absorbing and assimilating carbonic acid and giving out oxygen. As it grows it increases in bulk and weight, gradually loses its green colour, and becomes brown, yellow, or red. It now absorbs oxygen and gives out carbonic acid; and as the process advances, some of the principles contained in the unripe fruit, particularly the vegetable acids and tannin, in part disappear, and thus it becomes less sour and astringent, and at last arrives at a state of perfection. It is owing to the quantity of acid it contains that unripe fruit so frequently acts as a disturbing element, and causes a disordered condition of the stomach and bowels. (*See* FRUIT, CHOICE OF.)

Unwholesome Food, Law concerning.—The selling of unwholesome food, whether produced by adulteration or otherwise, is an offence against the public health, and is prohibited by a variety of Statutes. By the Sale of Food and Drugs Act, 1875 (38 & 39 Vict. c. 63), it is provided that the mixing or the sale, with knowledge, of adulterated food or drugs is subject for a first offence to a fine, and for a second to imprisonment with hard labour; and a fine is also imposed on the sale, in certain cases, of food or drugs not of the quality demanded by the purchaser (unless a label is supplied showing the article to be mixed with other matters), or the abstracting a part of any article of food so as to injuriously affect it. Provision is made for the appointment and duties of analysts, and the proceedings necessary to obtain an analysis. Proceedings before justices are allowed on the certificate of an analyst, which is to be *primâ facie* evidence, an appeal being allowed to the Quarter Sessions. Punishment is imposed for the forgery of certificates or warrants under the Act. There is also a special provision in reference to tea. As to the adulteration of seeds, see 32 & 33 Vict. c. 112.

Unwilling Sleep.—The phenomenon called sleep may be described in many ways, or considered as including several varieties, one of which is suggested by the heading of this paragraph. It is a well-ascertained fact that some persons fall asleep as soon as they engage in certain occupations. The reasons may lie in constitutional peculiarities. But whatever the explanation, it is important that the fact should be recognised, and that it should be viewed rather as an abnormal condition than as the result of laziness. When this liability to unwilling sleep is ascertained, the rational course to adopt is to avoid the occupations which induce it. Perhaps many cases of falling asleep over work and study are altogether involuntary; and if so, the subjects are rather worthy of commiseration than of blame.

Unwritten Law (*Lex non scripta*).—The maxims and customs comprising the Common Law of the kingdom, as opposed to the *Lex scripta*—the Statute Law. The Unwritten or Common Law is properly distinguishable into three kinds:—1. General customs, which are the universal rule of the whole kingdom, and form the "Common Law" in its stricter and more usual signification. 2. Particular customs, which affect only the inhabitants of particular districts. 3. Certain particular laws, which by custom are adopted and used by some particular Courts of pretty general and extensive jurisdiction.

Upas Tree.—This tree is the *Antiaris toxicaria* of the botanist, and belongs to the natural order *Artocarpeæ*. The whole of the



UPAS TREE.

species abound in a milky juice, and many of them are poisonous. Many fabulous stories used to be told regarding the upas tree. It was said to grow in certain parts of the island of Java, and to be of so deadly a nature that

neither animal nor vegetable life can exist within a certain radius of it. The stories, perhaps, took their rise in the fact that in Java there is a small tract of land or valley in which nothing can live from the emanations of carbonic acid gas constantly going on; but this has nothing to do with the upas tree, for it grows and flourishes in the midst of other trees, which are unhurt by its presence. The juice of the tree, however, is highly poisonous.

Upholder.—The term upholder was once applied to both upholsterers and undertakers, the two trades having been at one time combined. It afterwards was applied exclusively to the latter. The term is now obsolete.

Upholsterer.—This word, in its modern use, signifies a dealer in the various articles of textile manufacture which are included under the name upholstery. (*See next paragraph.*)

Upholstery.—This word embraces every kind of textile material used in any way for interior furnishing, either in covering chairs or couches, for curtains, table-covers, &c. Amongst the materials thus employed are various kinds of silk, velvet, horsehair, cloth, leather, reps, cotton, and goods woven in wool or cotton, silk, muslins, chintzes, &c.

Upset Price.—The price at which a property is set up or put up when sold by auction; but it must be the work of the auctioneer, and not of private bidders, and it means that no lower bidding will be attended to, and that higher biddings are requested. It is a very proper mode of procedure, and affords some protection to an estate when brought under the hammer; it is admitted to be legal, and at once reasonable and prudent. If an advance bid is made upon the upset price by a competent party, the seller must accept it, and sell to him that makes the highest offer. This upset price is in one sense a reserve price, and while it is best announced before the biddings begin, it may be made known when they have reached a certain stage. There may be cases when the naming of an upset price is thought undesirable, and in that case the parties most interested may resort to reserve bidding, unless it has been announced publicly that the sale is without reserve, when reserve bidding is not lawful.

Uredo.—A species of fungus whose spores are extremely minute, float in the air, and attacking grain of various kinds, cause disease. This disease is known by different names, as the bunt, smut, or pepper-brand of wheat, the dust-brand of corn. That which destroys the grains of wheat is called the *Uredo fœtida*, and the spores of it are so small that it is reckoned one grain of wheat would contain millions of them.

Urinary Affections. (*See* Bladder, Complaints of; Gravel; Strangury.)

Urns. (*See* Coffee-urns; Tea-urns.)

Usance.—The time which it is the usage of the countries between which bills of exchange are negotiated to appoint for payment of them. If a foreign bill be drawn payable at sight, or at a certain period after sight, the acceptor will be liable to pay according to the course of exchange at the time of acceptance, unless the drawer express that it is payable according to the course of exchange at the time it was drawn.

Usher.—In general usage, an officer who has charge of the door of a court or hall. The Court usher is usually an officer of considerable rank, whose duty it is to introduce foreign ambassadors and other eminent persons to the presence of the Sovereign. In schools, an usher is an under-master or assistant teacher.

Usquebaugh.—An Irish term for a distilled spirit, resembling in meaning the Latin *aqua vitæ*, the French *eau de vie*, or water of life. Johnson describes it as "a compounded distilled spirit, being drawn on aromatics; and the Irish sort is particularly distinguished for its pleasant and mild flavour. The Highland sort is somewhat hotter, and by corruption, in Scottish they call it whisky." The old-fashioned usquebaugh is of a different character from modern whisky, as will be seen by the following recipe for the former, copied from "Smith's Complete Housewife" (fourth edition, 1730):—"To make usquebaugh: To three gallons of brandy put four ounces of aniseeds bruised; the next day distil it in a cold still pasted up; then scrape four ounces of liquorice and pound it in a mortar, dry it in an iron pan, do not burn it, put it in the bottle to your distilled water, and let it stand ten days; then take out the liquorice, and to every six quarts of the spirits put in cloves, mace, nutmegs, cinnamon, and ginger, of each a quarter of an ounce, dates stoned and sliced four ounces, raisins stoned half a pound; let these infuse ten days, then strain it out, and tincture it with saffron, and bottle and cork it well." There were several kinds, but this may serve as an example of their general character.

Usury.—A reward for the use of money. The term popularly expresses the taking of exorbitant interest or interest not allowed by law. Several Statutes have at various periods been passed restricting the legal rates of interest, but the 17 & 18 Vict. c. 90, repeals all existing laws against usury, and, in fact, does away with all restriction. Where interest is payable upon any contract, express or implied, or where upon any debt or sum of money interest is payable by any rule of law, the same rate of interest shall be recoverable as if the above Act had not been passed. Nothing in the Act repeals or affects any Statute relating to pawnbrokers.

Utensils, Kitchen. (*See* Kitchen Requisites.)

Utopian.—In 1516, Sir Thomas More published a political fiction, the scene of which was laid in an imaginary island called Utopia, a word of Greek derivation, and really meaning "Nowhere." The popularity of the work was such that it gave rise to the word Utopian as a designation of any fanciful schemes, or schemes and projects regarded as fanciful. It has often happened that ideas and plans which have been styled Utopian, or chimerical, have been well founded, and have resulted in im-

portant advantages to individuals or communities. Perhaps more frequently the Utopian dreams of childhood, youth, inexperience, and ambition have proved to be such, not in name only, but in fact.

Utrecht Velvet. (*See* VELVETS.)

Uvula, Affections of.—In most affections of the throat the uvula is necessarily, from its position, more or less implicated, and its treatment will in such cases be that which is recommended elsewhere under the headings of QUINSY; SCARLATINA; SORE THROAT. There is, however, an affection of the uvula which is very common, and deserves special notice, viz., relaxation, or, as it is commonly called, elongated uvula. This condition frequently excites a troublesome cough, especially on lying down, and worries the sufferer very much. If it is not relieved by inhalations and gargles (*which see*), or by tonics, as iron, when due, as is frequently the case, to debility, then a portion of the uvula should be cut off with a pair of sharp scissors or a knife. This must, however, be done by a surgeon. The operation is not attended with any danger; sometimes the wound bleeds freely, but this will soon cease.

Uwarowite. (*See* GARNETS.)

V

Vacation.—This word is in common use to denote a stated time of release from sundry forms of duty. In legal parlance, a vacation is that period which extends from the end of one of the terms into which the year is divided to the commencement of the next. The Long Vacation reaches from the 10th of August to the 24th of October, and there are two shorter ones. In the universities, and also in colleges and schools, there are sundry vacations of the same general character. The words recess and holidays are frequently used in a similar sense. These vacations are unquestionably a great advantage to students especially, and indeed to all persons engaged in long-continued intellectual work. It may be noted that the time during which a bishopric is vacant is called a vacation, the spiritualities, as they are styled, being then in the hands of the dean and chapter as the guardians.

Vaccination.—This is an operation which the law of this country compels children to undergo before they have reached the age of three months, as a protection against small-pox. Vaccination was discovered by Jenner, and was performed by him for the first time on the human subject in the year 1796. With regard to the efficacy of the operation, it may be truly said that time and experience have fully confirmed Jenner's claim for it—viz., that if efficiently performed it is as much a protection against small-pox as an attack of that disease itself. The operation of vaccination consists, in the first instance, in transferring to the arm of a child the lymph which has been taken at a definite period from one of the vesicles which occur on the udder of a cow suffering from the disease known as cow-pox. The lymph thus transferred excites an analogous vesicle in the child, from which, on the eighth day (not later), fresh lymph may be taken for further vaccination; and so on, from child to child, *ad infinitum*. Some writers on this subject recommend an occasional return to the cow for a renewal of lymph, on the ground that as the latter passes from child to child it loses something of its efficacy. This theory is, however, disputed by other writers, but in any case there can be no objection to using the lymph from the cow, if this is preferred and can be obtained; but whether taken from the cow or from the child, the greatest care should in all cases be exercised that the lymph is transparent and untinged with blood, that in the case of the child it should always be taken on the eighth day, *i.e.*, if vaccinated on Monday, it should be taken on the following Monday; and as one child can usually supply sufficient lymph to vaccinate from half-a-dozen to a dozen others, there should be no difficulty in selecting a healthy child from whom fresh lymph may be taken. (*See* SMALL-POX.)

Vade Mecum.—A Latin phrase literally meaning "Go with me." It is often used as a name for books of reference in a summary form, especially when of a size which renders them portable. In other words, a *vade mecum* is a pocket companion, whether in the form of a book, or of a compact set of instruments, &c.

Vagrants, Vagabonds.—Wanderers; idle fellows. The principal Act relating to them is the 5 Geo. IV. c. 83. By the Vagrant Act Amendment Act, 1873 (36 & 37 Vict. c. 38), every person playing or betting, by way of wagering or gaming, in any street, road, highway, or other open and public place, or in any open place to which the public have or are permitted to have access, at or with any table or instrument of gaming, or any coin, card, token, or other article used as an instrument or means of such wagering, or gaming at any game or pretended game of chance, shall be deemed a rogue and vagabond within the true intent and meaning of the recited Act (the 5 Geo. IV. c. 83), and as such may be convicted and punished accordingly.

Vails.—Under this name are included sundry gratuities given to servants and others. In colloquial language they are often called "tips." It is admitted that the custom is liable to abuse, but it is so generally practised that vails are, in many cases, expected and given as a matter of course. The sums regarded as appropriate vary with circumstances. Visitors who stay with friends for a time give more or less, according to the length of their sojourn and the service they require. The principal receivers are the housemaid, footman, butler, coachman, and groom. Sporting gentlemen give them to keepers, in sums ranging from one pound to five. Vails are not looked for at London dinner parties, or at balls and entertainments. In some houses they are forbidden, and employers themselves give their servants something extra. If attendance is charged for in an hotel bill,

gratuities should not be given. The question, as a whole, is one which persons must decide for themselves, and they can readily find out what is customary in all ordinary cases. There are two cases over which the heads of families have less control than could be desired. In the first, tradesmen make presents to servants who bring them custom, and in some large establishments this may degenerate into a positive evil. The other case is that of giving gratuities to tradesmen, or rather their subordinates, not in the ordinary form of Christmas boxes, but as an inducement to save servants trouble. These practices are commonly as secret as they can be made, but they are open to grave objections. Gratuities to railway servants, as guards and porters, are prohibited by all the companies, but are given so regularly that they are very much looked for, and sometimes appear to be the only means of securing proper attention. Here the remedy is in the hands of passengers; but, unfortunately, they are too intent upon their convenience either to uphold the by-laws or to complain. As a rule, people do not like to cause extra trouble without acknowledgment, and are not sufficiently careful as to the form of the acknowledgment they make; hence most of the irregularities connected with vails.

Vair (Heraldic).—One of the eight furs used in heraldry. (*See* TINCTURES.) The representation of vair is expressed by rows of blue and white skins cut in the forms of small bells; these are ranged in rows opposite to each other, the bases of those which are white being always next to those which are blue. The distinction of counter-vair consists in the position of the bells, which in this instance are placed base against base and point against point. The colours of vair and counter-vair are argent and azure. The term vair is said to have arisen from the Latin word *varius*. This was a name given to a squirrel whose fur was of a bluish-grey and white. Fur of this description was much used in bygone days for the linings of cloaks; it was then called miniver.



VAIR.



COUNTER-VAIR.

Valance.—A falling drapery placed across the top of a window or round bedsteads for the purpose of shading the light, and to conceal the curtain-rods and other etcetera. The valance should be of the same material as the curtains, except when the latter are of white muslin, in which case a fringe the prevailing colour of the room usually serves as valance. If the window is wide, the valance should be draped in folds, and its edge should be scalloped or vandyked, for these arrangements produce a less ponderous effect. The addition of fringe, or of tassels placed at intervals, is always an improvement. It is difficult to make a valance hang gracefully. The folds must be large and quite double; those which correspond to one another must be made precisely alike; exact measurements must be made, so that the middle of the valance and of the window meet together. The valance has given place, to a great extent, to curtain-poles of brass or wood, and to the cornice; the latter is less troublesome, and if made plainly of wood less costly than the valance. But the valance is still preferred by some persons who are glad to be partially protected from the glare of light falling upon the eyes, and by others who consider the pole or cornice does not give the same idea of completeness.

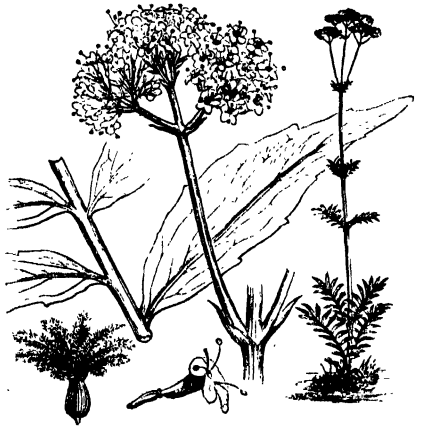
Valencia Raisins. (*See* RAISINS.)

Valenciennes Lace.—This is one of the Flemish or, as they are now more generally called, Belgian laces. It was originally fabricated in the place from which it takes its name; but in the seventeenth century the fabrication of it expired in its native city, and was then commenced at Ypres, where it is still made, as also at Ghent, Bruges, and Courtrai. Valenciennes is a pillow lace; the meshes are an irregular hexagon, and are six-sided, like those of Mechlin lace, which it somewhat resembles, but is not of so delicate a character. The meshes are formed of two threads, which are partly twisted and platted at the top of the mesh; the patterns are worked in the net. These are usually detached, and very generally consist of sprigs or set patterns, which occupy each scallop, the edges of which are purled. The widest Valenciennes lace is made at Ypres, and very elaborate workmanship is bestowed on the finest specimens there fabricated. Of late years, imitations of this lace have been made by machinery, Nottingham being the chief seat of production. Two kinds are manufactured. The best is that woven with linen threads; this bears a close resemblance to the real lace until it is washed, the distinction being then easily discernible, for the imitation loses its clearness. The common kind is woven with cotton threads; this is never fit for use after it has been washed, because it contracts and becomes thick.

Valentines.—Missives of a particular kind received through the post on the 14th day of February, which is St. Valentine's Day, are so called. The observance of this day is an old one. The ancient custom was for the lady to choose a gentleman of her acquaintance as her valentine, and he in return was expected to make her a present. In modern days, valentines principally consist of lines of poetry of a sentimental character, original verses, pictures drawn by artists or amateurs, which are impressed on ornamental paper, and sent by both sexes to one another. The chief aim is, in the generality of cases, to mystify the recipient as to the sender, or to make the former believe that the letter of love has come from some one who is really innocent of the deed. The custom of sending valentines increases yearly, for now children of all ages send and expect to receive them. So great is the demand for the one day, that the makers are engaged the greater part of the year in their preparation. Very exquisite designs are executed; flowers are painted by hand on rice-paper and gauze, intricate devices are stamped out in gold and silver, and much delicate workmanship is exhibited in the more costly valentines. Sometimes a

present of jewellery or other articles is sent by a lover to his lady as a valentine.

Valerian.—This is obtained from the root of the valerian plant, belonging to the natural order *Valerianaceæ*. Valerian root is easily recognised by its characteristic disagreeable odour and nauseous taste. It contains a volatile oil, and an acid called valerianic acid, which are the active principles of the plant, and to which it owes its medicinal properties. Valerian is extensively used as a stimulant and antispasmodic in the nervous affections peculiar to



VALERIAN.

women, as hysteria, spasms, &c. It has also been given with some success in St. Vitus's dance, and in some forms of epilepsy. The preparations of valerian are:—1. *Infusion*. This is prepared by infusing two drachms of bruised valerian in ten ounces of boiling water. The dose is from two to four table-spoonfuls. 2. *Tincture*. This is made from proof spirit and valerian. The dose is from one to two tea-spoonfuls. 3. *Ammoniated tincture*. This is prepared by macerating the bruised root in sal volatile, and straining. The dose is from half a tea-spoonful to a tea-spoonful.

Valets.—In small families a valet sometimes undertakes part of the duties of a footman, but his special province is to attend to the personal convenience of his master. Hence he waits upon his master when dressing and undressing, has the care of his wardrobe, brushes his clothes, keeps them in good order, and has them ready for use when wanted. He attends to repairs, and examines the state of wearing apparel, which is to be cleaned or brushed as soon as convenient when taken off, and to be carefully laid by in the proper place. In the morning he places clean boots and shoes in the dressing-room, and has everything ready for his master's use when he rises. He sees that the housemaid has the fire lighted when needed, and the rooms in order; he arranges the wash-stand, fills the ewer and the carafe; he prepares the shaving apparatus, and hot water when needed, looks after all toilet-brushes, gets dressing-gown and slippers and linen ready, and whatever else is required for the toilette. Afterwards he puts away everything in its proper place. Of course, he may assist at the toilette itself. In wet weather he takes charge of his master's clothes, and is prepared with a change. He makes arrangements for his master's comfort when going on a journey, and if he accompanies him is assiduous in his attentions. His wages are good, and his perquisites are usually his master's cast-off clothes.

Valetudinarian.—A person who is not in good health; any one in a sickly or feeble condition. The term is often used of those who have suffered serious illness, and who still endure the consequences, but with the hope of ultimate complete recovery.

Valise.—This is an old-fashioned kind of leathern case, opening at the side, of a size convenient for holding the clothes of a traveller, and conveyance on horseback, which has been superseded by larger and more convenient travelling trunks made of the same material, and by leathern hand-bags.

Valuation.—The act of setting or fixing a value; appraisement.

Value.—A relative term. The value of a thing means the quantity of some other thing, or of things in general, which it exchanges for. The value of all things can never, therefore, rise or fall simultaneously. There is no such thing as a general rise or a general fall of values; every rise of value supposes a fall, and every fall a rise. The temporary or marked value of anything depends on the demand and supply, rising as the demand rises, and falling as the supply rises. The demand, however, varies with the value, being usually greater when the thing is cheap than when it is dear, and the value always adjusts itself in such a manner that the demand is equal to the supply. Besides their temporary value, things have also a permanent or, as it may be called, a natural value, to which the market value, after every variation, always tends to return; and the oscillations compensate for one another, so that, on the average, commodities exchange at about their natural value. The natural value of some things is a scarcity value, but most things naturally exchange for one another in the ratio of their cost of production, or at what may be termed their cost value. The word "value," it is to be observed, has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be termed "value in use," the other "value in exchange." The things which have the greatest value in use have frequently little or no value in exchange; and, on the other hand, those which have the greatest value in exchange have frequently little or no value in use. Nothing is more useful than water, but it will purchase scarce anything. A diamond, on the contrary, has scarcely any value in use, but a very great quantity of other goods may frequently be obtained in exchange for it.

Valvular Disease. (*See* HEART.)

Valves.—A valve, as generally understood, is a lid or cover, which, opening in one direction, is consequently closed in another, and thereby serves to direct or control the course of fluids. To do justice to this subject would require many pages, and the bare enumeration of the various kinds of valves and their applications would demand far more space than we can spare. In steam-engines we have the *slide-valves* (used to change the admission of the steam into, and its direction from, the cylinder); the *cylinder escape-valves;* the *throttle-valve;* the *blow-through valve* (used for the purpose of admitting steam into the condenser in order to clear it of air or water); the *tail-valve*, or *shifting-valve;* the *foot-valve* (a flat plate of metal filling up the passage between the air-pump and the condenser); the *bucket-valve* (a round valve, which opens upwards when pressed by water, and falls by its own weight when that pressure is withdrawn); the *discharge-valve* (similar in its action to the preceding valve); and *safety-valves*. We have also *expansion-valves*, *escape-valves*, the *internal safety-valves*, the *air-pump bucket valve*, the *valve-lever*. All these valves, various in kind and of beautiful action, regulate the ingress and egress of the steam in steam-engines, and are useful in a variety of pneumatic, hydraulic, and hydrostatic machinery. Cocks, or taps, employed for drawing off liquids, are strictly speaking valves. In blast machines, valves play important parts in regulating the force of the blast in the conducting pipes. They are here known as the *conical*, the *trunde*, and *sliding valves*.

Van.—This term is applied to a species of light waggon used for the conveyance of goods. In the army, the word signifies the front line of an army in the field. The vanguard is the advanced guard which marches in advance of the greater body of troops.

Vandyke.—This name, as applied to dress, signifies the deep triangular points in which the lace collars and frills round the wrists and under the knees were formed some two hundred years ago, the edge being zigzagged. The collars worn by King Charles I. exemplify the style so designated. In other words, it may be described as a *chevron*. The great master, Vandyke, immortalised this elegant form of border, whether so cut in the material of the dress or of the deep lace itself.

Vandyke Brown.—This pigment is a species of peat or bog earth, of a fine, deep, semi-transparent brown colour. The pigment, so much esteemed and used by Vandyke, is said to have been brought from Cassel; and this seems to be justified by comparison of *Cassel-earth* with the browns of his pictures. The Vandyke browns now in use are terrene pigments of a similar kind, purified by grinding and washing over. They vary in hue and degrees of drying in oil. Owing to their bituminous nature, they dry tardily, but are durable both in water and oil. The campania brown of the old Italian painters was a similar earth.

Vane.—This is a plate made to revolve upon a pivot. In Europe the custom of indicating the direction of the wind by setting vanes up on the tops of towers and church steeples is very ancient. From being commonly made in the shape of a cock, they obtained the name of weathercocks, the varying direction of the wind indicating the probable changes in the weather. In navigation, the vane, or wind-vane, is a small kind of flag working on a spindle, and fastened at the mast-head. The dog-vane is another form of naval vane, small in size, and composed of a string of feathers or a thin slip of bunting.

Vanilla, or Vanille, is the fruit of a parasitical herbaceous plant—an orchid, indigenous to Mexico, Guiana, Brazil, and Peru, and cultivated also in some of the West Indian islands, the Mauritius, and Ceylon. The fruit is cylindrical in shape, about eight inches long, pulpy inside, and filled throughout the entire length with very small black oily seeds. It possesses an odour so powerful that it is said to intoxicate those who climb the tree to gather it. Its fragrance is due to the presence of benzoic acid, which is so abundant that it gathers in crystals upon the pod when left undisturbed. When the fruit is fully ripe it yields a liquid of an exquisite odour (*baume de vanille*) which is highly valued in Peru, but which is never seen on this side of the Atlantic. The vanilla of commerce appears in small bundles or tin boxes, each of which contains from fifty to a hundred pods. It is much used by perfumers, and also for flavouring chocolate, ices, sweetmeats, and liqueurs. It is little used in medicine, although it is a gentle stimulant, and promotes digestion. It is difficult to reduce it to small particles. The essence is the form in which it is most commonly used, and this is made by soaking the sliced pods in spirits of wine, and straining and bottling the liquor, which needs to be kept tightly corked, as its odour quickly escapes. Four sorts of vanilla come to England. The best is from Mexico, and is called leg, or lec; the other three sorts, which are neither so strong nor so delicate in flavour, come from Honduras, La Guayra, and Brazil. Sugar of vanilla is made by slicing the pods and grinding the pieces, with two or three times their weight in well-dried lump sugar. Syrup of vanilla is simple syrup flavoured with essence of vanilla.

Vapour Bath. (*See* Baths and Bathing.)

Vapours, Noxious.—Information on this subject will be found under the heading of Fumes, Noxious.

Varicella. (*See* Chicken-pox.)

Varicose Veins.—This is a condition in which one or more of the veins of a part become dilated or hypertrophied, presenting a very prominent and characteristic appearance. The most frequent seat of varicose veins is in the lower extremities, but they are also very common in the region of the anus, where they receive the name of hæmorrhoids, or piles (*which see*). Varicose veins are the result of obstruction to the return of the blood through these vessels, and may arise from a great variety of causes, as, for example, from the pressure of

the womb in pregnancy, from certain occupations which necessitate a great deal of standing, from wearing a tight garter below the knee, from debility of the circulation, and from age. There would appear also to be in some persons an hereditary tendency to this condition. It is by no means uncommon to find swelling and inflammation occurring in varicose veins and in the parts adjacent, and these frequently terminate in an ulcer, which is called varicose ulcer. This is often a troublesome sore to heal, and is very liable also, owing to its position, to bleed profusely, and this usually occurs suddenly, exciting great alarm. The bleeding, however, can be at once controlled by laying the patient on his back, elevating the affected leg above the level of the body, and then applying a pad and bandage tightly over the wound. A handkerchief folded and re-folded to a suitable size will do for a pad, another handkerchief can be used as a bandage. The treatment of varicose veins consists in the early use of such a support as the elastic stocking affords, and by the removal or alleviation of those causes which have been previously mentioned as producing the condition. In certain cases, however, surgical interference is necessary, and there are several operations in favour amongst surgeons, having for their object the occlusion or obliteration of the affected veins. These operations are not unattended with danger, and are only justifiable in bad cases.

Variola, in medical phraseology, signifies small-pox (*which see*).

Varnish.—Nearly every kind of varnish has its basis in resins, or gum-resins, dissolved in certain solvents, such as oil, alcohol, or spirits of wine, &c. Varnish produces, when laid upon the surface of solid bodies, a glass-like film, which becomes hard, excludes air, and is impervious to moisture. There are numerous kinds of varnishes—namely, *mastic*, *copal*, *lac*, *benzoin*, *colophony*, *amber*, *animé*, *sandarach*, *caoutchouc*, *wax*, *albumen*, &c. The properties of a good ordinary varnish are its hardness, the permanancy of its lustre and transparency, its non-liability to crack or become discoloured, and its power of perfectly excluding air and moisture. It should flow readily from the brush, and lie evenly upon the surface to which it is applied; should cease to be *tacky* or sticky, in favourable circumstances as to temperature and dryness, in about twenty-four hours, and become hard in a few days. It should, moreover, not affect the purity or permanency of the paint beneath it. The chief *oil* varnishes are copal, amber, and animé, and these become the most hard and durable. The chief *spirit* varnishes are mastic, lac, and sandarach, and these are more liable to crack than the former. The former kind are used chiefly by japanners, coach-painters, and house-decorators; the latter kind by cabinet-makers, picture-frame makers, print-colourers, &c. The most durable varnishes are those composed of amber and oil. Artists and photographers use varnishes of both kinds specially prepared for their respective uses. In the trade, varnishes have technical names, such as *cabinet varnish*, *white hard varnish*, *brown hard varnish*, *crystal varnish*, *French polish*, *Japan*, &c. Mastic varnish has the advantage of being removed with the greatest readiness when discoloured by time or other influences, and without that risk of removing the paint it has protected, which attends the cleaning off with varnishes of a harder and more durable description. The surface upon which a varnish is applied should be thoroughly dry and hard; if it is not, the varnish is very liable to crack and become discoloured or opaque, producing in the latter case an effect technically known as *blooming;* but the varnishing should nevertheless be applied as soon as possible, because the paint when new is fresher and brighter than it is afterwards, and these qualities are preserved by early varnishing. A varnish of frequent use for domestic purposes is that known as *pliable varnish*. This is made by digesting two parts of caoutchouc, cut into shreds, in sixty-four parts of rectified oil of turpentine. *Sealing-wax varnish* is made by dissolving red or black sealing-wax in spirits of wine. It is used for electrical and magnetical instruments, &c., and forms a very good cement. *Shell-lac varnish* is made by dissolving, say, two and a half ounces of powdered shell-lac in a pint of spirits of wine. *Copal varnish* is gum-copal broken up and dissolved by digestion in linseed oil, which has been previously purified. *Gum-sandarach varnish* is a colourless varnish obtained by dissolving four ounces of gum-sandarach and one ounce of Venice turpentine in sixteen ounces of alcohol by the aid of gentle heat. *Mastic varnish* is made by dissolving the mastic with gentle heat in oil of turpentine within a close glass vessel. *Bookbinders' varnish* is a shell-lac varnish made with special regard to its perfect transparency and want of colour. *Black varnish used for leather* is also a shell-lac varnish containing lamp-black and a little camphor in addition to its usual materials. If good, it dries on the shoe, strap, or whatever article it might be applied to, in about five minutes. *Japan gold size* is described under the heading of GILDING; it is used for attaching the film or leaf of gold. *Japan varnish* is a varnish containing a black pigment. *Lacquer* is a varnish used for protecting and colouring metals, the ingredients in their manufacture being shell-lac, gum-sandarach, turmeric, annatto, dragon's blood, gamboge, &c. The metal most commonly lacquered is brass. Its adhesion is secured by heat. *Print varnish* has already been described. (*See* PRINTS, TO VARNISH.) *Black varnish*, used by photographers and others, is made with asphaltum, and india-rubber dissolved in benzole. *French polish* (*which see*) is merely a specially prepared spirit varnish. *Varnish for gilding* is composed chiefly of gum-lac, gamboge, dragon's blood, annatto, and saffron dissolved in alcohol. *Wax varnish, or milk of wax*, is composed of spirits of wine and white wax mixed to a paste, and thinned for use with water. It is spread on the surface with a smooth brush, and when dry a hot iron is passed over it. It is afterwards, when again dry, polished with a soft linen cloth. (*See* ENCAUSTIC PAINTING.) *Coach-makers' varnish, or carriage varnish*, is simply the best copal

varnish, which is rubbed down, covered with repeated coats, and elaborately polished. *Wainscoat varnish* is prepared with gum-animé, turpentine, oil, and dryers. *Benzole varnish* is largely used by photographers. It dries without heat, and is made with damar and benzole. *Brunswick black* is made with foreign asphaltum and oil, the cheaper kind having, as a substitute for asphaltum, common black pitch. *Crystal varnish* consists of Canada balsam and turpentine, and is largely used for maps, prints, drawings, cardboard toys, and ornaments. *Paper varnish* is made with gum-lac and borax. *White hard varnish* is made with gum-sandarach and spirits of wine. *Brown hard varnish* contains gum-sandarach, shell-lac, and spirits of wine, afterwards mixed with turpentine varnish. *White of egg* is used as a varnish for leather, for water-colour drawings, and as a preliminary varnish for oil-paintings, being easily removed. It may be hardened with coagulation by heat. We can give no detailed account of varnish-making, in the first place for want of space, and in the second because the process is a very complicated and dangerous one, requiring special skill, technical knowledge, and peculiar appliances.

Vases.—The vessels of this description made in the present day are generally more for ornament than for use. Vases of large size, made of stone, marble, and of terra cotta, are often placed on outside steps and on grass lawns for the purpose of adornment; the effect is increased when flowering plants are put inside them. Vases of porcelain, glass, alabaster, malachite, serpentine, and many other substances are made; these serve as receptacles for cut flowers, or for ornaments merely. Most of the rooms in a house contain vases of some description as their chief ornaments. The shapes of vases are as varied as their composition; copies are made of old Greek and Roman vases, and many modern fancies are produced. As a rule, vases should be exhibited in pairs, for two which are alike placed in corresponding positions look better than one alone, unless the single one occupies a central position.

Vat.—A large vessel used for holding liquor while in a state of preparation. Formerly vats were made of lead; iron is now used for the purpose. It is exceedingly dangerous for persons to look into or lean over vats which have contained beer, because the fermentation of that liquor produces large quantities of carbonic acid gas, and the inhalation of this is destructive of life.

Vaudeville.—Originally a species of light song introduced into French comedies; the title is now, however, commonly given to short comedies themselves when interspersed with such songs.

Veal as Food.—Veal, or the flesh of the calf, varies greatly in nutritive value, digestibility, and delicacy of flavour, according to the age at which the animal is killed, and to the mode of slaughter. On the Continent, calves are killed when they are from six to nine months old. In many parts of England they are frequently killed when only one month old, and while they are still fed with milk. The popular belief concerning veal is that it does not possess the strength-giving properties of beef and mutton, and that it is not to be compared with these meats for sustaining the powers under great exertion. This belief is well founded. Veal is known also to be difficult of digestion, and is a meat that should be avoided in cases of dyspepsia. According to Dr. Smith, its indigestibility is due to the difficulty there is in masticating it, not because the fibre is harder, but because it eludes the teeth. There is no doubt that it is more easy of mastication when roasted or broiled than it is when boiled. A great French cook declared that veal was not fit to eat unless a roasting heat had been brought to bear upon it in some form or other; yet boiled veal is a very favourite dish with a good many people. Like all young meats, veal should be thoroughly cooked. The flesh should be closely grained, firm, and of a pinky tinge, and the kidneys should be well covered with thick white fat. The flesh should be very dry also; if it is moist and clammy it is approaching decomposition, and is unfit for food. Unlike beef and mutton, veal should be eaten fresh. When too long kept, a peculiar principle is generated in it, which acts as a malignant poison. The calf's head is highly esteemed as a table delicacy, and it is used for making mock-turtle soup. Calf's sweetbread also is in very great request, and commands a high price; calf's feet are boiled down for making sweet jelly.

Vegetable Brimstone.—A name sometimes given to lycopodium powder, or simply lycopodium, of which the following account is given by Cooley:—"The fine powder known in commerce under this name consists of the minute 'spores' of the common club moss, or *Lycopodium clavatum*. It is exceedingly combustible; thrown suddenly from a powder-puff or bellows across the flame of a candle, it produces the imitation flashes of lightning of our theatres. The powder is also employed as a 'dusting powder' in excoriations, and to roll up boluses and pills." Another authority says that the powder, which is yellow, issues from the spore cases, and that it is obtained from the *Lycopodium selago*, as well as from the more common species above mentioned. When pills are coated with it they may be put into water without being moistened.

Vegetable Charcoal is usually made by burning wood in heaps. In the forests of Germany and other countries, where wood is more abundant than in England, and more generally used for fuel, the trade of the charcoal-burner is carried on very extensively. In the centre of a clearance in the forest a stake is driven into the ground, a layer of brushwood is placed round the bottom, and the logs of wood to be reduced to charcoal are piled up regularly around the stake. The heap thus formed is often twelve yards in diameter; it is covered over with powdered charcoal, turf, and earth. It is then kindled by introducing lighted faggots at openings left for the purpose. The fire spreads gradually through the mass, the admission of

air being carefully regulated so as to cause one part of the wood in burning to char the rest completely, and to drive off the volatile matters. When the gases and vapours cease to be given off, the fire is extinguished by closing all the openings for the admission of air, and covering the heap with a thick layer of mould and turf. Such a heap takes nearly a month to burn out, and never furnishes more charcoal than one-fourth of the weight of wood used. For some purposes the wood is burnt in a crucible or iron retort. In England, charcoal is little used as fuel for domestic purposes, but it is employed in the small portable furnaces used by tinsmiths and others for heating their soldering irons. (*See* CHARCOAL, PROPERTIES OF.)

Vegetable Cutters.—The small useful contrivances known by this name are used to stamp vegetables into various shapes for garnishing dishes. An ordinary joint may be much improved in appearance by the turnips and carrots and other vegetables being prettily shaped instead of being plainly sliced. The cutters are sold in boxes.

Vegetable Fibres.—The woody fibres of certain trees and plants are brought into various uses. For some purposes the more delicate tissues are removed by judicious maceration in water. When maceration is carried on to a great extent, the fibres are reduced to a pulp; of this writing-paper is manufactured, which is cheap in price; that which is made from wood is pleasanter to write upon than that manufactured from straw, though both are inferior to the paper made from linen rags. The materials used for ropes and cordage, for mats and mummy cloths, and for some of the Indian muslins, are supplied by vegetable fibres. Hemp, of which ropes are mostly made, is obtained from the *Cannabis sativa;* bass, from the lime or linden tree; flax, from the bark of the *Linum usitatissimum.* The fibre known as New Zealand flax is that of the *Phormium tenax;* this fibre is said to be superior in strength to any other, and in consequence is often used as a substitute for hemp.

Vegetable Ivory. (*See* IVORY, VEGETABLE.)

Vegetable Marrow. (*See* MARROW, VEGETABLE.)

Vegetable Parchment.—This is made of unsized paper saturated with dilute sulphuric acid, the action of which converts it into a material resembling and almost as tough as parchment, for which it is often used as a substitute. Vegetable parchment answers admirably as a surface for painting upon.

Vegetable Scoops.—There are several varieties of vegetable-scoops, all devised for the purpose of thoroughly cleaning and preparing vegetables with as little waste as possible. The potato-scoop is made to remove the potato eyes from the tubers, and other scoops are made in different ways to suit various vegetables. Vegetable-knives with sharp points are also made for the same purpose. Where neither vegetable-scoop nor vegetable-knife is provided, a bent blade or a sharp-edged spoon will prove almost as effectual.

Vegetable Silk.—There are fibres of various kinds which possess a silky nature. The trees from which they are obtained grow in hot countries, of which those in the Eastern Hemisphere produce the greatest number. The fibre of the aloe is soft and silky; China grass is also of this description. The pods of the mudar, or yercum, contain a glossy and silk-like down. The chief obstacles to a more general use of vegetable silk are the difficulties which attend the spinning of these filaments; some of them prove too short, some too elastic, and some too glutinous to be easily dealt with.

Vegetable Strainer.—A metal or earthenware cullender, such as is generally included among kitchen utensils, is ordinarily employed for draining cabbage and other vegetables from moisture. For the same purpose the wire vegetable-strainer is provided, which is simply a round pan made entirely of wire. Tin strainers are the more durable, but earthenware ones are the sweeter of the two.

Vegetable Tallow. (*See* TALLOW.)

Vegetable, Vinegar. (*See* VINEGAR.)

Vegetable Wax.—There are three or four sources from which vegetable wax is produced. It is obtained in smaller quantities than animal wax, but the two varieties are applied to similar uses. The vegetable wax, which is commercially of the first importance, is what is called Japan wax, and is supposed to be obtained by boiling the seeds of a species of rhus. It is used in making candles. In appearance it is white and hard, very like beeswax. In the Andes, on the eastern borders of Peru, a lofty palm called the wax-palm is found, from the leaves of which a white almost inodorous wax exudes, and this, mixed with tallow or another variety of wax, is also made into candles. Brazilian wax, though the amount supplied to us is very limited, is quite an established article of commerce. The wax is taken from the leaves of a very beautiful kind of palm called the Carnatruba palm. It is, however, yellow and dark-looking, and hitherto no means of whitening it have been discovered. Candle-makers mix it with other materials. Another vegetable wax that is extensively used in the United States, and other parts of North America, is what is called myrtle wax. It is a substance very similar to beeswax, excepting that in colour it has a greenish tint. This variety of wax is found covering the berries of a small tree called the candleberry myrtle, which grows luxuriantly in South America. When ripe, the fruit, which is not much larger than the peppercorn, becomes covered with a green tinted wax. The berries are gathered and boiled, when the wax is easily skimmed from the surface. Candles, and also scented soap, are made from this myrtle wax; for the latter purpose it is peculiarly adapted on account of its agreeable scent. The candles made from it do not give a brilliant light, but are pleasant for use, because of the delightful odour emitted by them. Candle-making is the principal use to which all vegetable wax is applied.

Vegetables as Food.—Vegetables, when taken as food, not only afford nourishment,

but they also impart to the blood certain constituents which are necessary to maintain its purity. This has been amply proved by the appearance of such blood diseases as scurvy, &c., in circumstances when vegetable food was not procurable for any length of time. (*See* SCURVY.) Though vegetables may be considered as essential articles of food, and in one form or another are capable of sustaining life, still, in this country it is not considered conducive to health to live upon them alone. A mixed diet suits our climate, constitutions, and habits of life best, and vegetarianism does not appear to have made much progress. (*See* FOOD; VEGETARIANISM.)

Vegetables, Preserved. — Vegetables, like meats, are preserved both by drying and by the exclusion of air. The processes have been applied more successfully to vegetables than to meats. In many cases tinned vegetables approach the fresh article so closely in character and flavour that there is little discoverable difference between the two. French preservers have been particularly successful in this way. Beans, celery, spinach, artichokes, asparagus, and especially tomatoes are so well preserved by them that they lose very little of their flavour, and can be served without fear to the most critical company. Green peas, too, have been most successfully preserved in tins, and enormous quantities of these peas are used constantly at hotels and restaurants at the commencement of the green pea season, without any suspicion being excited as to what they really are. In some countries vegetables are dried for a short time and then exposed to a gentle heat in ovens. Peas, roots, potatoes, and beets are thus treated, and when soaked for cooking swell out and are excellent. Herbs are constantly thus dried. (*See also* DRIED VEGETABLES.) In domestic management there are certain methods of preserving vegetables for future use. Green vegetables are indeed considered good only in proportion to their tender age and freshness, but certain other kinds can easily be kept for a limited period. For this purpose onions can be strung in a cold dry place. Vegetable marrows hung by the stalk in a cool situation will keep good for a long time. Celery and leeks may be kept for months by putting them in boxes filled with earth. Potatoes, carrots, beetroots, and parsnips keep best in a cellar on dry earth or sand. These roots should not be preserved until they are fully grown, and if they begin to sprout, the young shoots should be at once cut away, and the roots used as soon as possible. Green stringed beans may be preserved in brine. They should be picked when young, and packed with alternate layers of salt in a barrel. The layers of beans may be about three inches deep, and salt should form the topmost layer. When wanted for use these beans should be soaked for some hours in water, which should be changed two or three times, and when they are freed from salt they may be boiled like fresh beans. Small firm cabbages should be cut before the frost comes, and spread on a stone floor. In this way they may be kept for several weeks. If set out on earth in a good cellar they will keep all the winter.

Vegetarian Cookery. — Cheese, milk, and eggs being the only animal food permitted to vegetarians, their dishes consist principally of grain, pulse, fruit, and vegetables served in various ways. Vegetarian cooks devote, therefore, a great deal of their attention to the presentation of those familiar articles in varied palatable and novel forms, and in this way they have been very successful. Vegetarian cookery is, as a rule, simpler and involves less trouble than ordinary cookery. It is also less expensive.

Vegetarianism is "the doctrine that vegetable substances are the solids intended by Nature for the sustenance of man, and that it is wrong, against Nature and against good morals, for men to make use of an animal diet." The upholders of this doctrine, few in number, but strong in the earnestness of their convictions, have been found in all ages, and amongst them many famous names might be mentioned. Physicians of repute have been found who have given it as their opinion that for the maintenance of health and strength a large consumption of meat is not a *sine quâ non;* and in the effects of the English and Scotch prison dietaries, corroborative testimony is afforded in support of their ideas. On the other hand, the opinion of a large majority of physiologists is not favourable to vegetarianism, but to the adoption of a mixed diet. The late Dr. Lankester gave it as his opinion that the structure of man's organs showed that he was more adapted for a diet of this kind than for either animal or vegetable food alone. There is almost a concurrence of medical opinion on the same side, and experience appears to prove that man, as regards all his powers and faculties, thrives best as well as lives longest upon a mixed diet. Undoubtedly, says Dr. Pavy, "a greater feeling of satiety is produced by meat than by other food. It forms a greater stay to the stomach, but this arises from the stomach constituting the seat of its digestion, and a longer time being occupied before it passes on and leaves the organs in an empty condition. It is assumed that for a man of medium stature and in moderate work, about 300 grains of nitrogen and 4,800 grains of carbon are daily required to be introduced into the system with the food. Now this is yielded, as nearly as possible, in the case of both elements, by two pounds of bread and three-quarters of a pound of meat—that is, forty-four ounces of solid food, of which about one-fourth consists of animal matter. If the lean of meat only were consumed (for the proper adjustment could equally be made with meat and fat), rather over six pounds would be needed to furnish the requisite amount of carbon, and there would be a very large surplus of nitrogen; whilst if bread only were taken, the amount necessary to supply the requisite quantity of nitrogen would be rather more than four pounds, and this contains nearly double the amount of carbon demanded."

Vegetation, Metallic. — The chemical precipitation of certain metals may be so

effected as to produce results which are both interesting and beautiful. In the case of lead, silver, and tin especially, the phenomenon known as metallic vegetation and by various other names can be made to appear by very simple processes. The lead tree is produced by the following method:—Take of distilled water one pint and a half, sugar of lead one ounce, and a few drops of acetic acid; when mixed, put the whole into a white glass bottle or decanter; then take a piece of zinc wire two or three inches long, and by means of a thread suspend it in the middle of the liquid (the thread may be fastened to a cork or stopper). In a short time beautiful crystals of lead will form about the zinc, and gradually assume a tree-like appearance. For a silver tree it will be sufficient to take twenty grains of nitrate of silver, which must be dissolved in a phial in one ounce of water; add about thirty grains of pure mercury. Let the bottle stand still, and before long the silver will be precipitated in a beautiful arborescent form, looking like real vegetation. For a tin tree, take a vessel like the one used for lead, fill it with distilled or clear rain-water; add three drachms of chloride or muriate of tin and ten to fifteen drops of nitric acid. When these are dissolved, suspend a bit of zinc wire, as in the case of the lead tree; set it aside, and in a few hours a lustrous metallic tree will be produced in the bottle. These experiments are very pretty.

Vehicles.—The introduction of vehicles as instruments of conveyance probably commenced in the form of mere boxes, carried or pulled by men or horses (*see* LITTER; SEDAN CHAIR); and the improvement of these led to what is known as the sledge, such as brewers still use for conveying their casks any short distances. The next improvement appears to have been the placing of the sledge or box upon rollers moving upon axles, such as we have in our garden rollers. Flat cylinders of wood at either end of the beam or axle, in process of time, superseded the rollers. We have evidence of such rude wheeled vehicles being in use amongst the ancient Britons, and we are told that they are still to be seen in use amongst the settlers on new lands in America, in some parts of China, and elsewhere. From the use of these flat discs of wood to the rendering of them lighter by substituting spokes for the solid material (the ancient Egyptians used such wheels), and thence the gradual progress to the modern wheel for vehicles, the introduction of iron, &c., was doubtless a series of continuous and comparatively rapid steps. (*See* WHEEL.) The introduction of suspended seats, to lessen the violence of concussions, preceded the introduction of springs, which enabled the body of the vehicle to be so suspended. Most of the vehicles in ancient use appear to have had two wheels. The introduction of four wheels of necessity led to various other improvements and inventions, whereby vehicles of a larger kind became employed, and a kind of hinge or pivot was introduced to enable the animal drawing them to turn readily to the right or left by moving the front wheels in the required direction; and it was, probably, in order that these wheels might pass under the vehicle when thus turned that they were first made smaller than the hinder ones. The introduction of private vehicles or coaches has been dealt with under another sub-heading. (*See* COACHES.) The early coaches having to be made of great strength, in consequence of the terribly bad state of the roads, were necessarily extremely clumsy and heavy, and required more horses to draw them than lighter vehicles on well-kept roads now do. Coaches and chariots were then drawn with from four to eight horses, and sometimes, in country places, by a team of bullocks. The form and construction of vehicles vary with the fashions and the nature of the roads they traverse very greatly. Hackney-coaches, carts, cabs, waggons, vans, &c., have received our attention in this work, and descriptions of various other kinds of vehicles in use will be found under their respective headings. (*See also* CARRIAGES.)

Veils.—A covering for the face and head, worn by women in all ages and of all nations. It forms an indispensable article in the dress of a bride. Formerly, the faces of Eastern women were almost entirely concealed from view, only the eyes being visible. In Lima, but one eye is left free for use. The ordinary modern European veil, such as worn on bonnets and hats, is made of lace, net, gauze, soft tulle, or crape, the depth depending on the fashion of the current season. For travelling and for sea-side wear, blue, green, brown, and grey gauze veils are much worn, to preserve the complexion from the tanning effect of the hot wind as well as of the sun. Spanish veils are worn of handsome black lace, shaped as a large square, which is thrown all over the head in lieu of a bonnet, a large high tortoise-shell comb supporting it. In Genoa, the last remains of the *couvre-chef* of the Middle Ages is still to be recognised in the large white muslin and coloured cotton veils worn respectively by the upper and lower classes. A widow's crape veil is now no longer worn over the face, but forms a long fold, attached to the top of the bonnet, made to hang down the back.

Veins.—These are the vessels which, with the exception of the pulmonary veins, carry the venous or impure blood from all parts of the body to the right side of the heart. The pulmonary veins carry only arterial blood from the lungs to the left side of the heart. Veins commence in plexuses, which communicate with the minute capillaries; they gradually expand into trunks, and send out branches, which interlace freely with each other; the deep veins accompany the arteries, and are arranged sometimes singly, sometimes in pairs; when the latter is the case they are called *venæ comites*. Most veins are provided with valves, which give additional support to the column of blood and prevent its regurgitation. These are especially serviceable in the veins of the extremities, where the blood has to circulate against the laws of gravity, and where they are, therefore, very numerous. Veins, like arteries, are supplied with nutrient vessels, which are called *vasa vasorum*, but, as a rule, no trace of nervous

supply has as yet been discovered. (*See* HEART.)

Vellum.—Parchment made of kid, calf, or dead-born lamb-skins, to distinguish it from the parchment made of sheep-skin, is called vellum.

Vellum, Painting on, and Colours for.—The ordinary water-colours are most commonly used for drawing or painting on vellum, with the simple addition of a little prepared ox-gall. Illuminated addresses are frequently executed upon vellum in a variety of rich colours, prepared expressly for illuminating, and with the addition of gilding.

Vellum, To Stain or Gild. (*See* PARCHMENT, TO STAIN OR GILD.)

Velocipede.—A vehicle with two, three, or four wheels, propelled by the feet of the person riding thereon (Latin *velox*, swift, and *pes*, foot). Two and three wheeled velocipedes are now more generally termed bicycles and tricycles (*both of which see*), and the name velocipede is commonly used to denote the four-wheeled vehicle, with a seat for the rider, who propels himself by the action of his feet on treadles connected with the crank-axles of the wheels.

Velveret.—An inferior kind of velvet, the pile of which is of silk and the web of cotton. This substitution of a cotton back for one of silk lowers the price. For trimmings, velveret is useful; it will generally serve its purpose as long as it is required, but it is not recommended for dresses, jackets, or where large pieces are needed, because there is always a certain stiffness of texture observable in it, owing to the presence of cotton, which detracts from the general appearance, and also causes the material to easily crease. These faults are not noticeable in the flat bands of a trimming. Black velveret will not keep its colour as long as velvet, for cotton always loses its depth of blackness much sooner than silk. Velvet made entirely of cotton has given place to velveteen (*which see*).

Velvet Ribbon. (*See* RIBBON, VELVET.)

Velvet Stitches.—When ornamenting velvet, the aim of the worker should be to send the needle through the fabric as seldom as possible; therefore the stitches should always be long. If thick embroidery is desired, the stitches should still be long ones, which can be laid closely together side by side; if another style is desired, the plan followed is to make a long stitch, and to bar it across at intervals by shorter stitches; in this manner the beautiful specimens of Algerian work are executed. Silk, gold, and silver threads should alone be used for stitches on velvet. It should be stretched in a frame; thus the needle and thread will be taken back and sent forward by a hand which remains underneath the frame, and therefore the velvet will not be crushed by being grasped or folded in the hand.

Velveteens.—These are made of twilled cotton in the same manner as fustians (*which see*). They differ from these in the fineness of the cotton and the superior finish which are given to velveteens. They are only made in dark colours: black and brown most resemble velvet, which they are supposed to imitate; dark blue, green, violet, and claret are also made, and for a short time these present a satisfactory appearance, but after being worn awhile these velveteens look glazed and rubbed. The advantages of velveteen are that rain-drops do not spoil it, and that it is much less expensive than velvet; on the other hand, it is a very heavy material, either for trimmings or for dresses, and yet it does not afford much warmth. Velveteens are very useful, and look particularly well for dresses for winter evening wear, for children's dresses and coats, and for in-door or garden smoking-coats for gentlemen. Velveteens lose their colour if taken near a hot fire; garments of this fabric should be always hung up, and should not be turned wrong side outwards.

Velvets.—There are many qualities of these rich materials; the best are those manufactured at Lyons and Genoa. In these the pile is close and thick, and of fine silk of good quality; the web on which the pile is placed is also closely woven, and of silk. The weaving of velvets is a slow and tedious process. The manner in which velvets are woven is described under the heading of PILE OF VELVET. Where piece velvet is required for trimming purposes, it should be used the cross way of the material. It is customary for drapers to keep one end of a piece cut in this manner; the purchaser should therefore mention the requirement. Utrecht velvet is distinct from other velvets; it is very strong and thick, and the pile is particularly close and deep; it is a costly fabric, which is used for altar-cloths and for covering furniture. An imitation of it is woven in wool, and is known as Banbury plush.

Velvets, Care and Restoration of.—Velvet is injured by anything that tends to flatten its pile; rain-drops, damp, and careless folding spoil its appearance, and therefore these casualties should be avoided as much as possible. Velvet dresses and jackets should be hung on hooks, and not be folded up in a drawer; they should also remain the right side outwards. When dusty, velvet should be brushed in one direction and with a velvet-brush. (*See* PILE OF VELVET.) Should long wear or a wetting have flattened the pile, it can be raised, and its original beauty can be restored by the help of steam and heat. The most expeditious method is to have a kettle of boiling water, and to pass the wrong side of the velvet in front of the steam as it issues out of the spout; while the velvet is damp it must be held stretched tightly, and not be allowed to rest on a table. A warm iron must be passed over the wrong side; this will stiffen and dry the material, and thus prevent the pile which the steam has raised from falling again.

Vendor and Purchaser.—A vendor is a seller; a vendor of land undertakes to make a good title thereto, and if he fail so to do, the purchaser is discharged from his contract, and recovers damages. The duties of a vendor are now regulated in most material points by

the Vendor and Purchaser Act, 1874 (37 & 38 Vict. c. 78). A vendor of personal property comes under no such liability as to proving his title, unless he expressly warrants the title of the thing sold, the general maxim of the common law in the case of sales of personal property being *caveat emptor*, or, in other words, the purchaser takes it at his own risk. (*See* ABSTRACT OF TITLE; CONVEYANCE.)

Veneers.—These are thin films of costly fancy woods cut with circular saws by the aid of machinery, and used in a way resembling in effect that of plating or gilding, namely that of covering a cheap inferior material with a surface which gives it an appearance belonging to one of a more costly nature. When well applied it is almost as sound and lasting after long years of wear as if the fancy wood were solid instead of a mere plating. Veneers when cut by hand are in small sheets, and never more than one-eighth of an inch thick; but the machine saw, which is often twenty feet in diameter, will produce veneers of much greater length and uniform thinness, being often produced from a solid cylinder of the wood as a continuous sheet thin as a piece of cardboard. Ivory veneers are cut in this way; and thus from a single elephant's trunk we often procure a sheet of ivory forty feet by twelve inches.

Venetian Blinds.—These blinds are made with a series of wide wooden laths, held together at the edges with broad tapes, and having sufficient space between to enable each to be turned at any angle upwards or downwards, by cords passing through them and over wheels attached to the upper portion of the wooden blind. The latter is that portion which is permanently fastened to the top of the window.

Venetian Carpets.—Those known as such are now made by machinery in England and Scotland; they are formed of a worsted warp, which is traversed by a woollen weft. A particular interchange of threads causes the pattern to be produced on both sides of the carpet. The capabilities of elaborate design are not great, owing to the manner of weaving; a simple diced pattern is usually wrought. The texture of these carpets is thick and durable; they are suitable for common bedrooms and for nursery service.

Venetian Paint, or Venetian Red.—True Venetian red is said to be a native ochre, but what is sold usually under this name is prepared from sulphate of iron, or its residuum in the manufacturing of acids. The colours sold are all of redder and deeper hues than light red, and, as well as being very permanent, have all the properties of good ochres. *Prussian red*, *English red*, *rouge de mars* are other names for the same pigment, and Spanish red differs but little from it. Carniola is another name by which this ochre is known.

Venetian Point Lace.—The invention of point or needlework lace is claimed by the Italians. The art of fine needlework was very probably communicated to them by the Greek refugees who settled in Italy prior to the time when Italian lace became celebrated. *Point de Venise* is considered to be the most beautiful of the different kinds made in that country. It is a fine guipure lace—that is to say, the raised parts are fabricated with strips of thin parchment covered over with silk thread; the other portions are worked with linen thread. The patterns, if such they can be called, are very indefinite, as the idea of seaweed can be traced in some. This exquisite lace is no longer wrought, but specimens of it are still in existence. At the commencement of its history, some four centuries ago, it was made by nuns expressly for the ornamentation of churches; eventually the nobility of both sexes employed it for the adornment of their persons. The fame of its beauty reached other countries, and Catherine de Medicis introduced it into France, where large sums were spent on this costly trimming. This extravagant expenditure gave rise to the fabrication of Alençon lace (*which see*). Venetian point lace was a rival of the beautiful Flemish point lace. The French point laces were not wrought until a later period.

Venetian Red. (*See* VENETIAN PAINT.)

Venetian Windows consist of three parts, two of which are long and narrow, and placed one on either side of the larger one.

Venice Treacle. (*See* TREACLE, VENICE.)

Venison is the general name given to the flesh of several species of deer. There are three kinds known in Great Britian—the flesh of the roebuck, the red deer, and the fallow deer. Of these, that of the fallow deer, reared in parks, is much the best. It is very highly esteemed in England, and is worthy of the value set upon it. When taken from good land, and killed at the proper season, it is most digestible, and if it were not so rich and savoury would be well suited to the dyspeptic and convalescent. It partakes, however, more of the character of game than of butchers' meat. It should be kept as long as it is possible to preserve it untainted before cooking it, and, excepting in very mild weather, hung for a fortnight. It needs to be preserved and dressed with the greatest care. As soon as it is cut up it should be dried with a cloth, dusted with pepper and powdered ginger, and hung in a cool airy larder. It should be examined every day, or twice a day in unfavourable weather. In order to ascertain when it is fit for the spit, a skewer may be run in close to the bone, and the condition of the meat judged from this. If it has unfortunately become musty it should be washed, first in lukewarm water and afterwards in milk and water, and dried perfectly with a soft cloth. When roasting it is usual to cover it, first with a sheet of well-greased thick paper, then with a stiff paste of flour and water, and then with two additional sheets of greased paper. The greatest care should be taken to preserve the fat, and the more fat there is upon it, the better it will be; indeed, it is a maxim amongst cooks that if a haunch of venison is not fat it is not worth the trouble of roasting. The haunch is the prime joint. Buck venison, which is in season in summer-time, is much more prized than doe venison,

which is in season in the winter. Red deer venison is not to be compared with the flesh of the fallow deer. Those who stalk it occasionally rejoice in eating it, but for the rest of the world it is coarse in texture and rank in flavour. Roebuck venison, too, well-known in the north of Scotland, and common also, it is said, in Paris, is not much thought of in England.

Veno Beno, La.—This brownish-coloured powder is a mixture of tea-dust and powdered catechu or terra japonica, in the proportion of about two ounces of the former to five of the latter. It was at one time said that a few grains of this put into the tea-pot more than doubled the strength of the tea. The catechu is an astringent, and is used by tanners and dyers, and for other purposes. (*See* CATECHU.)

Vent-pegs. (*See* SPILES.)

Ventilation.—The two things aimed at in ventilation are, the removal of foul air, and the introduction of that which is pure. In a room which is closely shut and not ventilated, the fresh air becomes exhausted and impure in proportion to the demands made upon it by burning lights, the presence of persons, and other causes. A continuance of these conditions renders the air injurious to health, or even fatal to life, and mischievous to most things which can be influenced by its action. On the contrary, if a room is well ventilated, the ventilation is a preventive of disease and discomfort. In crowded apartments, such as living or sleeping rooms, or public halls, churches, and theatres, ventilation is a prime necessity, owing to the generation of noxious gases and the exhaustion of the air by the process of breathing. To the neglect of proper precautions are traceable many cases of sickness and fainting and other unpleasant symptoms in public rooms and private houses; while in ships, hospitals, prisons, barracks, and above all in mines, the evils are often of great and even fatal magnitude. Here, however, we are more concerned with the ventilation of private apartments and ordinary dwellings, every room in which requires attention in this respect. Kitchens, cellars, and all domestic offices are no more to be overlooked than the rooms in which a family may live or sleep. Houses in open and airy situations must not be neglected, and, in fact, are often worse off than those in the ordinary suburbs of a city or in the centre of a dense population, the reason being found in a faulty plan, construction, or position. In crowded streets and courts, ventilation means cheerfulness, comfort, health, and life; its neglect brings or fosters disease, misery, and perhaps death. As for the homes of the rich, dangerous fevers are frequently due to the want of proper ventilation and trapping of drains, whether in the house or adjacent to it. Ventilation, to be complete, should keep out bad air, and should carry off bad air, as well as allow the ingress of a proper supply of pure air. It should also be so managed as to prevent what are called draughts, which may do as much harm as the want of ventilation itself. A little elementary knowledge, well remembered, is often useful, and nowhere more so than in this case of ventilation. When the external air is charged with damp or cold, the introduction of it freely into a house may be followed by hoarseness, catarrh, rheumatism, &c. There are persons so constituted or habituated that they cannot endure cold or damp air; they are especially liable to suffer from it in the morning. It follows that for such persons it is injurious to throw open all outer doors and windows before they are dressed and out of their bedrooms. If it is desired to produce a change of air, a current throughout the house can be started by simply opening all the internal doors, upstairs and down. The reasons for this are simple, the first being the tendency of the air thus confined to become of one temperature. When rooms want sweetening or freeing from the effluvia of smoke, fish, &c., it is generally well to open the windows, but it is not always desirable for the inmates of the house to sit there while the process goes on. Here, as everywhere, habit goes for something; but while one man can be happy in an atmosphere which would make another miserable, sanitary science proves that proper ventilation is needful for both.

Ventilators.—Some kinds of foul air sink and hover about the lower part of a room, while others float upwards towards the ceiling, where they accumulate until they practically fill the apartment. A vast number of inventions have been produced for ventilating rooms of all sorts, but, happily, where they are not adopted, the crevices about the doors and windows, especially if there is a chimney, do what is requisite. The chimney is a most important ventilator, and no room ought to be without one or to have a closed one. The practice of carefully shutting up chimneys in sleeping rooms is to be severely deprecated Some persons open their bedroom windows at the bottom; but this is objectionable, unless the aperture at the bottom is closed by means of a strip of wood to prevent a draught. If this plan is adopted, fresh air in sufficient quantity will come in near the middle of the window, and the current is to be kept up by having a valve near the ceiling to carry off the superfluous air. This valve need not be made unsightly, but can be practically hidden by some ornament pervious to the outgoing impure air. The opening is, perhaps, best made into a chimney, though that of the room itself is not to be preferred if another exists by the side of it. One plan is to have the aperture made in the centre of the room, from which a pipe is led into the chimney between the ceiling and the floor above. Any ventilator is imperfect which is not twofold, so to speak, because the incoming and the exit of air must both be provided for. The apparatus for the exit should be so constructed as to open and close of itself when not acting, a precaution which is needed to prevent back draughts, or a current of air when none is required. If a self-acting ventilator is not used, one should be had which can be easily opened or closed without making a noise. Elaborate and costly appliances are not demanded by private dwellings, and therefore we merely give a few hints which can be worked out with little trouble and expense.

Ventriloquism.—The mode of speaking to which this name is given was so called because it was supposed that the sounds came from the belly of the speaker. It is an art which some persons acquire by skill and practice, and consists in uttering sounds and words without moving the lips. A skilful ventriloquist is able to modify his voice so that what he says shall seem to come from any other part of a room than that where he is. He draws a deep breath, and produces the sounds by means of the muscles of the palate and of the upper part of the throat, and the result is due to his dexterity, not to any peculiar conformation of the organs of speech. The effect is heightened by a variety of gestures, intended to attract or divert the attention of those who are present. It is a very ancient art, and has been in many cases resorted to in the interests of superstition and fraud. One case was that of a school, which was popularly supposed to be haunted; but the ghost was eventually discovered in the person of a girl who had secretly acquired the art of ventriloquism.

Verandahs.—A kind of open portico or covered exterior balcony, the roof of which is usually formed by the extension of that of the main building.

Verbal Charades. (*See* CHARADES, VERBAL.)

Verbena.—This is the *Verbena officinalis* of the botanist, and belongs to the *Verbenaceæ*,



VERBENA.

or Vervain family. It is a very pretty garden flower when properly cultivated, and there are several beautiful varieties of it, such as the scarlet, the rose, the purple, white, &c. Verbenas thrive best in a turfy loam, or compost of leaf mould and peat in equal parts. They may be cultivated in pots from healthy cuttings selected in April. If a little bottom heat is given they soon take root, and may then be potted off where they are meant to bloom. The tops of the leading shoots should be pinched off, in order to get lateral branches; and it should be remembered that they require plenty of water, light, and air.

Verbena (Scent).—There are two forms of this perfume:—1. Essential oil of verbena two drachms, rectified spirit four ounces, essence of ambergris half a drachm, orange-flower water half an ounce, mixed. 2. Oil of verbena half an ounce, essence of vanilla forty drops, rectified spirit four ounces, mixed and filtered.

Verd-antique.—1. A term given to a green incrustation, otherwise called patina, which in the course of time grows on ancient brass or copper coins. 2. A species of green marble found in Italy and other parts, much used by sculptors, generally for comparatively small statuary and objects of art, and for pillars.

Verderer.—An officer in the royal or Queen's forest, whose duty it is properly to look to the vert (*i.e.*, everything that grows and bears green leaf within the forest) and see it well maintained, and he is sworn to keep the assizes of the forest, and view, receive, and enrol the attachments and presentments of trespass of vert and venison.

Verdict.—The determination of a jury in an action, after hearing the witnesses on either side, the speeches of counsel, and the summing-up. It is declared to the judge by the foreman or chairman of the jury. The verdict is either general or special. A general verdict is given *vivâ voce* by the jury thus, "We find for the plaintiff, damages £——;" or, if for the defendant, "We find for the defendant." If there be several issues (*i.e.*, questions between the parties), the verdict may be distributed, some being found for the plaintiff and others for the defendant. A verdict must comprehend the whole issues submitted to a jury in the particular cause, otherwise the judgment founded upon it may be reversed. A special verdict is where the facts alone are found, the law applicable to these facts being left for the decision of the Court *in banco*. The jury is entitled to return an absolute verdict for the plaintiff or for the defendant, and cannot be compelled to give the grounds or reasons. In a civil case the verdict may, with consent of the parties, be taken by the associate, otherwise the judge, if he has retired, must be sent for. Verdicts in criminal cases may be either general, as guilty or not guilty, or special, setting forth all the circumstances, and praying the judgment of the Court whether, upon the facts stated, there exists a crime in law.

Verdigris.—Copper is peculiarly liable to rust. Even when no acids are brought into contact with it, oxidisation will arise from

mere contact with air and moisture—a fact which those who use copper vessels for cookery purposes should daily consider. No food ought to remain long in these vessels, and they should always be carefully cleaned before they are taken into use. The blue-green rust of copper or brass is known as verdigris, and is usually prepared by the action of vinegar on these metals. In manufacturing verdigris, which is an acetate of copper, and highly poisonous, copper plates are either acted upon by cloths dipped into vinegar, or are piled up with layers of grape-skins between them. In a few weeks a crust is removed from the copper, which is scraped off and mixed with vinegar in a kind of paste. Verdigris is useful for various purposes in the ornamental arts and manufactures, and is employed in surgery for external application as a mild detergent in cleansing wounds, ulcers, &c.

Verditer.—A mineral of a bluish-green, employed as a pigment. It is stated to be made by adding chalk to a solution of nitrate of copper, produced in the process of refining silver.

Verger.—A verger is one who carries the mace or other emblem of dignity before the judges or before church dignitaries.

Verjuice.—The term verjuice, as its name implies, is the juice of green fruits. Unripe grapes, unripe gooseberries, sour apples and crabs are all employed in its manufacture, and formerly a vinegar made from sour cider bore the same name, and was much used. At one time verjuice was extensively administered medicinally as an astringent; now its chief value is as a flavourer, and for some dishes many experienced cooks prefer it to lemon acid. Verjuice is also used in the purification of wax candles.

Vermicelli. — This species of wheaten paste is manufactured to perfection at Naples, where it and macaroni form the principal food of most of the inhabitants, and favourite dishes among all classes. The name given to it by the Italians signifies a little worm, suggested most probably by its appearance, which is that of long slender tubes or threads, and the only difference that exists between it and macaroni is that the tubes of the latter are larger than those of vermicelli. Only certain kinds of wheat are applicable for the manufacture of this substance; hard varieties of flour must be used, and such as contain a large percentage of gluten. After the flour is worked into a paste with water, it is placed in a vertical cylinder press, the bottom of which is perforated with holes through which the paste is forcibly driven. The pieces that are ejected are twisted into shape and dried. The fineness of form proves the fineness of the paste. To be eaten in perfection, vermicelli should be quite moist and tender; consequently it is not so well adapted for baked puddings as for soup.

Vermifuges.—These are remedies used in the extirpation of worms from the human body. Santonine, oil of male-fern, kousso, and turpentine are examples of vermifuges. The term is derived from the Latin *vermis*, a worm, and *fugio*, to fly away or escape.

Vermillion, or Vermilion.—A bright scarlet prepared from sulphur and quicksilver, being a sulphuret of mercury. This colour was much employed by the ancients, and is mentioned in connection with the decorations of the Assyrians, whose warriors were, according to divine historical records, painted on the wall of their houses "in vermillion."

Vermin. — The word vermin is usually understood to signify such insects and animals as frequent houses, barns, storehouses, and similar places where they can find material to feed upon. Rats, mice, beetles, and lice are the most common house vermin, but if proper means be adopted these may easily be removed. The vermin in the shape of insects with which houses are sometimes infested are in most cases the result of dirt and negligence, and their power of reproduction is so great that when once they make their appearance they are difficult to extirpate. What are called body lice differ in colour, according to the colour of the skin of the inhabitants of the country. By the farmer and the gamekeeper many animals are designated vermin that are by others considered perfectly harmless, simply because by such animals their property is destroyed. In some cases mistakes have been made in destroying the so-called vermin, and greater harm has resulted from their absence than was known to exist during their lifetime. Moles, for instance, that are dreaded by gardeners and farmers, do much good to the pasture land by their incessant stirring of the soil; and even rats and mice, that as inmates of a dwelling-house are exceedingly disagreeable, are unquestionably in one sense our benefactors. Frequenting sewers and filthy places as they do, and being exceedingly voracious, they devour substances which if left to putrefy would be highly conducive to disease. Small birds, too, upon which the farmer wages war because they eat his grain, are most useful in destroying the multitudes of insects which frequently infest the crops; so that in ridding himself of one nuisance he ensures another equally as great. In some instances of this kind it is best not to interfere unduly with Nature's arrangements.

Vermin Traps. (*See* Traps, Vermin.)

Vermoute.—The principal ingredient in the manufacture of this liqueur is the wormwood plant, which was used in England to flavour and preserve beer before hops were known. The true vermoute, which is very scarce, is a Hungarian wine called St. George; but as this can rarely be obtained, a substitute for it is made by mixing a little of the extract of wormwood with any good light wine. In itself wormwood tea is a very good domestic tonic, and has great stimulating qualities; consequently vermoute, in addition to its being a liqueur, is often administered medicinally.

Vertigo. (*See* Giddiness.)

Vesicants, or Blisters. (*See* Blisters.)

Vesication.—This is the act of blistering. (*See* BLISTERS.)

Vespers.—The short form of evening service used in the Roman Catholic Church. This answers in some measure to the evening prayers or evensong of the Church of England. In this service vespers, and also complino—which is the last division of the Roman Catholic breviary—are included. The word *vesper* is the Latin for "evening." Matins is the form of morning prayers used by the Roman Catholic Church. The morning service of the Church of England includes those originally called Matins, Lauds, and Prime. Matins began with the Lord's Prayer and ended at the Apostles' Creed.

Vested Interest or Right.—An interest property or estate, whether in possession or otherwise, which is free from any condition, precedent and unperformed. The interest may be either a present and immediate one, or it may be a future interest, but uncontingent, and therefore transmissible, an interest which is contingent being untransmissible.

Vestibule.—This term is applied to the porch or first entrance of a building.

Vestry, Parochial.—A vestry is no doubt so called because of the place in which its meetings were held, a *vestiarium*, or robing-room for the clergy, and still termed a vestry. It was at one time the parochial authority in a much wider sense than it is at present. There are now more kinds of vestry than one. An ecclesiastical vestry for a parish, with the incumbent and churchwardens, is supposed to meet for the despatch of parochial business, such as the election of churchwardens annually, the appropriation of certain charities, &c. A general vestry comprises the ratepayers, all of whom have the right to attend. A select vestry consists of a fixed number of ratepayers chosen annually for the transaction of business. The Metropolis Management Act provides for the election of vestries by the body of duly qualified ratepayers; and such vestries do not always have ecclesiastical affairs under their control at all, even though they may appoint so-called churchwardens. Hence it follows that a parish or district may have distinct vestries, the one for church matters, and the other for more general affairs. Vestrymen under the above Act may remain in office three years, and go out in rotation. The powers of vestries vary considerably, and it is difficult in some cases to define them. Even when extending to the affairs of a parish as a whole, they may be subject to the superior control created by the legislation referred to above. This legislation, in various instances, reduces the ecclesiastical or old parochial vestry to a shadow in everything except what inalienably belongs to the church. It is therefore needless to enter on this point into further details; but we may add that while some vestries meet in town-halls, or similar buildings, and others in rooms attached to the church, no vestry can be convened in the church or chapel itself. The decisions of vestries are by show of hands, and resolutions are disposed of by a majority; but in some vestries a poll, and in others a division, can be demanded, and if refused the resolution affected becomes null and void. A ratepayer may possess one or more votes, according to the amount at which he is assessed for the relief of the poor, provided that in no case he has more votes than six. In parish vestries the parson has a right to preside, and to adjourn a meeting when decided interruptions take place, but he cannot stop the business at his pleasure.

Vestrymen, Election of.—Parish vestries, being composed of the body of ratepayers, need no elections. In other vestries the election is made by those who are qualified to vote. Certain proper persons are nominated as vestrymen, and they can be elected by a majority in a meeting convoked at the proper time, in the required manner, and by the competent authorities. Those who are in a minority on the show of hands being taken can, by themselves or their friends, demand a poll, of which due notice must be given to the parishioners. These proceedings are in fully constituted vestries conducted by the vestry clerk, who usually supplies the voters with the official voting-papers, and takes all necessary precautions for a just election and return.

Vests.—These garments are made of flannel, of silk, of merino, cotton, and gauze. When of the first-named material, they are cut out and sewed by hand; when of any of the latter, they are woven into shape by machinery. Vests are worn next to the skin; they are made high to the neck, and low, with short and with long sleeves, to suit the different requirements, for some people feel cold in one part of their body, and others feel it in a different place. For delicate persons, and those who suffer from rheumatism, vests of flannel or silk are the most suitable; the chief complaint against flannel is that it is apt to be bulky and liable to shrink, not only when washed, but from perspiration; silk vests fit close to the skin and do not shrink. Merino vests are next on the list as to warmth, and then follow those made of thick unbleached cotton, which are very suitable for men and boys, because of their strength and thickness. For summer wear, cotton gauze vests are comfortable. Vests knitted by hand of soft wool are preferred by some people to any kind of woven vest. The Scotch knitters make these at a reasonable cost. In this climate, vests of some description should be worn by every person, whether old or young, for the quick and sudden changes of temperature at all seasons are very liable to give cold, and cause other evils, unless the chest and arms, &c., are protected by some material more effectual than calico or linen. Vests and drawers woven in one piece are more convenient for children than the two garments separate.

Vesuvians.—A name given to a kind of match, or fusee, principally intended for lighting pipes and cigars. Vesuvians ignite by friction, and burn so that they can be used in the open air, and cannot be blown out by the wind.

Veterinary Medicines.—These comprise a complete Pharmacopœia of medicinal

preparations used by veterinary surgeons in the treatment of the diseases of animals. It would be obviously impossible to enumerate these here, or even to describe them; we shall therefore confine our remarks to the different modes of exhibiting these veterinary medicines, and we shall first mention balls. These are masses, of which the basis is usually treacle, linseed meal, and a little olive oil, and which contain some medicine or medicinal agent. Balls are divided into:—1. *Alterative.* These are said to purify the blood, and are given daily, or every alternate day, in skin disease, swelled legs, grease, &c. The following is a very good example of one of these balls:—Dried common soda one ounce, Castile soap six drachms, resin two ounces, liquorice powder half an ounce, aloes one drachm, and Barbadoes tar, or treacle and linseed meal as just mentioned, sufficient to form six balls. 2. *Astringent balls.* These are given in diarrhœa, profuse straining, bloody urine, &c. The following is one given in diarrhœa:—Opium half a drachm, prepared chalk six drachms, cassia one and a half drachms, and syrup sufficient to form a ball. 3. *Cough balls.* These are used for cough and thickness of wind. The following will be found useful:—Powdered squill one drachm, gum-ammoniac three drachms, opium half a drachm, and syrup as much as may be sufficient to make one ball. If the cough is from inflammation of the lungs, the following may be given twice a day:—Antimonial powder two drachms, digitalis three drachms, nitre three drachms, cream of tartar three drachms, and honey sufficient to form a ball. 4. *Cordial balls.* These are given in exhaustion, but should not be repeated often. Ginger and gentian in equal parts, with sufficient treacle, make an excellent cordial ball; some caraway, cardamoms, and liquorice may be added if desired. 5. *Fever balls.* The following is a good fever ball, useful in influenza, &c.:—Antimonial powder two drachms, nitre three drachms, cream of tartar two drachms, and honey as much as may be sufficient. This may be given twice a day. 6. *Purging balls.* These should be preceded by bran mashes for a day or two, and should be given fasting. The following is one of the best:—Aloes (Barbadoes) from four to eight drachms, soap from three to four drachms, ginger one drachm, oil of cloves ten drops, water as much as may be sufficient. 7. *Tonic balls.* One of the best of these is the following:—Sulphate of iron four ounces, ginger four ounces, treacle, linseed, and olive oil, ten ounces, divided into eighteen balls. 8. *Worm balls, &c.* The following make an excellent worm ball:—Calomel half a drachm, aloes six drachms, ginger one and a half drachms, oil of wormwood twenty drops, carbonate of soda two drachms, and syrup as much as may be sufficient. To administer a ball to a horse, the animal should be backed into the stall, the tongue drawn out with the left hand and retained there, whilst the right hand, holding the ball between the fingers and thumb, is passed right to the back of the throat; the ball is then dropped, the hand immediately withdrawn, and the tongue released; a drink may then be given to facilitate swallowing.

Besides balls, the veterinary Pharmacopœia contains several other modes of administering medicine. Of these the most important are electuaries, powders, drenches, mashes, liniments, ointments, and clysters. As a rule, drenches and mashes partake very much of the character of the balls just described, with this difference only, that the former are largely diluted with water or some mild fluid, as barley water. The following are examples of drenches and mashes:—1. *Barley water.* Barley one pound, water two gallons; boil to six quarts, strain, and add one pound of honey. 2. *Oatmeal gruel.* Mix gradually four ounces of sweet oatmeal with as much cold water as will form a smooth mixture; put two quarts of water in a saucepan over a clear fire, and before it gets very hot add in the mixture of oatmeal and water; stir the whole until it boils, then let it simmer a little, taking care not to smoke it. 3. *Bran mash.* This is prepared as follows:—Bran or pollard, half a peck; put it in a bucket, and pour enough scalding water on it to soak it thoroughly; stir well with a stick, and let it stand covered up until it is milk-warm; oats may be added if desired. 4. *Linseed mash.* This consists of linseed two quarts, coarse sugar two ounces, boiling water six quarts; the whole to be allowed to simmer for three or four hours. Liniments or embrocations are largely used in veterinary medicine. The following are examples:—1. *Blistering liniment.* Spanish flies one ounce, euphorbium half an ounce, oil of turpentine four ounces; put the flies for three or four days separately into four ounces of spirits of wine and two ounces of water of ammonia. This should be shaken frequently, and when strained should be mixed with the other ingredients. 2. *Stimulative liniment*—viz., oil of origanum one ounce, spirit of turpentine one ounce, spirit of wine half an ounce. This is useful in splints; it should be applied night and day, disturbing it as often as moisture appears. 3. *Liniments for lice.* Corrosive sublimate one drachm, muriatic acid three drachms, tobacco water two pints, oil of turpentine four ounces. 4. *Mange liniment.* Goulard's extract of lead two ounces, olive oil two ounces, sulphur one ounce. Lotions, ointments, caustics, poultices, &c., are also largely represented in the veterinary Pharmacopœia.

Vetivert, or Vetiver.—This is said to be the same as khus-khus, or kuss-kuss, an Indian species of andropogon, the roots of which are woven into screens or mats. The vetivert sold in the shops is in the form of bundles of brown fibres of considerable length, and it is said that if kept among woollen it will prevent the attacks of moth. The name is French, and the thing itself appears to be more commonly used in France than in this country for the purpose indicated. The woven screens are called tatties in India, and when moistened give out an agreeable perfume. The European perfumers make some use of the root in certain preparations. Other spellings of the names are kus-kus, vetyver, and vittie vayr.

Veto.—A prohibition, or the right to forbid. The term is especially applicable to the

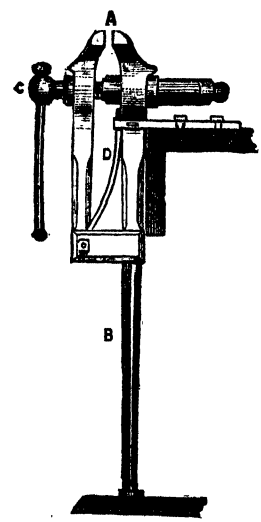
Royal power of refusing assent to a Bill in Parliament. (*See* PARLIAMENT.)

Viaduct.—This term is usually applied to a series of arches supporting a roadway as aqueducts support water-ways. The architectural members of a viaduct are the same as those of a bridge, and its great requirements are durability and strength. They are composed of brick, stone, or timber.

Vials, or Phials. (*See* PHIALS.)

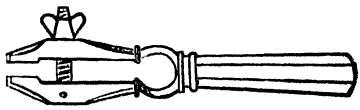
Vicar.—A vicar is a substitute for some one else, and the word has, strictly speaking, no other meaning in the frequent application of it to a certain class of parish incumbents. The cases in which parish clergymen are vicars vary, and cannot here be all described, but one may be given as an example. The chief revenues of a living may be in the hands of a layman who cannot himself perform the duties of the ministerial office, but appoints some one to officiate in his place and stead, and allots an annual sum certain for his support and maintenance. Such a living is a vicarage, the incumbent is a vicar, and the layman to whom the living belongs is called a lay impropriator. A vicar is instituted and inducted in the same manner as a rector, and like him discharges all the functions and enjoys all the privileges of a parish priest. In the Church of Rome the word vicar has sundry other applications.

Vice.—This Latin word, meaning "in the place of," is used in connection with sundry posts and offices to denote one who acts as a substitute, or is the second in rank and authority. A vice-admiral is the officer second in command; a vice-chancellor is next in rank to the chancellor; a vice-chairman is the second chairman at a banquet, &c., or one upon whom it devolves to officiate when the chair is vacant; a vice-president is similar to a vice-chairman; a vice-consul is one who fills the place of a consul, especially where a regular consul is not appointed. There are sundry other combinations all formed on the general principle either of representing a superior authority, or of acting as its substitute. The word vicegerent would of itself designate almost the whole of the class. (*See* VICEROY.)



TAIL-VICE.

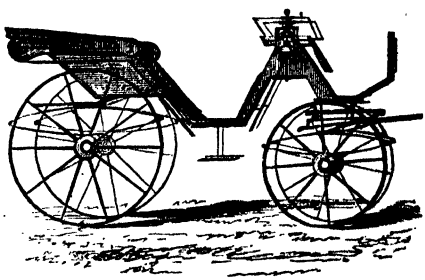
Vice (Implement).—An implement used in carpentry, turnery, and metal-working, by means of which to hold fast articles which require filing, &c. A specimen of the larger kind of vice is shown in the illustration; this is known as a *tail-vice*, from the fact that one of its arms is prolonged downwards into a tail (B), which rests on the floor, and contributes greatly to the firmness of the hold. The work to be operated upon is held between the jaws (A), which are closed by turning the handle working the screw (C), the jaws opening when released by the action of the spring (D). These vices should be screwed firmly to the bench or table. *Table-vices* are of a very similar construction, but they are smaller, and have no tail, being screwed to the edge of the bench. They are, however, only fit for light work. In the case of both these vices, the insides of the jaws are faced with steel, and cut into teeth, in order to increase the holding power. These teeth, however, are liable to injure the surface of the work held, and to prevent this, clamps are sometimes used, made of soft metal, and fitting the jaws of the vice.


PIN-VICE.

Another form of vice is the hand or pin vice, engraved above, and used for holding small wire.

Viceroy.—Literally one who is in the place of the Sovereign whom he represents, and in whose name he administers the government of a kingdom or country. In common parlance, the Lord-Lieutenant of Ireland is designated Viceroy, but he is not so styled officially. He has great dignity and authority, receives £20,000 per annum for salary, has a residence in Dublin Castle and one in Phœnix Park, must not be a Roman Catholic, and retires from office with the Ministry of which he is a member. The Viceroy and Governor-General of India has a liberal allowance, is invested with great authority, and, especially on state occasions, is surrounded with all the splendours of Oriental magnificence. His official residence is at Government House, Calcutta.

Victoria.—A species of phaeton which may be said to resemble a barouche on a small


VICTORIA.

scale, but being built lower is easier of access, and hence in great request with ladies. It has

a hood, and is generally supplied with a fall-down seat in front to accommodate a third person when required.

Victorine.—A covering for the neck which superseded the boa (*which see*). In shape the victorine resembled a broad flat collar, with long broad flat ends which descended over the chest. Victorines were usually made of fur, wadded and lined with silk; those less costly were made of wool, knitted or woven in imitation of ermine or chinchilla fur.

Vicugna.—This is a species of llama, used as a beast of burden in South America. It is described by the earliest Spanish writers as a sheep, no doubt from its woolly appearance, and from the fact that in its wild state it, in many of its ways, resembles that animal. Vicugnas congregate in large herds, and when disturbed gallop off with surprising swiftness. When captured, however, they are very easily domesticated. They are mostly inhabitants of the Peruvian Alps and the mountainous regions of Chili. The natives of these parts not only train the animals to work, but make use of their flesh for food, and their wool to make into garments.

Villa.—In the present day a villa is understood to be a house standing alone unconnected with any other building, and with more or less ground surrounding it. In French, Spanish, and Portuguese the word villa means a town. The meaning attributed to it as a residence appears to have originated in the time of the Romans. With them the name villa comprehended three different kinds of houses—the *villa urbana*, the *villa rustica*, and the *villa fructuaria*—all three of which formed a cluster of houses, and were the property of one person. In the first the proprietor resided, and it was of course planned and furnished to suit the taste and pleasure of the master. The second was a building appropriated to stabling purposes, and for the accommodation of cattle, and also for the lodging of those employed in out-door labour. The domestic servants who attended upon the family were housed in the villa urbana. The villa fructuaria was a kind of storehouse where the various productions of the soil were deposited for preservation. In course of time houses were built round these villas, and thus originated the name of village.

Vinaigrette.—A French name, retained in English to designate a receptacle for a small sponge, which, being soaked in aromatic vinegar, keeps in the spirit of the scent, from being when closed air-tight. These vinaigrettes are usually little boxes, made of either gold or silver, having a double lid, the inner one perforated in some ornamental pattern, through which the scent may be inhaled without being opened. They are sometimes suspended to the watch-chain, in some ornamental form; but are more usually carried in the waistcoat pocket by men, especially by clergymen and doctors, when visiting those suffering from infectious diseases.

Vinegar.—The well-known acid fluid called vinegar is derived from many sources. As a condiment, vinegar is so important an ingredient that, although it is not absolutely a necessary article of food, its applications in cookery are numberless. Most of the vinegar manufactured and consumed in England is made from malt, and is called malt or British vinegar. (*See* MALT VINEGAR.) On the Continent a great deal is made from low wines that have turned sour, and in our own country beer that has become sour is used for the same purpose. The latter vinegar, called alegar, is, however, of very inferior quality, and quite destitute of the agreeable flavour possessed by good malt vinegar when made in the usual way. Vinegar of the best quality is that prepared from the grape, and is chiefly made in wine countries from grape-juice and inferior new wines, according to principles very similar to those adopted in making malt liquor. Of this variety, white wine vinegar is considered the best. Orleans, in France, is the place most famous for its manufacture, and wine that is unfit for drinking is sent there from all districts for the purpose of being converted into vinegar. A weak, tasteless kind of vegetable vinegar is made from the vinegar plant—a curious article consisting of a kind of fungus that rises to the surface of sugar and water that has been left to ferment. A piece of this substance put into fresh sugar and water will very soon change it into an acid liquid, and by dividing the plant, and putting portions of it into fresh solutions, it may be propagated to any extent. Another very important variety of vinegar with which the market is extensively supplied is that originally obtained from wood, and known as acetic acid. This liquid, though involving much labour and time in its manufacture, is a very pure strong acid, and much of the vinegar that is sold is simply a weak mixture of real acetic acid and water. Aromatic vinegar, which is used as an invigorating scent, is composed of perfumed acetic vinegar. There are many other kinds of vinegar of less importance, some of which are simply saccharine liquids changed into a state of fermentation, and so converted into vinegar, or ordinary vinegar flavoured with vegetables, fruits, herbs, or other substances, and that are used for culinary purposes and medicinally. Chili vinegar is made by infusing cayenne pepper into French vinegar. It is added in certain proportions to gargles that are required for sore throats.

Vinegar, Adulterations of.—For information on this subject, *see* ADULTERATIONS OF VINEGAR.

Vinegar, Aromatic.—This name is given to an invigorating, odoriferous liquid that is used for filling scent-bottles, and is also known by the name of Marseilles vinegar, vinegar of the four thieves, and camphorated acetic acid. It is composed of strong acetic acid, into which camphor and other strong scents have been digested. It is exceedingly invigorating, but very volatile, consequently it is necessary that it should be kept in a well-stoppered bottle. Being highly corrosive, care should be taken not to allow it to come in contact with the skin and clothes.

Vinegar, Medicated.—Pure vinegar has long been used as a cooling outward application to the skin. In cases of febrile and inflammatory disease it has a tranquillising, soothing effect upon the system, often relieving intense pain and inducing sleep. Applications of vinegar are also very beneficial for sprains of any kind; in such cases the injured part is usually covered with a piece of brown paper which has been soaked in vinegar, the paper being repeatedly re-moistened with the vinegar as it becomes dry from the heat of the body. In astringent gargles used for the tonsils, and for cases of relaxed uvula, vinegar is a very important element, and as an application for the eyes, when lime has got within the eyelids, no better lotion could be invented. Vinegar of cantharides, which consists of acetic vinegar mixed with cantharides in powder, is used for raising blisters on the skin. The mixture is spread on lint, over which is placed a piece of oil-silk or gutta-percha, to prevent evaporation. Vinegar of colchicum, a mixture of acetic acid with meadow saffron, is chiefly used as a cure for gout; and vinegar of opium for soothing the nervous system. Vinegar of squills is an excellent expectorant and diuretic; it is valuable for chronic pulmonary affections, and also for dropsy.

Vinegar Plant. (*See* VINEGAR.)

Vinery.—A hothouse in which vines are grown is called a vinery. Of the varieties of grape cultivated in Britain, not many will flourish in the open air, yet the vine is extensively cultivated, and as the result of careful training, protection from the uncertainty of the climate, and the judicious application of artificial heat, grapes are grown fully equal in size and flavour to those of more favourable climates. This cannot, however, be done successfully without a special knowledge or a careful study of the works of experts, whose practical experience has qualified them to write with authority on the subject.

Vines. (*See* GRAPES.)

Vingt-un.—A game at cards played with a complete pack, and by any number of persons. There are two ways of playing the game, but in each of these the principle is the same—*i.e.*, every player endeavours to get such cards in his hand as will make up the number of twenty-one pips. The ace reckons for one or for eleven, at the option of the player holding it; the king, queen, and knave for ten; and the rest of the cards for the number of spots on them respectively. In the simplest form of game each player deposits an equal stake in the pool, the cards are cut, and the dealer gives two, one at a time, to each player. If the elder hand gets an ace, with a pictured card or a ten, he has won the game, being twenty-one. If not, he may ask the dealer for one or more cards in succession, examining the first, however, before he asks for a second, as, if he overdraws, *i.e.*, makes more than twenty-one, he loses. Each player does the same in turn, and the person who is nearest to twenty-one (but not over) wins the game and takes the stakes. In the event of two players being equal, the elder hand of the two wins. If all the players happen to overdraw, there must be a new deal and game, as no one has won. *Vingt-un* consists of an ace and a court card or a ten, and not of any number of cards whose pips amount to twenty-one, such being termed *twenty-one* simply. Sometimes, however, an ace and a card counting ten is termed a *natural* vingt-un, and three or more cards making twenty-one, *vingt-un* simply. The second and less simple form of vingt-un is as follows:—The deal being considered an advantage, it is usually determined at the commencement by the first knave or ace turned up. As before described, the dealer gives one card to each person, on which they stake a certain number of counters, according to the chance which they may consider they have of making twenty-one; a second card is afterwards dealt round, and then, commencing with the elder hand, the dealer asks each player if he will draw any further cards. All who overdraw throw up their cards immediately and pay their stakes to the dealer. Should any player make vingt-un he receives double his stake from the dealer, while if the dealer makes vingt-un he receives double their stakes from all the players, unless one of them has made a *natural vingt-un*, in which case he *always* receives from the dealer. If the dealer makes twenty-one in pips, he receives double stakes from all who stand the game, except in the case of those holding a natural vingt-un, who receive as before mentioned, and those who have also made twenty-one, who pay single stakes only. When any player has twenty-one and the dealer has not, the player receives double his stakes from the dealer. If none of the players have twenty-one, then the dealer pays single stakes to all whose numbers under twenty-one are higher than his own, and receives from those who are lower than or are equal with him. When the dealer draws above twenty-one, he pays to all who have not done so. When twenty-one is dealt in the first two cards, it should be declared immediately, and after that round the dealer loses his deal—unless it be the first round of his deal, or unless he himself should also draw a natural vingt-un in that round—and it passes on to the next player. After the first card in a round has been staked upon by each player, the dealer may double all the stakes, should he so desire.

Vinous Fermentation is the change which takes place in saccharine liquids in the presence of a peculiar ferment called yeast, and which results in the production of wine and beer. Vinous fermentation proceeds best at the usual temperature of summer weather. It does not go on either at the freezing or the boiling point of water; the most desirable temperature for it is about 70° Fahr. The process is as follows:—Yeast is added to a moderately weak solution of sugar in pure water; after a time the liquor becomes muddy, begins to move about, and appears to be increased, and on listening attentively a slight bubbling noise is heard to proceed from it; at the same time a number of air bubbles, surrounded by viscous matter, rise to the surface. After a while these disappear, and the viscid matter, or yeast, sinks

to the bottom, and the liquor becomes quiet and clear. It is found to have lost a good deal of its sweetness, and to have acquired a strong taste and a pleasant smell, and it is intoxicating—in fact, it has become wine by the process of vinous fermentation. If the fermentation is allowed to proceed, it will in a little time pass on to another stage—acetous fermentation—in which the wine becomes sour and is turned into vinegar; and from this it may go on to putrefactive fermentation, producing a liquid highly disagreeable in taste and very offensive in smell. The chief art of wine-making consists in the control and management of the fermenting process, which can be increased, moderated, retarded, and checked, whichever is most desirable. The time required for the process varies from two days to three months, according to the nature of the wine to be made. Imperfect fermentation is very frequently caused by the fruit having been gathered after heavy rain, or in cool weather. A proper proportion of the ingredients employed is also essential to successful vinous fermentation. If there is too great a proportion of sugar, the process will be impeded; if there is a very great excess, it will not take place at all. If there is too little sugar, too little spirit will be produced, and the liquor will quickly become sour. The quantity operated upon also affects the activity of the vinous fermentation. If it is found that the fermentation does not proceed as it is expected, the process may be accelerated by the following methods:—Raising the temperature, by moving the vessel containing the liquor near the fire and covering it with a blanket; heating a portion of the juice and adding it to the rest; placing large bottles filled with boiling water in the liquor; adding a little more yeast, remembering to mix it with a small portion of the liquor before stirring it into the remainder. If, on the other hand, fermentation goes on too fast, it may be moderated by reducing the temperature or skimming off the head of the yeast; while very excessive fermentation may be allayed by racking the liquor into a cask which has been fumigated with burning sulphur. The quantity of yeast used to bring on fermentation is a point that calls for the exercise of great judgment. Grape-juice contains in itself sufficient natural ferment, and does not require any yeast; other fruits contain the same property, but in a less degree, and therefore they require the addition of yeast; the quantity, however, varies with the fruit, and with its degree of ripeness. A large quantity of liquid requires less yeast in proportion than a small quantity; thus two ounces will work one gallon, but ten gallons will only need six ounces of ferment. When the vinous fermentation is complete, the fermentation subsides, the head becomes flat, and the wine is made. It now remains to skim the head off carefully, and to draw the wine into clean casks.

Viol. (*See* VIOLIN.)

Violets.—The violet is a hardy and pretty little flower, some species of which will blow nearly all the winter. The Neapolitan varieties are the most delicate, and if required to bloom in winter must be protected by frames. The sweetest of these is the white, which is also the best, as it blooms earlier and longer than any of the others. The violet, like the pansy, requires very careful culture, and does best in



VIOLET.

a moderately rich soil, the upper portion of which should be mixed with cow-manure. The plants ought to be sheltered from too much sun and from cutting winds. They are propagated either by seed or by runners.

Violet Powder.—This name is given to sundry preparations used in the nursery, and for the skin as a face-powder. As commonly sold it is rarely scented with essence of violets, but is a compound of starch and other ingredients variously perfumed or not perfumed at all. One kind is made of powdered starch and orris-root, alone or scented; another consists of starch powder and a little scent. These are harmless, but there have been cases in which so-called violet powders have been found impregnated with arsenic to such a degree as to be fatal to infant life. For all practical purposes a powder consisting of seven ounces of powdered starch and a quarter of an ounce of orris powder will be sufficient. This can be perfumed with a few drops of essence of bergamot and of essence of ambergris. Potato farina, scented with a little ambergris, makes a very good violet powder, and a very safe one. It has been decided that sulphate of lime or terra alba in violet powder is an adulteration.

Violet, To Dye.—Wool is first dyed blue and scarlet in the usual manner. By mixing cochineal with sulphate of indigo, the process of dyeing may be performed at once. Silk has first to be dyed crimson by means of cochineal, and then dipped into the indigo bath. Cotton and linen are first dyed blue, then galled, and dyed by oxide of iron.

Violin.—The viol was an old form of what is now called the violin. It had six strings, with frets, and was played with a bow. The modern violin with four strings was introduced in the sixteenth century. This famous musical instrument consists of a hollow body with a solid wooden neck, at the top of which pegs are arranged, to which cat-gut strings are fastened, and tightened or slackened by their

turning. These strings are passed over a wooden bridge. The chief element in the production of its sweet and varied sounds rests in the resonant quality of the wood employed in connection with the vibrations of the strings and the position of the openings. The most famous makers are those of the past—the Amati, Guarneri, and Stradivari families.

Violoncello. — By this name, which is Italian, musicians usually recognise the large or bass violin, although the name also belongs to a small-scale organ-stop of a crisp tone.

Vipers or Adders, Bite of. (*See* ADDERS, BITE OF.)

Virgin Honey. (*See* HONEY AND HONEY-COMB.)

Virginal.—A keyed musical instrument which was formerly played upon by young ladies, hence its name. In shape the virginal resembled the small pianoforte in modern use; in construction it resembled the spinet. The idea carried out in both spinet and virginal was that of a horizontal harp. One string, a jack, and a quill were provided for each note; these were moved by finger-keys. Queen Elizabeth is said to have been a proficient in the art of playing this instrument.

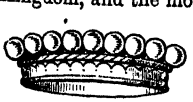
Virginia Creeper. (*See* SUMACH.)

Virtú, Articles of. — This phrase is applied to specimens of ornamental art, such as are collected by the curious and the wealthy for furnishing their cabinets and decorating their dwellings. The term bric-à-brac is employed in a more general sense, and includes many things that may not be examples of fine art, which alone ought to be styled articles of virtú, whatever their form or material.

Virtuoso.—Properly speaking, a virtuoso is a lover of fine art, and differs from a bric-à-brac hunter, as bric-à-brac differs from articles of virtú. The bric-à-brac hunter is a collector of miscellaneous curiosities. The virtuoso confines himself or his admiration to such works as are remarkable for the taste and skill with which they are executed, as paintings, enamels, cameos, intaglios, sculptures, &c., of the best periods and by the best masters.

Visa of Passports.—The authentication of a passport by a foreign authority. (*See* PASSPORT.)

Viscount.—The title of the fourth of the five orders of hereditary peers of the United Kingdom, and the most modern title of peerage in this country. The wife of a viscount bears the title of viscountess; his eldest son holds the rank of a baron, his daughters that of baronesses, and his younger sons that of bannerets. A viscount and a viscountess have each of them special state robes and coronets, the latter adorned or set with sixteen pearls each, and having a tassel of gold.



VISCOUNT'S CORONET.

Visions.—In the Bible this word is applied to supernatural manifestations of different kinds, the exact nature of which it is difficult to explain. Dr. Johnson further defines a vision as a spectre, a phantom; and again, a dream; something shown in a dream. "A dream," he says, "happens to a sleeping, a vision may happen to a waking, man. A dream is supposed natural, a vision miraculous; but they are confounded." The word is also used of the chimerical fancies of imaginative persons.

Visite.—A garment used by women for out-of-door wear, usually made in black silk or cashmere. In form it somewhat resembles a closely-fitting sleeveless jacket, the exception being that in a visite there are no side-pieces under the arm. The visite is held to the waist by a piece of ribbon or elastic, which is fastened underneath at the back and front.

Visiting.—When staying in a house, guests should conform as much as possible to the custom and ways in which the household is conducted; they should be punctual at meals, and be ready to enter into whatever plans or amusements may be proposed by their hosts. Guests should not require to be constantly entertained, and, on the other hand, they should not seclude themselves too often or for a long time from the circle; nor is it polite, when visiting, for the visitors to be entirely occupied with their own concerns, to be continually writing, or constantly immersed in a book.

Visiting Cards. (*See* CARDS OF ADDRESS AND ETIQUETTE.)

Visitors.—The lady of the house should be ready to welcome her visitors, and should do her utmost to make their visit pleasant. It is not considered impolite to leave visitors to themselves during part of the morning hours, for the mistress of a house has many domestic matters which require her attention at that time; but later her absence demands an apology, even should the necessity be imperative. Invitations which do not include visitors should be declined, as it would be rude conduct to go to an entertainment and leave them. If the invitation is for a garden party, an "at home," or any gathering of that description, it is allowable to take a visitor, or to write and ask permission to bring them; but this request should never be made for a dinner or any formal party.

Vital Statistics.—Under this head are included three principal subjects—births, marriages, and deaths. In this country the principal basis for calculations is supplied by the returns of the Registrar-General, or his annual reports. From these it is apparent that the number of births, marriages, and deaths is influenced by the prevailing weather, the cost of food, and the state of trade. By comparing several returns, an average is arrived at, which may, in the circumstances, be regarded as indicating the normal condition of the nation. As regards births, it has been found that in general there were 104 male children born for every 100 female, thus providing for the greater risks of the former. This proportion does not, however, hold good for every separate district. It is found that, as a rule, more children are born in the first half of a year than in the second. The average number of children to a marriage in England is five, three of whom attain a

marriageable age; in France the average from a marriage is three and one-fifth; the upper classes have a lower average than the poorer. Twins are in the proportion of 1 in 81; triplets are 1 in 7,400; and quadruplets, or four at a birth, are 1 in 160,000. Such are examples of the results in the case of births. As regards marriages, the following facts have among others been ascertained:—In every 100 marriages among the peerage the proportions are—

Under 30 years of age . . .	53·08
30 to 45 ,, ,, . . .	33·98
45 to 60 ,, ,, . . .	9·50
60 upwards . . .	3·44

In every 100 marriages among the poor the proportions given are—

Under 30 years of age . . .	85·00
30 to 45 ,, ,, . . .	14·06
45 to 60 ,, ,, . . .	·94
60 upwards . . .	None.

Other calculations show that about 79 per cent. are married in accordance with the rites of the Established Church. Of every 100 men married 13·7 are widowers, and of every 100 women 9 are widows. The returns show how many of those who are married sign the register with their names, and how many by marks, the latter being found to decrease. To 10,000 men who marry under age, there are about 32,000 women under age. Various other calculations might be given, but these will suffice to indicate the sort of results arrived at in connection with this branch of vital statistics, so far as England is concerned. On the other branch of the subject, that of deaths, we give some suggestive details under the heading of LONGEVITY, to which the reader is referred. In addition to what is said there and elsewhere in this volume, the following oft-repeated observations may be introduced. Mortality, or the death-rate, and length of life vary with density of population, place, and climate. Life is longer the better the food, the less the confinement, the more commodious and cleanly the houses. The popular notion that a mild winter is most fatal to life is the reverse of true. Extreme cold and extreme heat alike raise the death-rate of this country.

Vitremanie.—The name of a process which is regarded as an improvement upon diaphanie (*which see*). It is recommended on the score of simplicity and expedition. The designs are coated with glucine, and if applied to the glass with water, the paper can be peeled off in a few minutes, leaving only the coloured picture on the glass. The coat of glucine is given to the coloured print some time before it is wanted, and must not touch the back of the paper. When used, wet the glass; also wet the print on both sides, and roll it down as in diaphanie. Keep the back of the paper wet for a little time, then pick up a corner of it with a needle or a penknife, and gently peel it off. The picture which has been transferred to the glass is now to be washed over with a camel's-hair brush dipped in water, and next to be dried with a sheet of clean blotting-paper, which is to be rolled. In a few hours it can be covered with a coat of the varnish, and is then finished. Further information is given under the heading of DIAPHANIE.

Vitreous Humour. (*See* EYE.)

Vitriol.—Although chemists seldom use the word vitriol, it is still in common use. *Blue vitriol* is the sulphate of copper, *white vitriol* that of zinc, and *green* that of iron. Oil of vitriol, or vitriolic acid, is known in chemistry as sulphuric acid. *Vitriol of Mars* is the red sulphate of iron.

Vittie Vayr. (*See* VETIVERT.)

Vitus's Dance, St.—This is a peculiar nervous affection frequently seen amongst boys and girls, especially the latter, between the ages of nine and fifteen. St. Vitus's dance, or, as it is technically called, chorea, is characterised by certain muscular spasms and twitchings, over which the sufferer appears to have little or no control, and which affect chiefly the head, face, and extremities. The restlessness is most marked, and the want of control over even the simplest movement presents a very odd appearance. The origin of this disease is unknown, but it frequently comes on after a fright. Many writers consider that it is allied to rheumatism; others look upon it as one of the results of some heart affection; a few, with more reason, probably, regard it as due simply to perverted nervous function. No organic lesion has as yet been discovered; the only remarkable symptom is an abnormal density of urine. Formerly it was believed that persons suffering from St. Vitus's dance were possessed of a devil, to exorcise which saints were invoked (the favourite saint was St. Vitus, hence the name), and prayers and masses were in much request. The result was often a cure, owing to the imagination of the patient being highly exercised, and a powerful moral impression thereby produced. The treatment of this disease consists in the removal, first of all, of such sources of eccentric irritation, as worms, constipation, &c., by judicious use of aperients, &c., and then in strict attention to the general health. Mineral tonics, especially iron, sulphate of zinc (from half a grain to a grain in a pill three times a day), nitrate of silver, Indian hemp, spirits of nitre in camphor mixture, and the cold, plunge, or shower-bath, are the remedies which find the greatest favour in the treatment of St. Vitus's dance.

Vivâ Voce.—A Latin phrase for a verbal communication or spoken utterance; something imparted by word of mouth.

Vivisection.—A term applied to the practice of making experiments for scientific purposes upon living animals. The process may be described generally as the laying open of certain portions of the animals operated upon, in order to observe the action of various organs, the effect of particular kinds of wounds, diseases, poisons, remedies, &c. It is maintained that this course is useful, or even necessary, for the proper solution of many problems in physiological and medical science, and that the knowledge thus acquired may be beneficially applied to the effectual treatment of many human ailments. Hence, it is said,

by the suffering of the brute creation the sufferings of humanity are alleviated. On the other hand, it is believed that these experiments are often due to morbid curiosity, are productive of few advantages which cannot be realised in a more merciful manner, and, in fact, ought to be condemned on the ground of cruelty. They have, therefore, been strongly opposed by the popular voice, and have been much restricted by an Act of Parliament. Whatever may be the defence in some of the cases alleged, it may positively be asserted that the gain to science is in some instances valueless, and that experimenters have often laid themselves open to the charge of wanton cruelty.

Voice.—This is caused by the vocal cords of the larynx being thrown into vibrations by currents of air from the lungs passing over them. That voice occurs for the most part during expiration only, and but very slightly indeed during inspiration, is proved by the fact that if an opening is made in the trachea —as, for example, in tracheotomy—the voice is lost; whilst, on the other hand, a great deal of mischief, by disease or otherwise, may take place above the situation of the vocal cords without very much impairment of voice. The variations of voice are entirely due to the tension or relaxation of the vocal cords. The deep notes or tones are produced when the cords are relaxed and the epiglottis depressed, the tongue being usually retracted and the chin drawn downwards and backwards for that purpose. The middle tones, which are those most used in conversation, are produced when the cords are neither stretched nor relaxed. The high tones occur when the cords are most tense and the space between them of the smallest. It is well known that there is a marked difference, amounting to as much as an octave, between the male and female voice, and that in the case of boys, though there is a resemblance to the female voice, it is not quite the same; the difference being due probably to a greater length of the vocal cords and a more roomy larynx, which permit of greater resonance. The male voice, as applied to singing, is of three kinds—viz., the bass, which represents a capacity for taking low notes; the baritone, which is neither high nor low; and the tenor, which can reach very high notes. The female voice is similarly divided into contralto for the low notes, mezzo-soprano for the middle, and soprano for the high notes. The voice of boys is usually divided into soprano and alto, the former representing the higher notes. The difference of quality in the voice is due, in all probability, to a variety of circumstances—as, for example, certain peculiarities in the arrangement of the cartilages and membranes, and in the shape of the laryngeal cavity, &c. The cracked voice of the boy is due to a change of development which takes place in the larynx at puberty. The unsteady, deficient voice of old people results from the cartilages of the larynx becoming ossified, from change in the vocal cords, and from loss of nervous power and muscular energy. The condition known as *dysphonia clericorum*, or difficulty of voice peculiar to clergymen, will be found described under the heading of CLERGYMAN'S SORE THROAT. For information respecting complete loss of voice, *see* APHONIA.

Voiding Knife.—A large knife formerly used for clearing a table of crumbs and scraps after a meal, as a table-cloth may now be cleared by means of an appropriate brush.

Volatile Oils, Salts, and Spirits.—Some information respecting the first-named will be found under the heading of ESSENTIAL OR ETHEREAL OILS; and *volatile salts*, or common smelling salts, are referred to under the heading of SMELLING SALTS. Many kinds of *spirits* are *volatile*, or disposed to disappear rapidly in the form of an invisible vapour when exposed to the air. Such are pyroacetic spirit, pyroligneous or wood spirit, and others obtained by chemical processes. Besides these are spirits of ammonia in different forms, all being combinations of ammonia and rectified spirit, and some of them perfumed, as the spirit of sal volatile. Spirit of ether and spirit of hartshorn, with their varieties, belong to the same class. A great many more might be mentioned, but most of them come under the description of rectified spirit impregnated with medicinal or odoriferous ingredients. Their uses are manifold, especially in medicine and cosmetics, but some of them are taken as cordials. Some of the mineral oils used for lighting purposes have, when badly prepared, been fatal to many. Sellers and buyers should, therefore, be most careful in regard to the quality of oils and spirits used for any purpose where danger may arise from rapid combustion, or ready ignition.

Volunteers.—In all times of warfare England has never lacked a large proportion of patriotic supporters whose services have been voluntarily offered to fight her battles, but it was not until 1793-4 that a distinct body of unpaid soldiers was formally enrolled as part of the national military and naval forces. This was done to meet the then threatening danger of a French invasion. Between 1798 and 1804 the volunteers numbered 410,000 men, of whom 70,000 were Irish. The first regiment of volunteers established in Ireland was that of which the Duke of Leinster had the command, which was established in October, 1779; so that Ireland may claim the honour of having made the earlier display in this form of warlike sport and unselfish patriotism. In October, 1803, 12,401 volunteers were reviewed by George I. in Hyde Park; and a few days after, at a second review, another force, 14,676 strong, was reviewed in the same place. In January, 1804, an official statement described the volunteers as in number 341,600. In May, 1859, the volunteer movement was revived, and again from fear of a French invasion. The National Volunteer Association for promoting the practice of rifle-shooting was established under royal patronage in November, 1859, and its first annual meeting for prize-shooting took place in July, 1860. In June, 1860, Queen Victoria reviewed in Hyde Park a volunteer force of about 18,450 men. In the August of that year her Majesty reviewed about 20,000 volunteers at Edinburgh, and in the following

month a Lancashire force of 10,000 was reviewed by the Earl of Derby at Knowsley. In 1861 the British volunteers were 160,000 strong; in 1864 the number was 165,000; and in 1866 the estimate was 135,000 infantry, 27,000 artillery, and 4,000 engineers. An Act to consolidate and amend the Acts relating to the volunteer army was passed in July, 1863; and in June, 1867, a parliamentary vote of £361,000 was awarded for the encouragement of the volunteer movement.

Vomiting.—This is a reversed action of the stomach, owing to which the contents of that organ are propelled upwards instead of downwards. The act is assisted by the muscles of the abdomen as well. Vomiting is a symptom present in a great variety of disorders and diseases, as diarrhœa, biliousness, cancer of the stomach, ulcer, &c. When it arises from simple irritation of the stomach, it is most quickly relieved by the administration of ice or iced soda-water, to which a little brandy may be added in certain cases, and three or four drops of dilute hydrocyanic acid. A mustard poultice or leaf to the pit of the stomach will often be of service. When due to some unwholesome matter which has been taken into the stomach, the vomiting must be assisted by an emetic of warm water or mustard-and-water, which should be followed by some purgative; but it must always be remembered that whatever is given in the way of food, drink, or medicine, must be in small quantities at a time.

Votes and Voting.—A vote is the expression of a wish respecting the decision of something in which a number of persons are interested. It may be given in a variety of ways—*e.g.*, with all who are in favour of a certain proposition to say "Aye," and all who are against it to say "No," when the decision rests with the president. Instead of speaking, one hand may be held up, the determination depending on the numbers. Other modes are by means of strips of paper, or by balls of different colours, which are collected and counted. In many cases the voter must vote in his own person, but sometimes proxies or substitutes are allowed. Usually no person has more than one vote on a question, but sometimes a chairman has two, and others have as many votes as, by special arrangement, are allowed where a money qualification is permitted.

Vulcanite. — Vulcanite is india-rubber impregnated with sulphur. It retains its elasticity at a much lower temperature than ordinary india-rubber does, and when prepared in a special way receives a degree of hardness resembling that of horn. It may be safely submitted to a very high temperature, and it is found useful in the manufacture of taps, screws, surgical instruments, railway buffers and sleepers, door-springs, noiseless tires for wheels, tubing, bottles and other vessels, inkstands, blind-racks, lock-springs, and a large number of other useful or ornamental articles.

Vulgarity. — Generally speaking, this is the absence of refinement, good taste, and politeness, and is conspicuous in coarseness, breaches of etiquette, and indifference to conventional proprieties. There may be vulgarity of speech, as when grammar and pronunciation are improper, and the words employed are coarse and low. There is vulgarity of address, when one has a clownish look, and carries himself in a plebeian and boorish way. There is vulgarity of manners where a man demeans himself in company as one who is uncultivated, and indifferent to or ignorant of the manifold graces of good behaviour which constitute the gentleman. Vulgarity in dress and ornament is seen in those whose apparel, &c., are not in good taste, but flaunting, tawdry, ill-adjusted, badly selected, and the like. There is a vulgarity of habit which shows itself in a preference for low pursuits and recreations, and in many other ways. In all cases the avoidance of vulgarity should be inculcated as a duty on the young, and should be studied by all who respect themselves, and wish for the favour and respect of others.

W

Waddings.—These are of cotton-wool, a layer of which is placed between the outer material and the lining to give additional substance or warmth. Fleeces of black and white wadding are prepared for this use; they should be chosen with regard to the colour of the garment being dark or light. When large sheets of wadding are used it is necessary to attach them to the linings throughout, otherwise the wadding is apt to get matted together and form lumps. Quilting (*which see*) is then employed. Wadding looks much softer when the thin fleece which covers the wool is taken away.

Wafers.—This name, from the Dutch word *wafel*, was originally given to thin cakes made for the table. Similar descriptions of biscuits are now eaten with ices, and also appear on dessert dishes. The bread given in the Eucharist of the Roman Catholic Church is known as wafers. The idea is that no leaven should be in the bread which represents the body of our Lord, and therefore wafers made of flour moistened with water are prepared for the Holy Feast. Wafers of a different kind to those before mentioned were universally employed for fastening letters some thirty years ago; at that period adhesive envelopes had not been introduced, and the use of sealing-wax was a slow process. These wafers were a composition of flour, isinglass, and yeast. After being coloured, a very thin layer of the mixture was spread on tin plates, dried in a stove, and then cut into wafers. A wafer was moistened and put under the lap of the envelope or fold of paper, which on being pressed down was held fast by the adhesive properties of the wafer. They are now seldom used.

Wagering. (*See* Betting.)

Wages. (*See* Servants' Wages.)

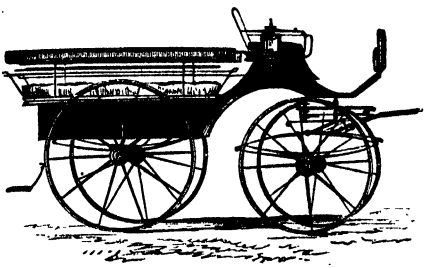
Wages, Board. (*See* Servants' Wages.)

Waggon, or Wagon, is a heavy four-wheeled vehicle used for the conveyance of

goods, &c., sometimes drawn by one, but more frequently by two or more horses. Waggons are usually set on springs, and the fore-wheels are generally made smaller than the hind ones, in order to permit of their turning easily, the springs being introduced, not, as is often incorrectly stated, on account of their weight, but to ease the draught.

Waggon, Table. (*See* DINNER WAGGON.)

Waggonette.—This is a species of vehicle, originally introduced by a maker in Scotland, which first became fashionable at the Exhibition of 1862. Since then waggonettes have been



WAGGONETTE.

made of all sizes and patterns, from carrying two behind and two in front to ten behind and six in front. One of the most common forms is that which is shown in the illustration. Waggonettes are a most convenient kind of carriage.

Wagon. (*See* WAGGON.)

Wainscot.—The old fashion of lining the interior walls of rooms with decorative woodwork, which preceded the introduction of paper-hangings, has of late years been reintroduced. At one time the walls were wainscoted from floor to ceiling, but after the introduction of paper-hangings they were wainscoted to the height of about two or three feet. Before wainscoting is fixed the walls must be thoroughly dry, or it will warp and split. To avoid this the space between the wall and the wainscoting is sometimes packed with wool and charcoal, but the better plan is to prime the inner surface of the woodwork with white-lead.

Waistbands.—When required for petticoats, a broad band is folded double; this must be the straight way and the selvage way of the material. If the band is to be drawn up, it must be run twice, each line of stitches an inch apart, and extending round the back, but not across the front of the band. Within these casings tape is inserted; one end of each is fastened at the end of each casing, and the other ends are brought out close to the centre of the back. If the tapes are put to cross each other they will, when pulled, draw up the band without difficulty. A band of this description is made pointed in front, by having a piece cut away, and the band joined together again in a slanting direction When a waistband is shaped it must be lined with material cut on the same plan. Narrow bands are more convenient than wide ones, as the latter are apt to crease in folds. The waistbands of dress-skirts are usually made of Petersham (*which see*). When cutting bands it is necessary to remember that in all cases they should be wider than the waist, in order that when necessary they may be drawn up or wrapped over.

Waistcoats are usually made without sleeves, and are worn under a coat. The form and material of which they are composed vary respectively with the age, position, or fancy of the wearer, or with the season and the occasion on which they are worn. Those for Court-dress are long, reaching to the hips, and are decorated with gold lace. For ordinary wear they may be single or double breasted, may have an upright or turn-down collar, and may be made of every description of material—of silk, wool, flax, cotton, leather, or fur. They are generally supplied with three pockets, one on each side of the waist in the front parts, and one on the right or left breast to contain the watch if desired. The back of the waistcoat is never made of the same material as the front; for that part linen or cotton is supposed to be sufficiently good. Two small straps are attached to it, sewn on either side, supplied respectively with a buckle and eyelet-holes, by which means the part round the waist may be drawn closely to the figure, so as to fit the better in front. When made of a woven material these garments are known by the name of vests.

Waiters, Dumb. (*See* DUMB WAITERS.)

Waiters (Servants).—In houses where women servants only are employed, the duty of waiting at table usually devolves upon the housemaid, unless, of course, a waiting-maid is also kept. In establishments where men are included in the staff of domestics, the waiting at table is performed by the butler or footman. Whether, however, a man or woman be deputed to do the work, so much comfort depends on its right performance that none but those who possess a thorough knowledge of the art can be termed good waiters. For professional waiters, and in many houses, men are chosen rather than women on account of the greater suitability of their dress, though women can, by wearing tight sleeves and short dresses, make themselves equally able to move about with agility, and they need be no cause of annoyance to those upon whom they wait. For parties or special occasions professional waiters may be hired.

Waiters (Trays).—The small trays used by waiters are appropriately named in honour of their users. Waiters are made in tin, papier-maché, electro, and silver. When made of the two last-named metals, however, they are designated salvers.

Waiting at Table.—The duty of waiting at table can only be performed successfully by those who possess, in addition to a thorough knowledge of the art, the qualities of dexterity, rapidity, and quietness. Without being obtrusive the waiter should be attentive to all, carefully anticipating the various wants of the company, so that no one will need to ask for

anything, or will be left long unsupplied with what is necessary. The waiter's place is on the left-hand side of the carver, from whom each plate should be taken and given at the left-hand side of the person for whom it is meant. In handing the vegetables the tureen should be held, if possible, close to the plate—a rule to be observed also in handing sauce, so as to avoid the annoyance caused by particles dropping on the cloth or the floor; and whatever is handed must be taken to the left side of the person who requires it, and held also, so that it may be taken with ease. The vegetable tureen, which is generally, or ought to be, quite hot, is best placed on the palm of the hand upon a napkin. When sugar, jellies, creams, or other sweets are offered, they should be put upon a salver or waiter, and when a plate is empty it should be removed and exchanged for a clean one. The usual method of serving cheese is to hand to each person a plate containing a few cut pieces, one of which may be taken or not as agreeable. No wine is put upon the table, so that it is the waiter's duty to fill the glasses with appropriate wine for each course; in doing this he will have to go to the right side instead of the left, as in other cases. When more bread is required, a few small pieces may be handed on a plate. Salt is generally liberally distributed all over the table; pepper and other condiments are handed on a waiter. In clearing the table the waiter should go to the right side of each one, filling his tray first with glass, then with the remainder of the articles, carefully emptying it each time it is full, without attempting to put too many things on it at once. On no account, either, must the tray be placed upon the table. As soon as the dessert is arranged, the attendance of the waiter is for the time dispensed with.

Waits.—In our old language the word wait meant a watchman. In former days there were musical watchmen, or minstrels, in large towns, whose employment was that of keeping the watch and sounding the hours of the night in musical tones. In modern days this olden custom is represented by itinerant musicians who proclaim the approach of Christmas by playing instruments in the streets during the hours of darkness. In some cities waits are still to be heard during the season of Advent, when bands of musicians play tunes, such as that known as the Advent hymn, and others characteristic of the approaching season, between the hour of midnight and four o'clock.

Walking Dress.—A costume distinguished from evening dress in having, whether actually or not, a semblance of covering and concealing the person to a greater degree than would be necessary within doors at night, and from a morning dress, such as worn at breakfast, either at home or out of doors till midday, in being more dressy-looking, and suitable for paying visits of an afternoon. A so-called walking dress has but a short train, if any, and is generally supplied with some extra covering, such as a jacket or cape, to add to its warmth, or else with an appearance supplying the place of such an extra, in the form of trimmings, should the weather be too warm to require an addition to the bodice itself. A walking dress may be of any material, composed of silk, satin, velvet, wool, mohair, or muslin, or any combinations of the foregoing; linens and calicoes alone being unsuitable for the purpose, as walking dresses are designed for afternoon wear. They are supplied with buttons and loops, strings, or hooks and eyes, by which to fasten them up at the back of the skirt, and preserve them from being soiled by contact with the road. The style in the make and the colour of the material must depend on the current fashion, and the age and condition of the wearer.

Walking Exercise.—Walking is one of the safest, readiest, and most pleasant means of taking exercise. A sharp brisk walk is of especial value to all engaged in sedentary occupations, as it will send the blood coursing through the body, making the face ruddy with a healthy glow, and "clearing the cobwebs from the brain." Walking may be safely indulged in by all except those in a very weak state of health. Excessive exertion, however, even in this form of exercise, is injurious, and very long and rapid walks should not be attempted.

Walking-sticks have for years past been considered fashionable in this country, they being rarely used as supports except in the cases of aged or infirm people. They are made out of oak, maple, thorn, crab, hazel, dogwood, holly, and ash, grown in England; from the orange and lemon trees, from myrtle, olive, mulberry, and pimento woods, and also from malacca, dragon, rattan, bamboo, and whanghee canes. They are manufactured in Great Britain in very large numbers. Walking-sticks are first noticed as being used by young men of fashion in this country about the middle of the seventeenth century, when they were formed with an indented head in order to afford a more easy pressure of the hand which they supported. This was afterwards altered for a round hollow top, which sometimes contained nutmeg or ginger for the valetudinarian. When snuff came into general use the cavity was exclusively appropriated to its reception, and the meeting of two friends was invariably followed, after the first salutation, by the unscrewing of the tops of their walking-sticks, and the offering to each other of their contents.

Wall-eye.—This name is popularly given to a peculiar condition of the eye, and one in which the iris is almost destitute of colour, or is of a bluish-white appearance. It is most common in the case of the horse, but is not confined to that animal. There is no known remedy for this ailment. Glaucoma, to which the name is sometimes applied, is really a different affection. In some parts a person is said to be wall-eyed when the white of the eye is distorted and large on one side.

Wall-flower.—This common garden favourite is called by botanists the *Cheiranthus Cheiri*, and there are many beautiful varieties well worth the trouble of cultivating. The single kinds are generally propagated as annuals, a sowing being made about July or

August, and the plants when ready placed in the position they are meant to remain in. The double varieties are somewhat more tender, and during the severe cold of winter are better to be protected by a mat, or placed in a frame.



WALL-FLOWER.

The cuttings ought to be taken in August, and for a time placed under a hand-glass, and as soon as rooted put in a sandy loam or leafy mould. In spring they ought to be planted in open border, where they will flourish well and luxuriantly.

Wall-flowers (in Society).—In fashionable society the term wall-flowers is often applied to ladies at a ball when they do not find partners to dance with. An authority on the subject of etiquette says:—"The genus wall-flower is one that grows well in every ball-room; but a young lady, however plain, however stupid, can, if she dances well, always have some partners. The well-bred and amiable man will sacrifice himself to those plain, ill-dressed, dull-looking beings who cling to the wall unsought and despairing. After all, he will not regret his good nature. The spirits reviving at the unexpected invitation, the wall-flower will pour out her best conversation, will dance her best, and will show him her gratitude in some way or other. So, too, an amiable girl will do her best to find partners for her wall-flower friends, even at the risk of sitting out herself."

Wall-fruit.—Although it is possible to cultivate much of our English fruit on what are called standard trees, there are instances when it is more advantageous and even necessary to cultivate it under wall protection. There are some fruit-trees, especially the more delicate kinds, such as nectarines, apricots, and others, that are not strong enough to be exposed alike to the heat and the inclemency of the weather, and for these the aid of the wall is required; but whenever fruit can be obtained in an open border, it will be found superior both in flavour and form to that grown on the wall. In comparison with the standard fruit, wall-fruit is artificial in its growth. It has to be kept in a certain form by judicious pruning, and not unfrequently the pruning is carried to such an excess as to reduce the vigour of the plant and injure the quality of the fruit. No particular rule can be laid down as to what trees may or may not be walled; so much depends on the soil, the climate, and other circumstances, that the only guides in the matter must be the judgment and experience of the gardener. Where walls are not provided, fences and hedges are frequently made to act as substitutes, so that there need not be many gardens, however bleak and barren, where one or two varieties of fruit may not be cultivated. The apple, which is among the hardiest of our fruits, may be reared either as an espalier, as a wall-fruit, or as a standard. Nectarines and peaches usually require brick walls and substantial borders; indeed, it is not advisable to attempt to rear them as standards. South and west walls are the best, and during the intense heat of the summer the fruit should be shaded. The pear and plum in some respects resemble each other; they require a similar soil, and though many varieties of each are grown as wall-fruit, there are also among them some noble standard trees. Currant and gooseberry trees may be walled or not, as may be considered most advisable.

Wall-papers.—Upon the choice of a wall-paper the comfort, artistic effect, and sentiment of a room are all to a considerable extent dependent. Wall-papers should be flat and conventional in design; nothing can be in worse taste than the floating bouquets, and the clumsy imitations of flowers, fruit, and foliage, birds, butterflies, &c., which were once fashionable on the decorative paper-hangings of some twenty or thirty years since, and are unfortunately still to be seen in the windows of paper-hangers and house-decorators. No attempt should be made to render a wall unlike a wall, by converting it into open trellis-work, or green leaves, and flowers, or blue sky, and birds. Ornamental it may be, and should be, but the ornament should be consistent with, not contradictory to the purpose a wall is intended to serve, and the sentiment or feeling properly belonging to it. Wall-papers are made of a coarse cheap material, upon which a design is executed either by stencilling, or, as is more common, by printing, although some of the more costly are done by hand. The engraved blocks are composed of pear-tree and pine, the former being used for the face upon which the pattern stands up in relief. Each is the width of the paper employed, and the colours are distemper, being mixed with size, to which a little starch is sometimes added. The ground colour upon which the pattern is printed is applied with a brush, rotating by machinery, and each colour on the design afterwards printed necessitates new blocks and fresh printing. To produce what is called *flock paper*, a layer of ground wool

is sifted upon paper previously made adhesive by a coating of linseed oil, litharge, and white-lead mixed to form a species of varnish. Gold leaf and metallic powders are frequently applied to paper-hangings, by printing on a pattern in gold size. *Satin* wall-papers are made with a coat of finely-powdered plaster of Paris, over which French chalk is applied, and burnished by rubbing with a brush specially made for the purpose.

Wall-papers, To Clean. (*See* PAPER HANGINGS, TO CLEAN.)

Wall-papers, To Remove.—The simplest and most efficacious way of removing wall-papers is to saturate them well with water. When they are thoroughly soaked, they can be stripped off with ease. It is a common practice amongst house-decorators and wall-paperers to hang a paper on the top of an old one, and not unfrequently on the top of several old ones, which system cannot be too strongly deprecated, as it is most unhealthy and dirty, the old papers affording a refuge for vermin and dirt in a way that renders it difficult, if not impossible, to deal with either for their removal.

Wall-papers, To Varnish.—To varnish a wall-paper a preparatory coating of size is required, after which the ordinary white hard varnish (*see* VARNISH) should be applied. An even coating of paraffin applied hot is sometimes used for varnishing wall-paper, the effect of which is by many preferred to that of ordinary varnish.

Wallets.—These are, strictly speaking, small bags for travellers, and are used for containing such things as may be required on a journey. The term is sometimes applied to the bags carried by beggars and pedlars, and also to small bags used as purses for containing money. Occasionally knapsacks and portmanteaus are called wallets.

Walls, Damp. (*See* DAMP WALLS.)

Walnuts.—The walnut (*Juglans regia*) is a fruit foreign to England, for although in our country the tree thrives, the fruit ripens only in the very warmest districts. The date of its introduction into Europe is unknown, though undoubtedly it was cultivated by the Romans in the reign of Tiberius, so that it appears to have been known in Italy before any other country in Europe. Among our dessert nuts the walnut is certainly one of the finest, and by many is preferred to any other; the flavour is rich, sweet, and juicy. In the south of Europe it forms an important article of diet, new walnuts being there considered both wholesome and nutritious. The tree is lofty, the foliage not being unlike that of the ash. When bruised, the leaves of some of the trees emit a delicious odour, and the leaves rubbed on the skin are efficacious as a cure for skin diseases. Among the wine districts of France, walnuts grow in greater abundance than in any other part of Europe, and the French think no nut surpasses them; at the same time they do not, as we do, appreciate the nut in its pickled state. In England the unripe fruit pickled is one of our most esteemed condiments, and also one of the most simple. Walnuts with a very thin shell are considered the best. The oil obtained from walnuts has long been known and valued, perhaps even more so formerly than it is now. It is used by painters, and on the Continent it is not unfrequently employed as a substitute for olive oil in cooking, although it has the disadvantage of very soon becoming rancid. The substance that is left after the oil has been extracted is in Switzerland eaten by the peasants, and is called *pain amer;* in other walnut districts it is given to poultry and cattle. Soap is also made from the oil, and the brown dye extracted from the husks and leaves is used for staining hair, wool, and wood. Medicinally it used to be considered good for worms, hydrophobia, and as an antidote to poison. The influence of the tree on the vegetation around it is peculiar. If cultivated near strawberry roots, the walnut will kill them; at the same time it is thought to be beneficial to certain field crops. Walnut timber is very valuable, and is used extensively by cabinet-makers, who prize the old trees most, on account of their richness of colour, and also because they are veined and shaded with greater beauty than the young trees. It is said that the tree thrives better when the fruit is beaten off instead of being gathered.

Walnut-wood.—The wood of a tree (*Juglans regia*) highly esteemed for furniture and cabinet-work. The wood is procurable of large size; its colour is grey, with brown or black blotches and streaks, which darken towards the centre of the tree. Walnut is easily worked, and is susceptible of a high polish. It is largely used in the manufacture of gun-stocks, for which it is admirably suited, owing to its light weight and durability.

Waltz.—This is a round dance which is the chief favourite of the ball-room; it is a German national dance, and was originated in Swabia. The music is in triple time, and there are three crotchets in a bar. In this, as in all couple dances, the gentleman places his right hand on the lady's waist; the hand should form a support to, but not grasp the waist. The lady places her left hand on the gentleman's shoulder; her head should be opposite to her left hand, and her partner should face her right shoulder. The gentleman takes the lady's right hand in his left hand, and holds it according to fancy; some raise it to a level with the shoulders, others keep them the height of the waist in an extended position, while some adopt the objectionable practice of holding them on the hip. There are various kinds of waltzes. The original waltz, called the *valse à trois temps*, is slower and more graceful than the more modern introductions. It is composed of three steps half round, and three steps for the other half round; this occupies two bars of the music. The gentleman begins with the left foot, takes one step to the left and two steps backward in turning one half round; he then begins with the right foot three steps forward in turning the other half round. The lady follows the same order, with the exception that she begins with the reverse foot each time. The *valse à deux temps* is executed in quicker movements; this made its first

appearance at the court of Vienna about thirty years ago. It occupies three intervals, like the former waltz, but these are otherwise divided. The gentleman slides the right foot forward, brings the left foot up to the third position behind the right, and completes the step by sliding the right foot again forward. The same order of steps is followed, which is next commenced by the left foot. The knees should be kept slightly bent, and the feet should always slide along the floor. When this waltz is danced *à rebours*, or the contrary way, the steps are begun by the left foot; the execution of the backward movement is difficult, but it adds a pleasing variety to the waltz. *La sauteuse*, or hop waltz, is very similar to the *valse à deux temps*. It is danced by hopping the steps; two hops are made to each step. If the hops are made smoothly, and not in a jerky fashion, and the couples manage to turn round while making them, this waltz has a pretty effect, and is an agreeable dance.

Wands.—Usually a slender stick or rod; a staff of authority. At the annual "beating the bounds" of some parishes, school children are provided with long willow wands, with which they beat certain places on their march. Persons appointed to occupy some official position are occasionally provided with wands—as vergers, and those who marshal a procession. In old times the rod or staff held by a conjurer or diviner was called his wand. Other applications of the word occur, such as are indicated under the heading of STAFF.

Ward.—The state of a child under guardianship. A ward of court is an infant under the protection of the Court of Chancery (now the Chancery Division of the High Court of Justice). The word also signifies a division of a city, town, parish, or borough.

Warden.—In the universities, a warden is the head of a college, answering to the master or president of a college. At Oxford and Cambridge the heads of colleges have not all the same title. Thus, at Oxford the title is "Master" at University, Balliol and Pembroke Colleges; "Warden" at Merton, New College, All Souls', Wadham, and Keble; "Rector" at Exeter and Lincoln; "Provost" at Oriel, Queen's, and Worcester; "President" at Magdalen, Corpus Christi, Trinity, and St. John's; "Principal" at Brasenose, Jesus, and Hertford; and "Dean" at Christ Church. The Warden or Lord Warden of the Cinque Ports is an officer who has the jurisdiction of the Cinque Ports.

Warden Pear.—A species of pear used for baking and roasting.

Warden Pie.—The dish known by this name is rather of ancient date, and made of the warden pear. In the familiar song called "The Friar of Orders Grey" it is referred to:—

> "Myself with denial I mortify
> With a dainty bit of a warden pie."

Wardian Cases. — The name of a contrivance invented by a Mr. Ward for the protection of ferns, mosses, and other delicate plants. They were originally quite portable, but now appear in all possible forms and sizes. Essentially they consist of a lower portion containing soil for the plants, and of a glass enclosure which excludes dust, wind, &c., and prevents the escape of moisture. The glazed enclosure is open to the light on all sides and on the top, and is sometimes movable; at other times it can be opened without lifting it. The common square or oblong form is a good one.

Wardrobes.—These may be divided into three classes—those which are best fitted for the use of ladies, those adapted for the use of gentlemen, and those for the nursery. There are different kinds in the first-mentioned department. Some have two wings, which form closets for dresses, the two being connected by a set of drawers; others have three compartments, one of which is fitted with shelves. The various ideas of convenience are provided for in these and other ways. The closets and cupboards in wardrobes which are intended to hold dresses and bonnets should be lined with chintz or glazed holland. A panel of glass let in one of the doors serves in lieu of a cheval glass, which is always an inconvenient piece of furniture. The gentleman's wardrobe is usually composed of a set of drawers, on the top of which are a set of shelves enclosed by a couple of doors. The nursery wardrobe consists of shelves arranged in different degrees of depth, shut in by doors. Wardrobes should match the other furniture in the room; they are expensive articles of furniture, and require to be well made, for if the workmanship is inferior they are a source of discomfort because the several parts are continually getting out of order.

Wardrobes, Care of.—The word wardrobe is applied to all garments worn by persons, and the care of the wardrobe is the supervision which should be regularly and carefully exercised more especially over those belonging to children. At the approach of each season all outer garments should be carefully inspected, alterations and enlargements where advisable and necessary should be made; here a portion of shabby trimming can be taken away, there a little additional piece put on to improve appearance or hide disfigurement; the sleeves of jacket or dress can be improved or lengthened by a new cuff skilfully put on, collars and cuffs can be re-lined, linings and braids renewed—all these and other small etcetera are comprehended in the care of the wardrobe. Under-clothing requires more constant supervision; it should be looked over every time it comes back from the laundry; tapes and buttons should be replaced when necessary; button-holes re-done before the edges are broken; darns made before a hole or rent is visible; hems bound or neatly turned-in and seamed when on the eve of becoming ragged. The care of the wardrobe also includes attention to the list of articles, that none of them are lost, that the sets are complete, and that all of them are marked with the owner's name. (*See also preceding paragraph.*)

Warehousing Goods is a system sanctioned by Act of Parliament, whereby importers

of goods amenable to the Custom House are relieved from paying the duty upon the articles until such time as they may be wanted for consumption, they being placed meanwhile in a Government warehouse, or, as it is termed in mercantile phraseology, "in bond." Rent is charged for this accommodation, and a certificate given of the goods thus lodged, which document is considered in the commercial world as good as actual possession of the commodities it represents. In some trades unconnected with the excise a somewhat similar custom exists, whereby the merchant or seller accommodates the purchaser by taking charge of goods sold when they are not required for immediate use, or when, as is often the case, they are bought simply for speculation, and the buyer has no suitable storage room. In the seed trade, for instance, it is a common custom, rent being charged from fourteen days after the date of purchase. Hops also are bought and sold on similar conditions, the warehouses of hop-merchants being specially adapted for keeping these perishable articles in a proper state of preservation. The practice of warehousing furniture is one that has much increased of late years, and is a great accommodation to persons going abroad for a short time, and who do not want their furniture deteriorated by letting their houses furnished. There are many establishments in various parts of London for the reception of this class of property, termed "furniture depositories," erected specially for this purpose. Such premises are, generally speaking, dry, light, and well ventilated, and being of an extensive character, are so constructed as to avoid the property deposited being placed at an extremely high or low elevation, which is a very great advantage, the risk of breaking or damage in packing and unpacking being thereby considerably lessened.

Warm Baths. (*See* BATHS AND BATHING.)

Warmers for Plates, Spoons, &c. (*See* PLATE-WARMERS; SPOON-WARMERS.)

Warming-pans. (*See* PANS, WARMING.)

Warming Rooms.—In England, where the climate is so variable, the heating of rooms is a subject of the greatest importance; and those who study health and domestic comfort would do well to give this matter more than ordinary attention, the difficulty being to combine warmth with pure air. The most ordinary systems of producing artificial heat are by means of fire-grates and stoves, particulars of which are given under their respective headings. The difficulty of properly warming rooms does not consist so much in producing a requisite amount of heat, as in its distribution; and it is, therefore, necessary that apartments should be constructed with a view of preventing the escape of the heat obtained, and at the same time affording some other and proper means of ventilation. All walls, floors, doors, windows, &c., should be made as air-tight as possible, which prevents the heat from escaping by draughts, and renders them non-conductors. To ensure a wall being warm in its nature, it should be sufficiently thick and double, which, to a certain extent, every wall is when the laths are kept from the wall itself by a coating of plaster. Particular care is essential with regard to windows, for besides admitting draughts, owing to their usually imperfect condition, they allow the heat to pass by conduction through the glass. Hence in Russia and other cold climates the plan of double windows is adopted, these consisting either of double frames or double panes in the same frame, the cooling effect of glass being so great that it is computed that a square foot of glass will generally cool about 1·3 cubic feet of air per minute from the mean temperature of the room to that of the external air, and the cooling effect of metal or corrugated iron is nearly the same. Taking these facts into consideration, the rule which is generally adopted for maintaining the warmth of a room at a genial temperature of from 60° to 65° is that the supply in cubic feet of warm air at this temperature should be equal to four times the number of people the room is intended to contain, added to eleven times the number of external doors and windows, added to 1·3 times the area of the exposed glass. If the windows are double the radiations may be neglected, and if they are light there is no necessity to multiply them by eleven, for in these cases the provision or supply is simply for ventilation. One of the earliest known methods of warming rooms was a system of flues for hot air running beneath the flooring, and conveying the smoke and hot air from a furnace outside the room; and the modern inventions on this plan have many advantages, but they require special attention and are not always under control, added to which there is the danger of the soot firing in the flues and so becoming unmanageable, and, above all, they cannot be made the means of constant ventilation. A more modern invention consists of a closed pipe conveying steam or hot water, the effects of which are much more genial than those produced by a higher temperature; but the apparatus is expensive, and, in the case of steam, it requires constant attention. This system is, however, mostly in vogue in large public buildings, where it is found of great advantage. The hot-water apparatus in its simplest form is on the principle of a siphon. It consists of a long pipe coiled about the rooms to be heated, and having two legs of unequal length passing down into an open kitchen boiler; the short leg dips just under the surface of the water, and the long leg passes to the bottom of the boiler. As the water becomes hot, it rises in the short leg and circulates to the coils in the upper level, where it parts with its heat, and then descends in the long leg to the boiler.

Warp and Woof.—Warp is a word employed to designate the long threads of spun cotton or other yarn arranged for weaving, which are always harder and more closely twisted than others are for the weft or woof.

Warrants.—A warrant is a precept under hand and seal to some officer to bring any offender before the person granting the same, and warrants of commitment are issued by the Privy Council, a Secretary of State, or justice of the peace, &c., where there has been a private information, or a witness has deposed against an offender. A warrant may be law-

fully granted by any justice of the peace for treason, felony, or any other offence against the peace; and it seems clear that where a Statute gives any one justice jurisdiction over any offence, or a power to require any person to do a certain thing ordained by such a Statute, it impliedly gives a power to every such justice to make out a warrant to bring before him any one accused of such offence, or compelled to do any act ordained by such Statute. A warrant from any judge of the Superior Courts extends all over the kingdom, but a warrant of a justice of the peace in one county must be backed (that is, signed) by a justice of another county before it can be executed there. And a warrant for apprehending an English or a Scotch offender may be endorsed in the opposite kingdom, and the offender carried back to that part of the United Kingdom in which the offence was committed.

Warranty.—A promise made in a deed by one man for himself and his representatives to secure unto another and his representatives the enjoying of anything agreed to between them; also a guarantee or security. The general rule of law applicable to all sales of goods is, that the buyer buys at his own risk, unless the vendor give an express warranty, or unless the law imply a warranty from the nature of the thing sold, and the circumstances of the sale, or unless the vendor have been guilty of a fraudulent representation, or concealment in regard to the thing sold.

Warts.—These are certain horny excrescences which are seen most frequently on the fingers and hands. Soft warts are often found on mucous surfaces, but these are generally of a specific character. The best treatment of warts is to first scrape or pare the surface, and then touch them daily for a few days with a stick of nitrate of silver. If this fails, strong nitric acid may be applied with a glass rod, care being taken that the acid is not allowed to run upon the sound skin. Warts frequently defy all treatment, and then disappear spontaneously; this will explain the success which is said to follow the operation popularly known as charming away warts.

Wash-houses and Baths, Public.—Public baths are usually provided in any large parish in London. They are supplied with a superintendent and matron, and are divided into first and second classes, the latter being so inexpensive as to be within the reach of all. A first and second class swimming-bath is usually attached to the building, as well as public wash-houses, which are of incalculable value to the poor. Instead of tubs, there are long troughs in these wash-houses, each supplied with hot and cold water; and the boiling, wringing, mangling, &c., are done by steam after the washing. The cost usually amounts to 1½d. an hour to each person who washes there, the washing-houses being open from 8 a.m. to 8 p.m. throughout the year.

Wash-leather.—Split sheep-skin dressed with oil in imitation of chamois leather. It is employed for various household purposes, as for dusting, cleaning glass or plate. It is also the name given to the alumed, or buff leather of which regimental belts are made. Gloves are made of it.

Wash-stand. — An article of bedroom furniture designed to hold a basin, jug or ewer to match, a soap-dish, sponge-dish with inner perforated tray, and a tray for tooth-brushes; also a carafe and tumbler. The wash-stand is formed like a table, with a low back, and sometimes with sides. The top—frequently perforated with circular holes in which the basins are sunk—is very often made of white marble, or of coloured tiles. The stands are made of almost every description of polished, stained, or painted wood. Some are disguised like chests of drawers, having a large deep lid which shuts down over all the washing utensils, and containing a looking-glass. Sometimes the ostensible drawers are real, and there is a cupboard besides in the lower part of the stand. Other stands are formed to fit into a corner, to save space. These are supplied with a shelf and drawer for the reception of appliances, for which the top of the stand affords no sufficient space. The least expensive stands are of zinc, or painted tin, with all washing utensils of the same material to match.

Washballs, or Savonnettes. (*See* SAVONNETTES.)

Washboard. — A board, forming an oblong square, about an inch thick, having a ribbed or fluted surface on one side, upon which the washerwomen rub the clothes when soaped. Some washboards have no flutings, and the laundress simply lays the article upon it and scours it with a brush. In Continental countries they beat the clothes upon this board, which leans at the top end upon a tub in which the washerwomen stands, the lower end sloping down into the shallow water in which the tub is placed. Boards of this description are to be seen all along the wash-houses at a river's side in foreign towns, as, for example, at Geneva. Sometimes the clothes are laid on these boards and beaten with flat sticks.

Washers. — These are small pieces of leather, &c., cut through the centre, to increase the tightness of a screw-nut or joint, and so prevent leakage, or protect the surfaces from injury. The term also belongs to the iron ring which is placed between the lynch-pin and the nave of a wheel.

Washerwoman. (*See* LAUNDRESS.)

Washes.—In painting, a wash is a colour, such as Indian ink or bistre, laid over a pencil or crayon drawing to render it more natural, and add to the shadow of protuberances, apertures, &c. The following recipes for wash colours for maps, &c., have been given: —1. Yellow: Gamboge dissolved in water, or French berries steeped in water, the liquor strained and mixed with gum-arabic. 2. Red: Steep Brazil-wood dust in vinegar, and add alum; or, dissolve litmus in water, and add alcohol; or, steep cochineal in water, strain, and add gum-arabic to the liquor.

3. Blue: Dissolve and dilute Saxon blue with a sufficiency of water. 4. Green: Dissolve sap-green in water with alum. Washes are very extensively used in ordinary water-colour drawing, where space can be covered with colours of considerable fluidity, intended merely for the production of tints. Sometimes the word is made to include almost any kind of thin colour, whether used for outlines, shading, or spaces.

Washes, Hair. (*See* HAIR-WASH.)

Washes, Medicated. (*See* LOTIONS.)

Washes, Tooth. (*See* TOOTH-WASHES.)

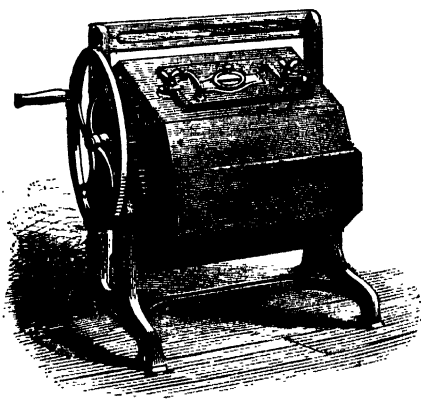
Washing and Drying Clothes, &c.—Detailed information on this subject will be found under the headings of LAUNDRY; WASHING CRYSTALS; WASHING MACHINES; WRINGING MACHINES.

Washing Crystals, Fluids, and Powders.—These are usually proprietary patented articles, distinguished by the names of their respective manufacturers or inventors. They contain various proportions of chloride of lime, soda, borax, and other bleaching chemicals. The following are amongst the best household recipes for the purpose for which washing fluids, &c., are designed. Salt should be put into the water used for rinsing—one handful to three gallons—and a small quantity also should be used in the starch. Greens and blues should be rinsed in alum-water; green chintzes in a solution of saltpetre, one ounce in a tubful of soft water. Mauves and violets, when faded, which they are slow to become, may be washed in water with a small quantity of potash or soda dissolved in it. The blue of muslins and prints will be fixed by a concoction of green ivy-leaves, bran, and soap boiled together; for blues and purples, lilac pearlash is also good; and ox-gall both fixes colours and discharges grease. Borax dissolved in water, and "elixir of vitriol" diluted in rice-water, one ounce of Epsom salts dissolved in water, rice-water without any mixture of soap, and ammonia diluted with water, are all excellent washes for the purpose of fixing colours; but it must be remembered that ammonia will turn scarlet to crimson. One pennyworth of sugar of lead in a bucket of water is good for dresses of a delicate shade. They may be soaked in it for several hours with advantage, but must afterwards be wrung out, and then carefully washed, as sugar of lead is poison. Thus other methods should be recommended in preference. A tea-spoonful of vinegar added to the rinsing water, after a washing with ox-gall, forms a good recipe for woollen and cotton materials. A dessert-spoonful of spirits of wine in a gallon of water may preserve the colour in muslin and washing silk. A few halfpence in the water may preserve green shades. Coloured articles of every kind should be separated from the ordinary washing, kept from the least collision with soda or chloride of lime, and washed and dried as quickly as possible in a shady place. When there are many coloured things to be washed, dissolve half a pound of soap into the water to make a lather instead of rubbing it upon them. For a smaller number of articles it will be a good plan to boil a quarter of a pound of soap, adding a small piece of alum while boiling. Having washed them in this lather, for the second washing add a little alum again, and then rinse them in blue-water.

Washing-day.—A difference of opinion exists as to the best day for beginning a large washing, but by the majority of experienced housekeepers Tuesday is preferred. The clothes can then be sorted and put in soak on the previous day, and that will leave time for drying, ironing, mangling, and folding to be completed by the end of the week.

Washing Fluids. (*See* WASHING CRYSTALS, &c.)

Washing Machines.—Of machines for the purposes of the laundry there are several kinds, and those for the operation of merely cleansing the soiled objects possess certain advantages which are obvious. Hotter water can be employed by their means than in hand-washing, and the alkaline lyes can be stronger than the hand of the laundress could bear; besides which, steam is available when machinery is used. Before purchasing any of the machines advertised for the purpose of washing, wringing, or mangling, either separately, or all three combined, it would be advisable to have one on trial, which most of their respective makers would allow. The great advantage offered by the use of a machine is that so much linen can be washed at once. Ten to fifteen minutes of work will be sufficient, but only the same description of articles must be put in at one and the same



WASHING MACHINE.

time—coloured articles being never washed with white. When clothes are washed by means of steam, soap-jelly is required, which is prepared by slicing yellow soap and then boiling it in water, in the proportions of one pound to a gallon of water; when the boiling ceases, the soap being dissolved, one quarter of a pound of soda is added. This, when cold, will become a stiff jelly. The following is the proper routine for washing by machine:—White clothes should all be previously soaked, and drained in a

basket. Make a lather with a soap-jelly in very hot water, with which fill the machine, and turn for ten minutes. Place the clothes in a basket, squeeze dry, and return the soapy water into the machine. Re-fill the machine with other clothes quickly, before the water cools, when a second person should turn it, while the first prepares the basketful taken out for "seconding." Examine each article to discover soiled places, which, like the hems, collars and wristbands, must be soaped and hand-washed, however good the machine. When white articles have been "firsted," add more hot water, and put in the coloured things. Lastly, put in dirty kitchen cloths. The "seconding" water may be boiling, and the machine turned for five minutes. In taking things from the "seconding" water, place them in boiling water, and finish as in a usual wash.

Washing, Personal.—There are a few general rules to be observed with regard to personal ablutions which should always be borne in mind. In consideration of the fact that an individual who neglects to keep the skin clean is more susceptible of contracting contagious diseases—such as small-pox, typhus, cholera, diphtheria, and scarlet fever—than one who practises daily ablutions, it is of the utmost importance that the latter should be thorough, and never neglected. The scarf-skin, which is continually falling off, should be daily removed by washing and friction, and the pores, which never cease to throw off insensible perspiration, carefully cleansed from any accumulations, produced by a compound of dust and animal moisture. Not only must the washing be thorough, and practised both morning and night, but it should be effected in as brief a period as possible, reaction being most desirable, and a chill highly injurious. In the morning the whole person should be washed with good curd or Castile soap, the teeth brushed with a soft narrow brush, using powdered chalk and orris-root, the tongue cleansed with an ivory or tortoiseshell scraper gently applied. At night the ablutions need not be so complete, saving when the heat of the weather or much exercise may have produced perspiration. A complete bath when retiring to bed is not desirable, as it sometimes tends to banish drowsiness; but, with the exception of the mere trunk, arms, and legs, all the person should be carefully washed with soap—each part in detail—and the teeth brushed with Castile soap. Of course, the latter should be washed after dinner likewise, and the face and hands washed from time to time, as occasion demands, during the course of the day. When the hair is short, the head should be washed daily, and well dried; when long, once a week; but in either case the skin of the head should be kept free of loose pellicles, and the circulation of the blood accelerated by the use of a small-tooth comb, which in a great measure obviates the necessity of washing. Beware of bathing in cold water when heated from exercise, when chilly, or just after a full meal. It is best to wash in childhood, as well as in later life, in tepid water; but after the cleansing with soap is over, a quickly given dash of cold water down the whole length of the spine, followed by a brisk rubbing with a rough towel, will be found of the greatest benefit. Sea-bathing frequently does harm instead of much good, in consequence of the length of time spent in the water, and the consequent loss of a proper reaction. Swimming should be taught early—in a tepid bath—to both boys and girls.

Washing Powders. (*See* WASHING CRYSTALS, &c.)

Washing Tubs, &c. (*See* LAUNDRY.)

Wasps, Stings of. — The treatment of these is generally the same as that for the stings of bees, which are treated of under a separate heading. (*See* BEES, STINGS OF.) Carbolic acid is announced as a valuable specific in these cases, and reports have appeared of its efficacy as a remedy for mosquito bites, and the stings of scorpions as well as those of wasps. A small drop of pure carbolic acid is applied to the point stung, and affords relief at once. In one instance the patient had been stung in the tongue by a wasp, and suffered greatly. The carbolic acid was applied as above directed, and a lotion prepared of one drachm of the acid to eight ounces of water. With this lotion the mouth was constantly washed, and in twenty-four hours the swelling and inflammation had completely subsided.

Wassail.—This term is derived from two Anglo-Saxon words meaning "your health," and is used to denote both drinking and a particular kind of drink. It has been traced back to the reign of Hengist, the Saxon King of Kent, in the latter half of the sixth century, and is many times mentioned in the ages succeeding. Wassailing was often another name for drunken revelry, such as was indulged in especially at Christmas, New Year's Eve, and Twelfth Day. It was a recognised institution at such times, and pervaded all classes. Wassail songs were very common, and numbers of them have been preserved.

Waste-baskets.—The baskets made and sold under this name are mostly appropriated for use in business offices, private studies, libraries, and similar places where literary work is carried on. They are simply intended to receive all scraps of paper that are no longer required.

Waste-book.—In the old Italian system of book-keeping a waste-book was generally kept, in which was entered a memorandum or record of *every* transaction which occurred in business, whether it were the purchase or sale of goods, the payment or receipt of money, or the drawing or acceptance of bills, &c. From this waste-book all the entries were taken, and arranged in proper Dr. and Cr. form in the day-book or journal, and thence they were posted in the ledger. As the waste-book contained the first entries of business transactions in an irregular form, and without any other order than that of actual occurrence, it was considered useless after these entries were transferred; it might, in fact, be looked on as waste paper, whence the book took its name. In

time, however, it began to dawn upon book-keepers that it would be better at once to classify and arrange the various transactions in a series of subsidiary books, rather than mix them all up together in the waste-book. The first thought seems to have been that it would be well to keep all money transactions separate; hence the cash-book. Then followed the bill-book, the day-book, the stock-book, the invoice-book, the petty cash-book, and the other subsidiary books in due order, until the use of the waste-book was entirely superseded. (*See* BOOK-KEEPING.) In some large houses of business a waste-book is still kept, principally in cases where it is the duty of one individual to record petty transactions of various kinds, which may afterwards be transferred to the proper subsidiary books.

Waste-pipes are used in connection with steam-engines, for the carrying off of steam and water. In the former case it is the pipe leading from the safety-valve to the atmosphere; in the latter it is the pipe which carries off the surplus water from the hot well. A waste-pipe is usually attached to a cistern, being so placed that when the water reaches a certain height it flows into it and so runs away. Consequently, it is of great importance that nothing should be allowed to impede the flow, otherwise the reservoir will overflow. Every sink is also provided with a waste-pipe, and a like amount of care is equally necessary to prevent its becoming choked.

Wastel Bread or Cakes.—The name of wastel-bread was given many years ago to a variety of bread extensively used in England. Before the value of the potato had become known, and previous to the introduction of various other articles of food now commonly used amongst us, the ordinary wheaten bread was, if possible, of more importance than it is now. The bread then manufactured varied very much in price and quality, the fineness or coarseness of the flour used constituting the essential difference that existed. The most costly bread known, which was finer and whiter than any other kind, was what was called simnel-bread. Later on the name of pain-demayn was also given to it, a word that was afterwards corrupted into payman. The bread next in quality was wastel-bread, which was a light, pleasant, spongy bread, and was a very favourite article of diet among the middle and higher classes. After this came cocket-bread, tourte or trete bread, and other varieties, some of which were made of grain inferior to wheat. House-bread, one of the cheapest and commonest kinds, was made principally of ground peas and beans. The restrictions put upon bakers at that time appear to have been very rigid, and their profits were regulated according to law.

Watches.—These instruments for recording the progress of time, now so universally worn, were first known in the fifteenth century, and were common in France about the middle of the sixteenth century. In the time of Elizabeth watches were suspended round the necks of their wearers or attached to bracelets. In these old watches cat-gut was used instead of chain-work, and the hours were not divided into minutes. The balance-springs for watches were introduced in 1658 by Dr. Hook, or, as some have asserted, Huygens, and these rendered possible the more minute divisions of time. Regarding watches as spring-clocks of small size, there is a difference between the *movement* and what is called the *motion-work*. The *cannon pinion*, *minute-wheel*, *hour-wheel*, and *hands* are acted upon by the watch-key, while the actual movement, or going train, remains undisturbed. Watches called *vertical* are not so thin and flat as those which are called *horizontal*, because the *fusee*, or contrivance for rendering the velocity of its movement uniform, cannot be made so thin and flat in the first-named as they are in the second. Lever and duplex watches are so called to indicate the nature of the escapement. (*See* CLOCKS.) English watches are regarded as superior to those of foreign make, being stronger, more durable, and finished in a superior style. Large importations of cheap watches are made from Switzerland and from other countries.

Watches, Care of.—The delicate and complicated mechanism of a watch necessitates excessive care, the chief thing to be observed being to see that the case does not get strained and admit dust, as if dirt is allowed to penetrate into the works, the pivots, working on a fine point, gradually wear themselves away by any grit being introduced. In winding a watch the person should do so cautiously, and leave off at the slightest obstruction, as the main-spring is easily broken by overwinding; and all sudden jerks ought to be avoided, as they are very apt to throw the balance out. No watch should be allowed to go for more than eighteen months without being cleaned and oiled, and the watch-key, for the safety of the winding square, should be detached from the ordinary bunch of keys and not carried in the pocket, otherwise the pipe is apt to get dirt into it.

Watches, Cases or Pockets for.—Watch-cases are usually made of leather, lined with wadding and silk or satin, closing with a snap to preserve the watch from being injured by dust. Watch-pockets are receptacles for watches, generally affixed to beds; they are bag-like in construction, and made of different kinds of fancy work, such as velvet embroidered with beads, satin and silks braided, guipure work, crewel work, &c.

Watches, Chains and Guards for.—Watch-chains are made of gold, silver, and other materials, and are in common use in a variety of forms, fitted with hooks, swivels, or rings, for securing watches. The term watch-guard includes not only chains, but cords, ribbons, or anything else to which watches are attached when worn. To watch chains and guards various useful or ornamental appendages are often added, such as keys, seals, coins, and trinkets in great diversity.

Watches, Hooks for.—These are contrivances upon which watches are suspended when not in use, and are either attached to a

piece of fancy work placed at the head of a bed, or are made of wood, &c., of an ornamental character, in the form of a stand, and sometimes placed under a small glass case.

Water.—The ancients regarded water as an element, and as convertible into earth and various organic products, and the opinion was not questioned until about a century ago, when James Watt and Cavendish, independently but almost simultaneously, disproved it, and showed that water is a compound of hydrogen and oxygen, which are contained in it in the relative proportion of one to eight by weight, or two to one by volume, the specific gravity of hydrogen being to that of oxygen as one to sixteen. The density of water, when pure, forms the standard of comparison for all solids and liquids. Water is one of the great agents of life, and all animals require it and cannot exist without it. It enters into the composition of the tissues of the body, and takes its part in all the operations of life. It is the most universal solvent with which the chemist is acquainted, and food can only afford nourishment by being dissolved in it. It acts as an agent for carrying food into the system. It gives fluidity to the blood, holding in suspension the various substances which compose the entire structure. It has been calculated that a human body weighing 154 lbs. contains 111 lbs. of water, or, in other words, three-quarters of it is made up entirely of water. When it has done its work, "diluting and changing here, carrying and cleaning everywhere," it escapes by means of the various outlets which are provided by nature for the purpose, and the principal of which are in the skin and the kidneys. Water is as necessary for plants as it is for animals. It passes in at the roots of plants, up their stems, and into their leaves, and furnishes them with carbonic acid gas and ammonia. Out of these two substances in the system of the plant all vegetable food is manufactured. Water is named from the special source from which it is derived. The first great source is the ocean, which collects all the water from the earth. This water is so salt that no one can drink it. It can, however, be distilled and rendered perfectly fit for human use. Large vessels are now-a-days generally furnished with the necessary appliances for the distillation of water, in order that a plentiful supply of the pure beverage may be always at hand. Water thus distilled has a flat taste, arising from the absence of air. Means have, however, been devised for submitting it to aëration, and so overcoming this difficulty. *Rain water* which has fallen in country places and upon insoluble surfaces of rock or sand is one of the purest of waters, and on account of its freedom from earthy salts is particularly suited for domestic use. (*See* RAIN.) *Spring water* (*which see*) is generally both wholesome and palatable, though it is of course dependent upon the nature of the rocks through which it has passed, and it frequently contains mineral impurities. *Well* or *pump water* is of the same nature as *spring water*. There are two kinds — *surface well waters* and *deep well waters*. It is often supposed that surface well water, because it is sparkling and cool and clear, is purer than that obtained from deep wells. This, however, is a fallacy. The sparkling of these waters is due to the presence of carbonic acid gas, derived from the decomposition of animal and vegetable substances, while their cooling taste is no less indicative of their impure origin, as it arises from the formation of salts which could only occur from the decomposition of organic matter. Authorities seem to agree that deep wells generally yield a safe and wholesome drink, though the water will, most probably, be hard, having dissolved out much calcareous magnesian and alkaline salt during its long course underground. *River water* consists partly of spring water and partly of rain water which have run into it from the surrounding land. It varies very much in quality, and therefore cannot be used for drinking or cooking purposes without risk; and this is because it is so liable to become polluted with sewage matter that has drained into it from human habitation, and with decaying organic matter that has been taken up by rain water. Besides this, river water very often contains in solution a greater or less quantity of saline matter. Melted *snow* or frozen rain which has fallen at some distance from any town is the purest natural water that can be obtained. Besides the water mentioned above and derived from the ordinary sources, there are certain liquids, natural and artificial, used for special purposes, to which the general term water is applied. Amongst these are mineral waters, perfumed waters, and medicated waters, all of which consist simply of water holding in solution mineral perfumes and medicinal substances. Mineral and medicated waters are used as medicines; perfumed waters are employed for toilet purposes. The distinguishing characteristic of these waters may generally be gathered from their names. (*See* AËRATED WATERS; MINERAL WATERS.)

Water as Food.—Water is a most important constituent of food. It is just as needful as solid matter, and indeed a man might be kept alive for weeks on water and no food, but he would die in a few days if deprived of all water. Some idea of the quantity required to be taken daily in an ordinary way may be gathered when it is remembered that every pound of perfectly dry food which is consumed needs to be accompanied by four pounds of water. But it is not necessary that this should be drunk. A large proportion of our solid food consists of water. The following table gives a list of the quantities of water contained in 100 lbs. of different kinds of food:—

	lbs.		lbs.
Apples	83	Grapes	80
Bacon	22	Haricot beans	14
Barley-meal	14	Lean of meat	73
Beetroot	82	Lettuce	96
Bread	40	Maize meal	14
Butter	10	Milk	86
Cabbages	89	Onions	91
Carrots	89	Parsnips	81
Cheese	34	Peas	14
Eggs	72	Potatoes	75
Fish	74	Rice	15
Fowl	73	Wheaten flour	14
Fresh oatmeal	5		

The beverages which are taken, such as tea, coffee, and beer, consist largely of water, and even ports and sherries contain as much as twelve ounces of water in each pint. A good deal of uneasiness is sometimes felt lest too much water should be taken. This, however, is not very likely to occur, for water may invariably be taken in moderation when thirst is present. It is always a safe drink; even those suffering from the thirst of fever will find it cooling and refreshing. In fever the blood becomes too thick, because the heat of the body has dried up the water the blood ought to contain, and when water is drunk it soon grows as hot as the blood and turns to vapour, which opens the pores of the skin and carries off the heat in perspiration. The notion has also been started of late years that it is wise to restrict the amount of fluid taken with meals, with the view of avoiding the dilution of the gastric juice. Acting on this mistaken idea, much mischief is frequently occasioned by a too limited consumption of fluid. But it must not be concluded that all the popular notions about water are erroneous. One that is quite correct is that it is unsafe to drink cold water after violent exercise. There is, however, no danger in drinking it *during* the exercise before the body has begun to cool. Those who have been working or running hard on a hot summer's day, and who feel very thirsty, should take a very small quantity of water at a time, and repeat the dose at intervals until the thirst is gone. Tepid water relieves continued thirst better than cold water. Snow, if taken before it is melted, increases thirst.

Water Brash.—A term applied to one of the common symptoms of indigestion. It consists of a watery fluid, which is secreted by the glands of the stomach, and which rises up through the gullet or œsophagus into the mouth, causing unpleasant sensations. It is alleviated by the remedies advised for indigestion (*which see*). Half a tea-spoonful of bicarbonate of potash in half a wine-glassful of cold water will often remove this disagreeable affection when it comes on suddenly.

Water Butts, Cisterns, and Tanks.—Tanks or cisterns for holding water are variously constructed. Sometimes they are made of cast or wrought iron; sometimes of slate slabs cemented together with putty; sometimes of wood lined with zinc, or lead, or gutta-percha. The last of these forms a cheap and durable lining for cisterns, and it is easily fitted. For the first few days the water tastes of the naphtha used in putting it in, but afterwards no kind of water, and not even acids, have any action on the gutta-percha. Water stored in leaden cisterns may soon be rendered unwholesome. This arises from a portion of the metal becoming dissolved and contaminating the water, which, when used, gives rise to the ordinary phenomena of lead-poisoning. It is, however, only certain kinds of water that are likely to be injured in this way. Distilled waters and soft lake and river waters act most decidedly on a leaden surface, but water charged with a moderate quantity of earthy salts may be kept in lead with impunity, and protection is afforded by the formation of an insoluble compound upon the surface of the metal. When lead cisterns are employed, the water should never be used without care, and means should be taken to ascertain whether it is being contaminated. It is very easy to do this. Procure from the chemist a little powdered bichromate of potash, which will cost a mere trifle. Put some of the suspected water into a tumbler, and stir into it as much of the powder as can be taken up on the end of a penknife; then let the water stand awhile. If free from lead it will remain of a clear transparent yellow colour, but if there is lead in it the water will become cloudy, and then steps must be taken to get rid of the leaden pipes and cistern as soon as possible. Water containing the ninth part of a grain of lead per gallon has been known to derange the health of a whole community; and the members of many a family have for years been subject to a succession of unaccountable ailments, and never known the reason till they found there was lead in the water they drank. Dr. Clark discovered that sand-filters completely separate lead from water. Tanks for storing water for domestic purposes should always be kept covered, and when it is possible the water should be drawn off entirely and replaced every twenty-four hours. Tanks used for the retention of water to be employed for watering gardens should be left uncovered, and should be kept full. They should also be placed in such a situation as will expose the water as much as possible to the influence of the sun. This is because it is desirable that the temperature of the water should be as nearly as possible the same as that of the soil, for to water crops in summer with very cold water tends to injure rather than benefit them. The water kept in a tank which supplies a water-closet should never be used for drinking purposes, because unhealthy gases pass through the trap between the closet and the tank. Such water will soon taste and smell badly, and may cause typhoid fever or other serious disease. Special tanks ought to be provided for water-closets. (*See also* Butt; Cisterns; Leaden Cisterns and Pipes; Water, Storage of.)

Water-closets.—It is not easy to explain the construction of these important adjuncts to a house, but the general principle on which they are based may be stated in a few words. Overhead is a cistern of water, from which a pipe descends to below the level of the seat. The lifting of a handle opens a valve, and allows a rush of water to descend into the pan, and the leverage is so arranged that the pan is cleared and provided with a fresh supply of water at the same time. The clean water left behind is made to render the escape of effluvia impossible, and the trapping of the soil pipe is rendered more complete by other contrivances. The details vary greatly, and many patents have been obtained. In some cases a water-closet is called self-acting, because the person who enters it has no need to raise a handle or to pull a string, all that is required being effected by the motion of the door, or the pressure on the seat. It is unnecessary to say that water-closets should be kept scrupulously clean and in

perfect working order. When well constructed and in good repair they will cause practically no trouble, and may be regarded as among the most useful of the many sanitary appliances and arrangements for domestic comfort which modern times have introduced. Instead of water-closets, what are called earth-closets have been strongly recommended, and to some extent adopted. The question of their respective merits is not one for discussion here, but from all we can learn the preference may be given to one system in some circumstances, and to the other where circumstances are different. On the whole, we advise that all such matters should be decided after consultation with persons who have experience in sanitary engineering, and who will perceive at once all the bearings of any particular case.

Water-colours.—These are either moist or dry, the moist being ready for use, and the dry requiring the addition of water. They are all prepared by incorporating the ingredients with some mucilage, and are all soluble in water. It is not necessary to describe their manufacture, as they can be so easily and cheaply purchased of any artists' colourman.

Water-cress. — Water-cresses are generally liked everywhere. They are creeping plants which are found in slow-running streams, and grow most abundantly in sandy soil. They are not often out of season, and are a very wholesome article of diet. There are two kinds—the green and the brown; the latter are the more esteemed. The brown tint is probably caused by their containing a slight trace of iron. Water-cresses are cooling and anti-scorbutic, and promote digestion.

Water Cure. (*See* Hydropathy.)

Water Dressing.—This is simply the use of cold water in the treatment of sores, wounds, &c., which sometimes answers better than any other remedy. It is best applied on lint or some other soft material, which may be kept moist for a considerable time by covering it with oil-silk or gutta-percha tissue.

Water, Eye. (*See* Eye-water.)

Water Filters. (*See* Filters.)

Water Gilding. (*See* Gilding.)

Water Glass.—By heating fifteen parts of silica with about ten parts of pure carbonate of potash to bright redness for a few hours, a tetra-silicate is produced, which is met with in commerce under the name of water glass. This compound has the appearance of ordinary glass, and dissolves slowly but completely in boiling water; the solution is decomposed by all acids, with separation of gelatinous silica; when exposed in thin layers to the air, it dries up to a tough glassy film, which is gradually decomposed by the carbonic acid in the atmosphere, leaving the silica behind as a compact insoluble coating. When the material on which the soluble glass is applied exerts a chemical action upon the silicate, as when it contains carbonate of lime (chalk) or similar substances, decomposition takes place; the silicate goes to the earthy base, and the mass gains considerably in hardness. Water glass is of much value as a vehicle for colours in wall painting. Colours so treated become silicate paints, and produce a surface as hard and bright as glass. The importance of water glass in mural decoration is now fully recognised by the highest authorities.

Water Gruel. (*See* Gruels.)

Water (in Jewellery).—This word is applied to diamonds to denote their quality; hence Mr. Emanuel says:—"The terms, first water, second water, &c., mean only first and second quality. Diamonds when perfect should be clear as a drop of the purest water; and they are described as second or third water when more or less clear, until decidedly yellow or brown, when they are termed coloured."

Water-mark.—The semi-transparent lines or figures in paper which form the manufacturer's mark. This water-mark is produced by pressure as the floating pulp passes over the fine sieve of threads or wires. In some instances the water-mark has given its name to the size of paper, as in the case of the fool's cap. (*See* Foolscap.)

Water-melon. (*See* Melons.)

Water-meters.—These are contrivances for estimating the quantity of water used in a house, which measurement is effected by the revolution of a fan, like a screw propeller, fixed within the pipe, and driven round by the water flowing out. Where the water is measured in the cistern, it can be done by apparatus on the rain-gauge plan; but it is better to measure the efflux direct from the pipes, under whatever pressure the service may be acting.

Water on the Brain.—This is a disease common enough amongst strumous children. It will be found described under the heading of Cerebral Affections.

Water Pipes, Frozen. (*See* Frost in Water Pipes, &c.)

Water-pox.—This is the term popularly applied both to the eruption of chicken-pox and to that which is sometimes seen in small-pox, the character of which has been very much modified by vaccination. It means that the eruption does not pass beyond the vesicular stage, and become pustular and mattery, as in ordinary small-pox.

Water Rates.—When water is supplied to cities and towns by public companies or local authorities, those who enjoy the privilege are assessed or rated in proportion to their rental. The rule is with some companies to charge one shilling in the pound on the rent paid, and an addition of 5 per cent. on the amount charged. Thus, if the rental is £50 per annum, the water rate will amount to £2 12s. 6d. This rule is not universal, and extra charges are made for extra supply.

Water Sapphire.—A mineral of considerable hardness; a variety of iolite, transparent, and of an intense blue colour. It is sometimes employed as a gem, and might pass for a real sapphire, though much inferior in quality and value.

Water, Storage of.—Water intended for drinking and for domestic purposes is distributed

from the reservoir either according to the intermittent or the constant system of supply. By the intermittent system the water is laid on at certain times, usually once a day, and fills a tank provided for the purpose and attached to every house. By a contrivance called a ball-cock (*which see*), the water is stopped as soon as the cistern is full, and the water is stored in the tank till it is wanted. By the constant system, the house pipes are connected with the reservoir, and thus the necessity for a tank is dispensed with. The latter of these methods is much the better, because by it a plentiful supply of water is always to be had. The water never becomes stagnant and unwholesome by being allowed to stand in dirty or uncovered cisterns, and it can always be obtained in case of fire. When, however, water is stored in cisterns or tanks, it is most important that these should be cleaned out at intervals varying from two to eight months, according to the quality of the water. Foulness of tanks is a very common cause of foulness of water. This arises both from particles of solid matter deposited from the atmosphere, and deposits from the water, which frequently ferment.

Water Supply.—Until the beginning of the present century, although water-works existed in the great cities, the water required for the domestic use of the inhabitants of towns was principally drawn from wells by means of pumps. Gradually these became quite inadequate to the wants of the community, and more than this it was found that the water was more and more contaminated by infiltration from sewers. Then it was proved that cholera and other epidemic diseases spread, and were specially fatal in districts where the inhabitants had to use impure water, and thus the condition of public health was found to be closely connected with the question of the water supply. Now men of science and enterprise are everywhere interested in the topic, which is the subject of anxious thought both on the Continent and in many parts of England. At the present time eight private companies supply London with water. In 1850 the average quantity of water delivered every day by the various companies was a little over 44,000,000 gallons a day. In 1856 it had reached 81,000,000 gallons. In 1865 it was 108,000,000 gallons, and it now stands at 114,000,000 gallons daily. "Some idea of the vastness of the quantity of water thus supplied to London daily may be obtained by comparing its bulk with that of a building. A day's water supply would require a cistern equal in area to Westminster Hall, with walls three times the height of the cross on St. Paul's Cathedral." Making allowance for the rapid increase of population, it has been calculated that at no very distant period means will have to be provided for increasing the supply to 250,000,000 gallons daily.

Water Tanks. (*See* WATER BUTTS, CISTERNS, AND TANKS.)

Water, To Purify.—Water is essential to life, and it is necessary that it should be obtained comparatively pure and fit for the uses to which it is applied. In nature it is never found chemically pure, for that which rises in springs is polluted by the earthy substances it dissolves, and that which descends from the clouds is contaminated by the impurities it washes out of the air. Various processes are adopted for the purification of water. A very common method is to boil it. This drives off the carbonic acid, and has the effect of diminishing the hardness due to the earthy carbonates. It also destroys the activity of any organic matter which possesses specially poisonous properties. Dr. Pavy says:—"Where fear is entertained respecting the transmission of cholera or typhoid fever, the water should be subjected to thorough boiling, and it may then be considered safe for use. Toast and water, which is made by pouring boiling water on toasted and partially charred bread or biscuit, and allowing it to cool, forms on this account a safer drink than plain fresh water, unless dependence can be placed on the purity of the source." Filtration is another method extensively practised for the purification of water. The water supplied to London is filtered through sand and gravel before it is distributed. This removes suspended matter, both mineral and organic, and it to some extent diminishes dissolved mineral matter, but it does not make the water safe for use. For this it needs to be percolated through a good filter. (*See* CHARCOAL FILTERS; FILTERS.) No kind of water is injured by filtration, otherwise than by the absorption of the enclosed air, and almost all water possesses substances which may be advantageously removed by the process. Powdered alum is sometimes used to purify water on a small scale. The pulverised alum is sprinkled into the water, which is stirred briskly for a minute or two. It is then left to settle, and in a few hours is said to be as fresh and clear as good spring water. A tea-spoonful of alum is sufficient for four gallons of water. When it is possible to select water it should be remembered that good water is clear and bright, cool and soft. It is without smell or disagreeable taste, and it leaves no stain when dropped on a clean cloth. It may be regarded as a good sign when it heats and cools quickly. (*See also* WATER BUTTS, CISTERNS, AND TANKS; *and next paragraph.*)

Water, To Soften.—Water that is "hard" is not so useful for cooking purposes as soft water, and when employed for domestic purposes it causes a great waste of soap, labour, and material. The cure for this condition is to soften it by the addition of lime, according to the plan invented by the late Dr. Clark, of Aberdeen. One ounce of fresh quicklime should be added to 1,000 gallons of water for every degree of hardness. It should first be slaked with a little fresh water, and when it has fallen to powder enough water should be added to make a thin cream; this should be stirred briskly with a few gallons, and afterwards poured into the whole quantity. The pail in which the lime was slaked should be rinsed out, but any lumps of lime that may have settled should be kept back, and care

should be taken that the lime and the water are thoroughly mingled. The water should now be allowed to rest. It may be used for washing purposes in three or four hours, but it should not be drunk until it has stood for twelve hours. On a large scale this softening process is carried on at Canterbury, Tring, and Caterham. At Canterbury 110,000 gallons are softened daily by the addition of 11,000 gallons of lime-water; and not only are hardening matters thus removed, but organic substances as well, for the process purifies to a certain extent as well as softens, and may be used with advantage to sweeten cistern water that has stood until it smells badly. It is important, however, that the lime used for the purpose should be *quick*, and in an unslaked state, for old and air-slaked lime is injurious. On a small scale waters from chalk and limestone districts may be effectually made to lose their hardness by simple boiling.

Watering-pots are made of copper, of tinned iron, and of zinc. The copper ones are the most lasting, but they are expensive, and very heavy to carry about. There is danger too in using them that the metal may act upon the water and contaminate it. Zinc is cheap, but it is not durable. Good painted tinned-iron watering-pots are the best. Whatever colour they are painted on the outside, on the inside they should be painted red, because red-lead on metal lasts longer than any other paint. There are several kinds of watering-pots, and some of them are rather complicated in construction, but the common simple form will answer every ordinary purpose that is required. The size of the holes in the rose should, of course, vary according to the nature of the plant that is to be watered, and the rose should be made to take off and on, so that two or three sizes may be used for one watering-pot. For watering plants in a greenhouse a watering-pot with a long spout is wanted.

Watering Silks and Woollens.—This process consists in producing an unequal and peculiar wavy appearance by placing together, one upon the other, two pieces of silk, or moreen, &c., lengthwise, and then passing them, so placed, between two cylindrical metal rollers, one of which is made hollow, so as to contain a heated iron within the cavity; consequently the surfaces of the two pieces of material to be watered not exactly coinciding in their respective positions with the rollers, one portion will be subjected to a greater degree of pressure than another, and this will result in the wave-like pattern with which it will be stamped with curiously capricious irregularity.

Waterproof Fabrics.—These are now very numerous, for by an improved method a single texture can be made impervious to water by a preparation which is not observable in the material. Thus woollen materials, such as tweeds for overcoats and ulsters, alpacas for light summer cloaks, and silks for the same purpose, can be made available for protection against rain. Macintosh (*which see*) stands at the head of waterproof fabrics; it is quite impervious to water. Other fabrics are preferred for general use, because macintosh excludes the air as well as the moisture, and therefore it makes the wearer very hot.

Waterproofing.—Any process by which leather and textile fabrics are rendered impervious to water. Leather is sometimes naturally waterproof, and when it is not it can be made so by coating it with a solution of india-rubber and boiled linseed oil. The same effect is produced in the case of heavy boots by a mixture of such ingredients as tallow, resin, beeswax, &c., applied warm and kept warm till the articles are saturated. Linen and silk can be coated with oil varnish, and coarse hempen fabrics may be treated with tar, pitch, paint, and other substances which exclude the water. For waterproofing wearing apparel a great number of processes have been resorted to, but we can only mention a few. 1. Heat some weak size or isinglass, and stir into it a little powdered alum and soap lather; apply the mixture with a brush. 2. Melt an ounce of white wax, add two pints of spirit of turpentine, and mix thoroughly; when cold, dip in it the articles to be waterproofed, and then hang them up to dry. 3. Moisten cloth with a weak solution of isinglass, which is to be applied on the wrong side; when dry, moisten it again with an infusion of nut-galls. 4. A simple method, said by Cooley to have been followed with perfect success, is this:—Spread the cloth wrong side up on any smooth surface, rub it with a piece of pure beeswax till it presents a slight but even white or greyish appearance, pass over it a hot iron, brush it while warm, and the process is complete; this has the great advantage of allowing the passage of air, which is also true of the three previous methods. Where the exclusion of air is not an objection, india-rubber and gutta-percha may be adopted as the most effective of all waterproofing agents. The macintosh plan consists of the introduction of a layer of india-rubber dissolved in naphtha between two thicknesses of linen, &c. All processes of this class are, however, such as private persons cannot undertake, and it is therefore needless to describe those which are known to the public. Popular and useful as they are, the india-rubber and gutta-percha methods all labour under what, in the case of wearing apparel, we must call a disadvantage: they do not allow the circulation of air, and they condense the perspiration, which it is desirable should escape. On the other hand, they are more completely waterproof than any of the processes previously mentioned. Another disadvantage under which they labour is that, without adding to their weight, they are inapplicable to such materials as woollen cloths and tweeds. For ladies' cloaks and light overcoats the most eligible plan is to use some such mixture as that of isinglass, alum, and soap above mentioned, and for which we add more particular directions:—Dissolve one ounce of isinglass in one pound of soft water, one ounce of alum in two pounds of water, and a quarter of an ounce of soap in one pound of water, all separately; strain the solutions, mix them, and let them simmer for some time.

Brush the preparation while hot over the cloth, and when dry brush it well and lay on another coat, all on the wrong side. The cloth will be fit for use in two or three days.

Wax, Bees. (*See* BEESWAX.)

Wax Candles. (*See* CANDLES.)

Wax, Factitious.—The name of factitious wax is given to a mixture used for veterinary purposes. The ingredients employed in its composition are resin, suet, oil, turmeric, annatto, and water, no real wax of any kind being required.

Wax Flowers and Fruit.—Formerly the art of wax-flower making was one of the most profitable and fashionable of ladies' amusements; latterly paper, feathers, and shells have rather superseded, or at any rate are used as much as wax. The great charm of wax flowers consists in the close resemblance they bear to nature, and this result is of course best secured by having an original flower as a copy. Nearly all white flowers can be made to perfection in wax by those skilled in the art, but not so with coloured flowers, owing to the difficulty generally found in exactly representing the colours of nature. The materials required for wax-flower modelling are sheets of white and coloured wax, green and white wire of different thicknesses, bloom and frost for the flower petals, down for the primrose stalks, and powders of various colours. The tools necessary are moulding tools of box-wood, fine-pointed scissors, a palette knife, curling pins of different sizes, and a few small poonah and sable brushes. Each leaf of the flower has to be cut according to a pattern in paper, and when the proper number of leaves is supplied, they have each to be curled and shaped, after which they are fastened one upon the other into a stem of wire, the heat of the hand being sufficient to make them adhere. The beauty of the flower naturally depends on the skill and good taste of the maker, as well as on the perfection of the natural copy. It is advisable, if possible, to be supplied with two copies, one of which may be pulled to pieces, and the other imitated as a whole; unless this plan be adopted it is almost useless to attempt wax-flower making, as it is of the utmost importance that the flowers should be modelled after the originals. To young botanists this art may be made useful in leading them to a thorough knowledge of the different parts of flowers. Wax-fruit modelling is a totally different process to the one adopted for wax-flower making. Large fruits, such as oranges, lemons, apples, and pears, are cast in moulds of plaster of Paris, and generally these are half moulds, though smaller fruits, such as the strawberry and raspberry, are cast solid, a hole being made in the mould to correspond with the part in which the stalk is to be placed. For the large fruits the two half moulds are made to fit exactly into each other. The melted wax is poured into one half, when the other half is immediately placed upon it; the two pieces are held tightly together, and moved about in every way to prevent the wax becoming thicker in one place than in another. When cold the halves are separated and the fruit turned out. For fruit that is very irregular in shape it is frequently necessary to make use of more than two moulds. For most bright-looking fruits a little rubbing with the hand is sufficient to impart the necessary gloss; when more than this is required, they are varnished with mastic. The colouring is put on with a brush, or in the shape of powder. The flock used by paper-stainers is frequently employed for giving a downy look to peaches, the fruit having been first moistened with mastic or turpentine. For small fruits, such as currants, little balls of clear glass are made purposely, into each of which a wire stalk must be fixed to the hole made to receive it. These little moulds are then dipped into coloured wax, and are held to cool with the stalk downwards, being finished afterwards by being dusted with blue or hair powder. The bloom on grapes is given by dusting over them a little common powder blue. Minor details, such as not overheating the wax, making indentations in the fruit to give it a more natural appearance, and other matters, are discovered and observed after a little practice and experience.

Wax for Modelling.—The wax used for modelling purposes is prepared by mixing with ordinary beeswax such substances as olive oil, resin, and lead plaster, forming the mass into a paste with whiting, and rolling it into sticks. The colours are added as required.

Wax, Mineral. (*See* OZOKERIT.)

Wax Models and Casts.—Modelling in wax, though still extensively carried on by silversmiths, has within the last few years been greatly superseded by clay and sand modelling, the latter methods being for many purposes preferable. When delicacy and minuteness, however, are required, which is the case in jewellers' and goldsmiths' work, there is no substance so suitable as wax. For hollow casting, wax was formerly especially used, but the process was both long and tedious. A modern easy method of taking a wax cast is to place the mould for a short time in cold water. In this condition, when the surface is both cold and damp, the molten wax when poured into it is instantly chilled. The main bulk of the wax that does not come in contact with the mould remains in a liquid state, and will run out when the mould is turned over, leaving a perfect thin wax shell, which must be filled in with a core. In the potters' trade, modelling is an important branch; for large models potters' clay is used, but for smaller elegant articles wax is preferred. Many specimens of groups and figures were modelled by Flaxman for Wedgwood. Medallists also practise modelling; they model in relief with wax the figure that is intended to be cut in the die. Some of the wax images that are now exhibited in abundance are made by casting; but a favourite method, on account of its cheapness, is to first mould the face in paper pulp and size, then paint it in strong suitable colours, and over this place two or three coats of fine wax. The colour shows through the wax, and all that is required to

complete the figure is to add the eyes and hair. The numerous anatomical models so well known as aids to the medical profession are nearly all wax models that are cast from moulds. The mould consists either of plaster of Paris, or of a composition made for the purpose. For household decorations, very good imitations of marble or Parian statuettes may be made by amateurs with little trouble, and very inexpensively. This is done by covering the small plaster casts, which may be obtained at a trifling cost, with clean white wax. The wax of which candles are made is usually well refined and good in colour, and is as suitable for this purpose as any that can be obtained. Paraffin candles, being very white and hard, are better than any other; but the material is dangerous, owing to its great liability to ignite, and to be used with safety must not be allowed to get over-heated. After procuring the candles, they must be broken up and melted, and while hot must be poured over the cast, care being taken that the whole surface is equally covered. This operation is repeated two or three times, the wax each time being re-heated; if put on when it has begun to thicken, the effect will be spoilt. The next day, when the wax is perfectly hard, it may be made to assume a high polish by rubbing it lightly with the palms of the hands.

Wax Painting.—The art of wax painting was a method employed by the Greeks and other ancient nations, and known by them as encaustic painting (*which see*).

Wax, Sealing. (*See* SEALING-WAX.)

Wax, To Purify.—The dark yellow appearance presented by beeswax when taken from the hive is supposed to be caused by the vapour and hot air that arise from the mass of insects congregated together. Before being fit for manufacturing purposes it is necessary to bleach the wax, as well as to remove all the dirt and foreign matter with which new wax is generally loaded. In order to do this the wax is melted, and after being allowed to boil for a few minutes, its surface is sprinkled over with a little oil of vitriol. In this condition it is left to settle, and when sufficiently cool is carefully poured into basins. When cold and hard the solid cake or foot, as it is termed, is taken out, and from the under surface the sediment, which is chiefly composed of dead bees, is scraped. After this the cake is generally re-melted and strained. Other methods are also adopted for refining crude wax, but in them all the great object to be attained is to convert the wax into a bright, semi-transparent, good-coloured substance. Several minute details require to be carefully observed during the operation. When melted, the wax should not be poured into the moulds too warm, neither should it be cooled rapidly; a current of air falling upon its surface has the effect of cracking it. It is also very necessary that the cans, skimmers, and ladles used in the process should be kept hot; unless this precaution be observed, the wax cools upon the metal, and has to be continually scraped out, consequently causing much inconvenience and delay.

Wax, Vegetable. (*See* VEGETABLE WAX.)

Wax-work.—The word wax-work, in its wide meaning, is given to the numerous articles composed of wax, including the figures made to imitate human beings, busts, models of wax, anatomical preparations, wax flowers, wax fruit, wax dolls, and other contrivances. (*See* WAX FLOWERS AND FRUIT; WAX MODELS AND CASTS.)

Waxed Cloth.—The name of waxed cloth is sometimes given to the common oil-cloth or floor-cloth used for covering floors, but is more commonly applied to the thin oil-cloth used for covering tables, wash-stands, or sideboards, which is sometimes made by covering the cloth with a coating of wax. In making both these materials, however, thick oil-paint is mostly used, so that very often the name is altogether erroneous. (*See* FLOOR-CLOTHS; OIL-CLOTH.)

Waxed Leather.—The waxing of leather is one of the operations to which the skins of animals have to be subjected during the process of tanning or tawing. After rubbing the skin on the flesh side with oil and lamp-black, it is black-sized with a brush or sponge, and when dry is tallowed with a cloth, and slicked upon the flesh side with a piece of polished glass. For enamelled or patent leather, *see* LEATHER-CLOTH.

Waxed Paper.—The strong durable substance known as waxed paper, and which in appearance is not unlike parchment, is made by placing strong cartridge or any thick white paper on a hot iron plate, and then rubbing it well with beeswax. This variety of strong untearable paper is useful for many purposes, such as forming temporary steam or gas pipes, covering the joints of vessels, and for tying over jams and pickles.

Way, Right of. (*See* RIGHT OF WAY.)

Ways and Means.—In parliamentary language the House of Commons is said to go into Committee of Ways and Means when it goes into committee of the whole House for the purpose of determining in what manner the funds required for the public expenditure are to be raised. For some information as to the ways and means of a household, and for estimates of domestic expenditure, *see* ESTIMATES FOR EXPENDITURE; EXPENSES.

Weakness. (*See* DEBILITY.)

Weal.—If animal flesh is struck sharply with a lash or thin cane, a raised ridge rises and marks the line where the stroke fell; this is called a weal, or, as it is commonly pronounced, a wale. If the stroke is a severe one, or is repeated, the skin is sometimes broken, and blood is drawn: this is frequently the case when prisoners of a certain class are punished by being whipped with a cat-o'-nine-tails.

Weaning.—A very important period of an infant's life is the time when it is entirely deprived of the natural supply of food obtained from the mother. The time when weaning should take place depends upon so many cir-

cumstances that no precise rule can be given. The health of both mother and child must be considered, as well as whether or not the supply of milk is equal to the demand. As a general rule, when child and parent are in good health, the feeding from the breast may be continued until the ninth month. After that children in health begin to be supplied with teeth, and when these make their appearance the inference may naturally be drawn that the child is able to partake of nourishment a little more substantial than mothers' milk. If, on the contrary, the child is delicate and feeble, and the teeth are late in making their way through the gums, and if also the mother is well and retains a good supply of milk, the nursing may with safety be continued a few months longer. Indeed, it is quite possible that the life of the child might be endangered if in its weak condition any attempts were made to wean it. The quality of the milk, too, must be carefully observed; no child can thrive on weak impure food of any kind; and if the mothers' milk prove to be weak in quality or insufficient in quantity, an artificial supply should at once be provided. Goats', cows', or asses' milk would any of them be preferable to second rate mothers' milk. In all instances the process of weaning should, if possible, be performed gradually, so as to prevent any undue suffering on the part of the mother, and also to accustom the infant by degrees to its new form of diet, and thus dispense with much unnecessary pain and annoyance. For a short time difficulty will no doubt be met with in deciding how much of the new food should be given at one time, and of what it should consist. But these are matters that will be soon put right after a little experience. A mistake very often made at this time is that of overloading the child's stomach, an error which is sure to cause the infant more or less suffering, and which is very apt also to impair its digestive organs. It is almost impossible to say which of the two evils is the greater, that of under-feeding or of over-feeding an infant, the results from each method being so highly injurious. Children who are accustomed to partake of food at regular intervals soon show by unmistakable signs when their hunger is satisfied.

Weasel.—This is the *Mustela communis* of the naturalist, and belongs to the *Mustelidæ* family, of which it is considered the type. It is long in the body and short in the legs, the length being seldom over eight inches and the height about three. The tail is somewhat short and bushy; the eyes are small, black, and piercing; the ears short and round; and the nose whiskered, like that of the common cat. In colour it is of a pale red on the upper and pure white on the under portion of the body. In temper it is exceedingly ferocious, and is in the habit of attacking animals double its own size. It is an inhabitant of the more temperate regions of Europe.

Weather-boards.—This term is applied to boards which become gradually thicker from one edge to the other. They are used for roofing outhouses, &c., the thick edges regularly overlapping the thin ones. The same name is given to an arrangement of boards often so contrived that, when fixed like a Venetian blind, they can be made to lie close or to stand at any angle from each other. These boards move on hinges, and are used in shops and places where drying operations are carried on.

Weather-glass. (*See* Barometer.)

Webs and Webbing.—Web is a Saxon word used to designate a texture of thread. The warp prepared by the warper when given to the weaver is called a web. Thus the linen foundation on which Brussels carpet is made is called a web. Webbing is a narrow, unbleached web, some two or three inches in width; it is woven with hempen thread, and is expressly strong. It is used in a variety of ways, principally as a support for the seats of such chairs and couches as have stuffed cushions. Bands of webbing are fastened across, underneath the seats. Webbing is also nailed on embroidery frames for the purpose of having the material stitched to it, which plan causes less injury to the material than fastening it to wood.

Wedding.—The marriage ceremony is very commonly spoken of as the "wedding," a word derived from the Anglo-Saxon. There are three notable anniversaries of the wedding-day: the wooden wedding, which is the fifth anniversary, celebrated by presents in wood; the silver wedding, the twenty-fifth anniversary; and the golden wedding, the fiftieth anniversary. (*See* Marriage.)

Wedding Arrangements.—It is an understood thing that a lady shall name her own wedding day, choose her bridesmaids, and decide upon their dresses. The bridesmaids vary in number from two to twelve, the bride's sister, if she have one, being the chief among them. Their dresses are usually all alike, although if there are a number of bridesmaids half of them may be dressed in one style and half in another. When the bride is young, the bridesmaids should be young also; if she is middle-aged they may be of any age. In the case of a second marriage, bridesmaids are frequently dispensed with altogether. The trousseau, the wedding breakfast, and the wedding cake are provided by the bride's family. The ring, and any carriages that may be required, are procured by the bridegroom, upon whom also devolves the duty of looking after the legal and ecclesiastical arrangements. (*See* Marriage.) The bridegroom is expected also to provide bouquets for the bride and her maids. The bouquet of the bride should be formed of white flowers only. A very little orange blossom is usually introduced. The brother or intimate friend of the bridegroom acts as his "best man," accompanies him to the church, supports him at the altar, and takes upon himself the duty of dispensing the fees. On the eventful morning the bride breakfasts in her own room. The wedding guests drive first to church, and take their seats in a convenient position. The bridesmaids go next, and station themselves in the porch that they may be ready to meet the bride. The bridegroom and his best man wait for her at the altar. The bride herself arrives last; she is accompanied in the carriage by her father or the

friend who is to give her away, and leaning on his arm, and followed by the attendant bridemaidens, she walks up the church. In some cases the mother remains at home, although it is not unusual for ladies to be present at the marriage of their daughters. The bride stands on the left of the bridegroom, and her bridesmaids are near her. The chief bridesmaid takes her bouquet and gloves when it is time for the wedding ring to be put on. At the conclusion of the ceremony the wedding party adjourn to the vestry, the register is signed, after which the newly-married pair leave the church first, and return home together. The mother and father of the bride quickly follow, that they may be ready to receive the guests, who arrive in due course. Half an hour or more is spent in congratulations, and in the inspection of the wedding presents, which are laid out on a table in the drawing-room, after which the bride and bridegroom, with their friends, partake of the wedding breakfast. When this is over, the bride retires, changes her wedding dress for a travelling dress, and starts with her newly-made husband on the wedding tour. A ball or evening party is usually given in the evening at the house of the bride.

Wedding Breakfasts.—In a wedding breakfast the table is set as if for a dinner, and usually with an abundance of formality and display. It is made to look as pretty as possible with plenty of flowers and fruit. Dinner napkins should, of course, be provided. The viands are served cold, and are generally of a costly and diversified character. They are all put on the table at one time. The wedding cake occupies the centre of the table opposite the bride. Tea and coffee may be at either end; in winter-time, soup is frequently handed round at the commencement of the feast. Various wines are also provided. Sometimes the bride and bridegroom absent themselves from the wedding breakfast, but it is more usual for them to be present. Towards the conclusion of the repast, a toast—"The health and happiness of the newly-wedded pair"—is proposed, either by the father or by some old and intimate friend of the family. The bridegroom responds. Other toasts are sometimes proposed, such as the health of the bridesmaids, responded to by the best man; the health of the father and mother of the bride; the health of the officiating clergyman, &c. Toasts at wedding breakfasts appear, however, to be gradually falling into disfavour. The wedding cake is cut by the bride. As this is rather a difficult piece of business when the cake is an elaborate one and the icing is thick, it is usual for it to be lightly cut through beforehand, the bride passing her knife through the slit already made. A slice of the cake is put upon a plate, cut into small pieces, and handed round, and each guest is expected to take a little. At the conclusion of the repast the newly-married pair start on their wedding tour. The gentlemen do not remain after the ladies at a wedding breakfast. The guests who are not staying in the house, or who are not especially invited to remain, take their leave shortly after the departure of the bride and bridegroom.

Wedding Cake. (*See* BRIDE-CAKE.)

Wedding Cards. — Formerly it was quite usual for a newly-married couple to send cards to their friends immediately after the marriage, and these were sometimes of a very gorgeous description, printed in silver letters, and fastened together with silver cord or wafers. Now wedding cards are frequently dispensed with altogether, although when this is done care should be taken to announce the omission with that of the marriage in the newspaper. "No cards" is the formula usually adopted.

Wedding Customs. (*See* MARRIAGE CUSTOMS.)

Wedding Dresses may be made of white moiré, brocade, gros-grain, satin, and silk. As a rule, the more plain the dress, the better the taste; lace, however, may be used as a finish. For persons advanced in life, and for widows, greys, lavenders, and dove-colour are the most suitable. Brides are not unfrequently married in their travelling dress, when economy, haste, or other circumstances are a consideration. The bridesmaid's dress may be of white or coloured cashmere, serge, alpaca, muslin, and tarlatan. The style must follow the current fashion as to make. A gentleman can depend on his tailor, if well selected, for the best style of dress suitable for a bridegroom, and the "best man" likewise. If either be entitled to wear uniform, that, of course, is his proper dress.

Wedding Favours. (*See* FAVOURS.)

Wedding Guests.—The number of wedding guests must depend on the style of wedding that is to be celebrated. Mere acquaintances are seldom admitted, the company consisting exclusively of near relations and old and valued friends. Every respect ought to be paid to the family of the bridegroom, and his father and mother should be treated with distinguishing courtesy. The clergyman who officiates at the marriage should always receive an invitation to the breakfast. In allotting seats at the wedding breakfast to the different guests, it should be arranged that the newly-married pair sit together. If the table is a long one they should be at one side; if, as is very usual, three tables are placed horse-shoe shape, they may be in the middle of the centre table. The bridesmaids should either be opposite them or at either side. In order to prevent confusion, the seats should be fixed before the guests arrive, and name-cards should be laid on the table that there may be no mistakes.

Wedding Invitations.—Invitations to a wedding should be sent at least a fortnight before the day. As a matter of convenience it is right that this should be done, for special dresses are frequently required for an occasion of the kind, and ample time should be given for them to be made. The invitation should be issued in the name of the host and hostess, the father and mother of the bride. Unless a printed card is used, the letter should be written on small-sized paper of the best quality. They should be answered as soon as possible.

Members of the bridegroom's family and the bridesmaids are usually invited to stay in the house; they may be expected to arrive the day before the one fixed for the ceremony.

Wedding Presents.—A wedding is an established occasion for the giving and receiving of presents. The bridegroom usually presents his bride with a handsome ornament, and he may also bestow a small gift, such as a locket or a ring, upon each of the bridesmaids. The bride also may offer a gift to her young friends as a memorial of the day, and it is not unusual for her to provide their costumes also. The friends and relatives of the happy pair very commonly embrace this opportunity of giving a tangible expression to their kindly feelings and good wishes. A difficulty is frequently experienced in choosing a suitable article for a wedding present. Mutual friends would do well to contribute to the enrichment or to the bright appearance of the new home, and therefore should procure household ornaments of various kinds, pictures, books, or china; while personal friends of either the bride or the bridegroom may choose to give personal presents. The members of the bridegroom's family, however, show their good taste by offering some little ornament specially to the bride. It is one way, and a very pleasant way, of welcoming her amongst them, and it is a compliment to the bridegroom, for it expresses their appreciation of his choice. All wedding presents should be of a durable nature. They may be inexpensive, but they will always be regarded as valuable on account of their associations, and therefore they should be of a character that will reward careful treatment. It is satisfactory also when they can be chosen of a unique description, so that the danger may be avoided of two or three friends making the same present. On the wedding day the wedding presents are usually laid out in a convenient place for the inspection of the guests.

Wedding Rings.—From very early ages a peculiar charm appears to have been connected with the ring. Without beginning or end, it has long been regarded as an emblem of eternity, and also of the strength and perpetuity of affection. The fourth finger of the left hand has long been considered sacred, and hence has been consecrated to wear the wedding ring. The Greeks and Romans were so fully convinced of the intrinsic value attached to this finger, that it was called the medical or healing finger. Their various medicinal preparations were stirred with it in place of a spoon, it being supposed that should any noxious ingredient be included in the cup, warning of the fact would immediately be given by a palpitation of the heart. In some remote country places in England this superstition is still firmly believed in. The other fingers are thought to possess a certain power of evil, but a wound or sore stroked by the wedding finger is expected by them in a short time to disappear; and the wedding ring itself is by many supposed to have the same healing effect. The rings used by the Jews at their marriage ceremonies were sometimes very large in size, and elaborate in design; the Jewish law demanded, too, that they should be of a certain value, and to prove this to be the case they were before the ceremony submitted to an examination. It was a rule also that the bridegroom should purchase the ring out of his own private resources, and not obtain it either on credit or as a gift from a friend; and after the ring had been placed on the bride's finger, the marriage was considered then, as it is now, to be irrevocably binding. Among the fishermen on the west coast of Ireland the wedding ring is kept as an heirloom in the family, and is considered the property of the eldest married daughter, consequently many of the wedding rings still worn by the fish-wives in that district are quite old and of exceedingly ancient design, being manufactured as far back as the Elizabethan era. In the sixteenth century both marriage and betrothal rings were made with a motto or posy inscribed inside, and to these Shakespeare in two or three of his plays refers.

Wedding Tours.—It is customary after marriage that a newly-wedded pair should take leave of their friends, and begin the journey of life together by starting on the "wedding tour," that is, going to stay for a while at some pleasant place previously chosen for the purpose. The commencement of the journey is sometimes made the occasion for a somewhat exuberant demonstration of good-will. Old shoes and rice are thrown after the retreating carriage, for, according to an old superstition, the former is said to bring good luck and the latter plenty. With the departure of the happy couple the wedding itself may be said to be over, although a ball or evening party is very commonly given on the evening of the day in honour of the event. The place chosen for a wedding tour must, of course, be determined by the tastes and circumstances of the people concerned.

Wedding Trousseau. (*See* TROUSSEAU.)

Wedges.—Pieces of metal or wood, thick at one end and tapering to a thin edge at the other, used in splitting wood, rocks, &c.

Wedgwood-ware.—A hundred and fifty years since, the pottery used in England was brought from France, Holland, and Germany, because that made in England was very inferior, the only kind being a rough stoneware. At that period Josiah Wedgwood began to improve the art. He introduced white stoneware, and later the cream-coloured ware that was called "Queen's ware" (*which see*). In addition to this, Wedgwood brought forward a particular kind of black ware, bamboo or cane-coloured biscuit, white biscuit, blue and green jasper, and a very hard composition which is used for pestle and mortar in the chemist's laboratory. Terra-cotta also received a fresh impetus, and improvements were made in it by him. Wedgwood discovered the art of imparting vivid colours to hard pottery. The particular ware which bears his name is a semi-vitrified pottery which is highly glazed, and which possesses the capability of receiving various colours by means of metallic oxides and ochres. The style and decorations of

pottery were much advanced, and many beautiful specimens of antique forms and fancies have been copied in Wedgwood-ware.

Weeds.—When these spring up in garden-walks which are few, and the weeds not too extensive, hand-weeding is the best remedy. This is best done after a shower of rain. A solution of arsenic and soda or carbolic acid is also effective, but care must be taken to confine the action of such poisons to weeds only. To make the first, take one pound of powdered arsenic and dissolve it in three gallons of cold water, put this on the fire to boil, and keep stirring it; then add two pounds of broken soda in seven gallons of cold water, and stir the whole well together while boiling. One ounce of carbolic acid in a gallon of water will also answer. Apply either solution with a watering-pot. Ammoniacal liquor procured from gas-works is recommended for the same purpose. Salt applied in dry weather, either dry or in the shape of hot brine, is also effective. Weeds should be looked for and destroyed while they are young.

Weeds, Widow's.—In olden times the word weed, from the Dutch *waed*, was used for a garment or article of apparel; in the present day the word is used in the plural in this sense only, and expressly to denominate a particular kind of apparel, namely, the distinctive dress worn by a widow during the first year of her widowhood. The peculiar costume known as widow's weeds consists of a dress covered, or nearly so, of crape, of a large cloak or mantle made of full silk and crape, or of the latter alone, of a crape bonnet plainly trimmed with crape, and without flowers or feathers; and a long crape veil is attached to the bonnet, and a peculiar style of border cap is placed inside. A cap of the same description is worn in-doors. This is made of white muslin lisse or tarlatan, which is crimped by being pressed on a board having fine lines with a small wooden roller, which is also lined. The borders for this cap are made of material which has been similarly treated, a round mesh is then pushed through them, and they are made full; broad strings with deep hems complete the cap. No ribbon or any other addition, except that which can be made of the material, is introduced in these caps.

Weekly Payments.—By this phrase we mean the custom of paying by weekly instalments for goods which are ordered rather than purchased. Many poor persons go to shops where the system is adopted, and select articles for use or ornament, paying down a part of the price and the remainder in small sums, a shilling or even sixpence per week, perhaps, until the whole is paid, when the articles are delivered to them. In this way, watches, dresses, boots, jewellery, and a vast number of other things are procured by those who cannot afford to pay for them at once. The plan has its advantages, because it encourages in some cases a certain kind of thrift, and enables poor people to get what they need in an easy way. But it also has its disadvantages, because it may and does tempt persons to buy what they neither need nor can really afford, and it is probable that they may have to pay an exorbitant price for an inferior article. On the whole, the practice is one which cannot be recommended.

Weekly Tenants.—In leases of houses and apartments for an indefinite period less than a year, the hiring will be construed to be quarterly, monthly, or weekly, according to the circumstances of each case and the custom of the place or county. Of these circumstances, the principal are the payment of rent and the length of notice required to determine the tenancy. Where rent is paid weekly or monthly, in the absence of any express stipulation to the contrary, a week's or a month's notice is respectively sufficient to determine such tenancies. In weekly and monthly holdings it is usual for the landlord to pay the rates and taxes, and he usually compounds for them. (*See* LANDLORD AND TENANT.)

Weeping.—The shedding of tears. (*See* TEARS.)

Weeping Willow. (*See* WILLOW TREES.)

Weever.—This is a fish which is sometimes called the wiver, or sting-bull, and by the French *la vive*. Naturalists name it the *Trachinus draco*, and it belongs to the family *Percidæ*, of which the common perch is the type. Although the flesh of this fish is greatly



WEEVER.

esteemed, it is so clad in prickles as to render it very dangerous to handle, independently of the fact that these prickles are poisonous. Very severe cases of wounding have often taken place from contact with it. The fish receives its French name from the fact that it can exist quite a long time out of water.

Weevils.—These are called *Calandra* by the naturalist, and belong to the family *Curculionidæ*. The corn-weevil is one of the genus; it resembles a small beetle about a sixth of an inch long, which is extremely destructive to grain. The little thing makes a hole with its proboscis in a grain of wheat; in this an egg is deposited, which in time turns into a small grub, which eats the whole of the corn; it then takes on the pupa stage, and next that of the full-fledged weevil, strong enough to bore its way out from its prison, and ready to repeat the damage done by its ancestors. There is another distinct species which attacks the grains of rice, and still another called the *Calandra palmatum*, because it lives in its

larval state on the pith of the palm-trees that grow in South America. It is fully an inch and a half long.

Weighing Machines.—These are of various kinds and forms, according to the nature and bulk of the articles to be weighed. Almost all weighing machines depend, however, upon the principle of the lever, the spring-balance in its different forms being perhaps the only exception. The simplest form of weighing machine is the common balance with equal arms. (*See* BALANCES.)

Weighted Silks, &c.—The quality of silk is determined after its filaments have been slightly twisted together, but before it is woven. The threads known as organzine and tram contain from three to thirty filaments; a certain quantity of either of these is wound off and weighed, and its quality is decided by the greatness of its weight. This mode of test has led principally to the adulteration of silk, for while in this state silk is a large absorbent of moisture, and thus its weight can be increased by unjust means. The original weight of silk can also be largely increased by dyes, which thicken and make the silk much heavier. In so doing the buyer is deceived, for an inferior silk is made to appear superior. Moreover, this treatment of silk tends to materially injure the threads: they become very tender and will burn like tinder; they also assume a glazed and greasy appearance.

Weights and Measures.—The first attempt at uniformity of weights and measures in England seems to have been made in the reign of King John, when a special clause relating thereto was inserted in the Great Charter. This ordinance appears, however, to have been but ill observed, and a diversity of weights and measures has been in constant use from a very early period. Thus, in the reign of Henry VIII., troy and avoirdupois weights were both in existence, and these have remained to the present day, the former being used in weighing precious metals (and, with a slightly different division, by apothecaries in compounding their drugs), and the latter for all other purposes. The standard for these weights was definitely fixed by the Act of Parliament 5 Geo. IV. c. 74, a Statute which has been amended on several subsequent occasions. By the Weights and Measures Act of 1878 (41 & 42 Vict. c. 49), fresh enactments as to uniformity have been made. By this Act it is laid down that all articles sold by weight shall be sold by avoirdupois weight, except (1) gold and silver, and articles made thereof (including gold and silver thread, lace, or fringe), platinum, diamonds, and other precious metals or stones, which may be sold by troy weight; and (2) drugs, which may be sold by retail by apothecaries' weight. At the same time, the Act provides that all goods may be legally sold by metric weights or measures. (*See* METRICAL SYSTEM.) The imperial standard for determining the imperial standard pound is of platinum, the form being that of a cylinder nearly 1·35 inches in height and 1·15 inches in diameter. The Board of Trade standards consist of 21 avoirdupois weights ranging from 56 pounds to 24 grains; 30 troy bullion weights ranging from 500 ounces to ·001 ounce; and 23 decimal grain weights ranging from 4,000 grains to ·01 grain. The three authorised systems of weights, with their various multiples and sub-multiples, are as follow:—

TROY WEIGHT.

lb.		oz.		dwts.		grs.
—		—		1	=	24
—		1	=	20	=	480
1	=	12	=	240	=	5,760

As already explained, this weight may be used only in weighing gold, silver, &c.

APOTHECARIES' WEIGHT.

lb.		oz.		drs.		scrs.		grs.
—		—		—		1	=	20
—		—		1	=	3	=	60
—		1	=	8	=	24	=	480
1	=	12	=	96	=	288	=	5,760

Used for drugs, &c., sold by weight by retail. (*See also* APOTHECARIES' WEIGHT.)

AVOIRDUPOIS WEIGHT.

16 drachms	=	1 ounce
16 ounces	=	1 pound (7,000 grs.)
14 pounds	=	1 stone
8 stones, or 112 pounds	=	1 hundredweight
20 cwt.	=	1 ton

Used for all ordinary purposes of weight. (*See also* AVOIRDUPOIS.) The following are some special weights:—

A stone (meat, &c.)	=	8 lbs.
A firkin (of butter)	=	56 ,,
A firkin (of soap)	=	64 ,,
A cental (flour, &c.)	=	100 ,,
A truss of straw	=	36 ,,
A truss of old hay	=	56 ,,
A truss of new hay	=	60 ,,

The following weights have been used in the wool trade:—

7 lbs.	=	1 clove		
2 cloves	=	1 stone	=	14 lbs.
2 stones	=	1 tod	=	28 ,,
6½ tods	=	1 wey	=	182 ,,
2 weys	=	1 sack	=	364 ,,
12 sacks	=	1 last	=	39 cwt.

MEASURES.

The imperial standard for determining the imperial standard yard is a solid square bar of bronze, all measurements being taken when the bar is at the temperature of 62° of Fahrenheit's thermometer. This imperial standard yard is the legal standard measure of length, and is the only unit or standard measure of extension from which all other measures of extension, whether linear, superficial, or solid, may be ascertained. The Board of Trade standards of length comprise eleven measures ranging from 100 feet to 1 inch. The following are the measures of length, superficies and solidity:—

LINEAR MEASURE.

mile.		fur.		chn.		rod, pole, or perch.		yd.		ft.		in.
—		—		—		—		—		1	=	12
—		—		—		—		1	=	3	=	36
—		—		—		1	=	5½	=	16½	=	198
—		—		1	=	4	=	22	=	66	=	792
—		1	=	10	=	40	=	220	=	660	=	7,920
1	=	8	=	80	=	320	=	1,760	=	5,280	=	63,360

There are also certain special measures of length, as follow :—

21	lines	=	1 inch
3	inches	=	1 palm
4	,,	=	1 hand
2¼	,,	=	1 nail
4	nails	=	1 quarter
4	quarters	=	1 yard
5	,,	=	1 ell
3	,,	=	1 Flemish ell
6	,,	=	1 French ell
18	inches	=	1 cubit
2½	feet	=	1 military pace
5	,,	=	1 geometrical pace
6	,,	=	1 fathom
240	yards	=	1 cable's length
3	miles	=	1 league
60¼	,,	=	1 geographical degree

SQUARE OR SURFACE MEASURE.

144	sq. in.	=	1 sq. foot
9	sq. ft.	=	1 sq. yard
30¼	sq. yds.	=	1 rod, pole, or perch
16	poles	=	1 sq. chain
40	poles	=	1 rood
4	roods	=	1 acre
640	acres	=	1 sq. mile

CUBIC OR SOLID MEASURE.

1,728	cubic inches	= 1 cubic foot
27	cubic feet	= 1 cubic yard
40	do. of rough or 50 do. of hewn timber	= 1 ton or load
42	cubic feet of timber	= 1 shipping ton
108	cubic feet	= 1 stack of wood
128	cubic feet	= 1 cord of wood
40	cubic feet	= 1 ton shipping

By the Weights and Measures Act of 1878, already referred to, "the unit or standard measure of capacity from which all other measures of capacity, as well for liquids as for dry goods, shall be derived, shall be the gallon containing ten imperial standard pounds weight of distilled water weighed in air against brass weights, with the water and the air at the temperature of 62° of Fahrenheit's thermometer, and with the barometer at thirty inches." The Board of Trade standards for measures of capacity are eleven in number, ranging from a bushel to a quarter gill, and in addition there are sixteen standards of measures used in the sale of drugs. (*See* APOTHECARIES' MEASURE.)

LIQUID MEASURE.

4	gills	=	1 pint
2	pints	=	1 quart
4	quarts	=	1 gallon
9	gallons	=	1 firkin
18	,,	=	1 kilderkin
36	,,	=	1 barrel
54	,,	=	1 hogshead
84	,,	=	1 puncheon
108	,,	=	1 butt

Practically the only measures in use are gallons, quarts, and pints. For certain special measures *see* BUTT; HOGSHEAD; OCTAVE; PIPE; POTTLE.

DRY MEASURE.

4	quarts	= 1 gallon
2	gallons	= 1 peck
4	pecks	= 1 bushel
3	bushels	= 1 sack
12	sacks	= 1 chaldron
8	bushels, or two sacks	= 1 quarter
5	quarters	= 1 load

The following are the measures of time (*see also* CALENDAR; MONTH; YEAR):—

MEASURES OF TIME.

60	seconds	= 1 minute
60	minutes	= 1 hour
24	hours	= 1 day
7	days	= 1 week
28	days	= 1 lunar month
28, 29, 30, or 31	days	= 1 calendar month
12	calendar months	= 1 year
365	days	= 1 common year
366	days	= 1 leap year

ANGULAR MEASURE.

60	seconds	= 1 minute
60	minutes	= 1 degree
30	degrees	= 1 sign
90	degrees	= 1 quadrant
4	quadrants, or 360°	= 1 circumference, or great circle

Weights and Measures, False.—By the Weights and Measures Act of 1878, it is provided that "every person who uses or has in his possession for use for trade any weight, measure, scale, balance, steelyard, or weighing machine which is false or unjust, shall be liable to a fine not exceeding five pounds, or in the case of a second offence ten pounds; and any contract, bargain, sale, or dealing made by the same shall be void, and the weight, measure, scale, balance, or steelyard shall be liable to be forfeited." Similarly it is enacted that no person shall "wilfully or knowingly make or sell, or cause to be made or sold, any false or unjust weight, measure, scale, balance," &c., under pain of a fine not exceeding ten pounds in the event of a first offence, or fifty pounds for a second offence. It is further enacted that "every person who uses or has in his possession for use for trade a weight or measure which is not of the denomination of some Board of Trade standard, shall be liable to a fine not exceeding five pounds, or in the case of a second offence ten pounds, and the weight or measure shall be liable to be forfeited." (*See preceding article.*)

Wellington Boots.—A man's boots, reaching to the knees, and so called in memory of the Duke of Wellington, in consequence of his habit of wearing boots of this kind, probably acquired in his residence in European countries, where they have formed part of the national costumes from time immemorial. The Royal Horse Guards, Life Guards, and Blues wear them when in full uniform. A boot resembling a three-quarter Wellington boot may be seen on a *bas-relief* of Persepolis, B.C. 472, at the time of Darius and Xerxes. A highly ornamental dress-boot of much the same form adorns the legs of a youth depicted on a Theban painting, and supposed to have belonged to some country adjacent to Egypt.

Wells and Well Water. (*See* WATER.)

Welsh Rabbit or Rarebit. (*See* RABBIT, WELSH.)

Welts.—These are additions made to boots and shoes which give extra strength and longer wear. A welt is a piece of leather about an inch wide which is doubled and stitched between the sole and the upper leather. This necessitates more work, and therefore boots and shoes which are welted always cost more money than those which have not this addition. Boots should be re-soled before the

welt is reached, for if that has to be renewed an extra charge is made for the additional trouble.

Wens.—These are unsightly tumours which are frequently seen on the head, face, neck, and other parts of the body. They present a smooth shining appearance, are elastic to the touch, and are found to consist of a yellowish cheese-like matter, enclosed in a cyst, or sac. Wens are caused by a stoppage of the excretory ducts of the sebaceous glands, and vary in size from a pea to an orange. When they are small and are not in the way they may be let alone, as they are of a harmless nature, but when large, or in such a position as to implicate other structures, they must be removed by a surgical operation, which to be effective must include the complete extirpation of the sac. There is some danger of erysipelas supervening upon this operation; care should therefore be taken that it is performed when the patient is in good health and under the most favourable conditions of good air, &c.

Westphalia Hams. (*See* HAMS.)

Wet Nurse.—It is in accordance with the wise order of nature that a mother should nurture her own child. When it is certain that she either cannot or ought not to do so, it will be necessary to decide what mode of feeding shall be adopted. When it is practicable, the very best thing that can be done is to entrust the child to a wet nurse. Strong healthy children occasionally get on well enough upon an artificial diet, but there is no doubt that there is no kind of food on which an infant thrives so thoroughly as on human milk. Many a little one has been lost because it has not obtained the food that was naturally adapted to its constitution, and it has been calculated that three-fourths of the children brought up by hand die in their infancy. The choice of a wet nurse is generally, and very wisely, left to the medical man. As, however, some difficulty may attend the selection of a suitable person, it is desirable that a mother should know what are the points to be looked after in making an engagement, and what steps should be taken to secure for the infant the full benefit of the nourishment thus provided. The health of the wet nurse is the first consideration. As appearances are not always to be relied upon in order to be certain that the nurse is free from any strumous defect or hereditary taint, it will be a wise precaution to see her child, and it will be a great satisfaction to find it healthy-looking, with firm flesh, and with skin free from any eruption, particularly about the head, neck, and gums. The breasts of a wet nurse (and it is important that she should be able to use *both* breasts) should be firm, perfectly clean, and well formed, feeling knotted, irregular, and hard to the touch, and with nipples well developed, and though small, of a sufficient size to be easily grasped by the lips of the child (a very large nipple would be likely to spoil the shape of the child's mouth). The milk should be of a thin bluish-white colour, slightly sweet to the taste. When allowed to stand for a time it should throw up a thick layer of cream. When dropped into water it should diffuse itself, and form a light cloudy appearance, not sink at once to the bottom of the vessel in thick drops. It should flow freely also. In age and temperament the wet nurse should be as nearly as may be the same as the mother, although any constitutional defect in the latter should be carefully avoided. She should have been confined about the same time too. It would not signify very much if it were a *little* earlier, because then there would be less likelihood of any difficulty arising with the breasts or nipples; but there must not be much difference, as human milk changes in character as the months roll on, and becomes adapted to the increased age of the infant, so that the milk which was perfectly adapted to meet the requirements of a baby three or four months old would not do at all for a newly-born infant. Besides these physical requirements, a wet nurse should be a woman of a cheerful countenance and a tranquil disposition, sober in her habits and cleanly in her person, fond of children and capable of managing them well. Experience proves that mental disturbance exercises a strongly deteriorating influence on the character of breast-milk, and therefore moral qualifications are of great importance, not only to the comfort of the household, but to the health of the child. A wet nurse should be well fed on simple wholesome diet. Her food should at first resemble that to which she has been accustomed, and any change that is made in it should be gradual. Excess of any kind should be carefully avoided. An erroneous idea prevails that a nursing mother or a wet nurse can scarcely take too much food. This is a mistake, for an overloaded stomach tends to diminish rather than to increase the supply of milk. *If it is necessary*, a moderate amount of malt liquor may be allowed her, but in no circumstances should the quantity exceed three half-pint tumblers a day. If, however, a nurse is in sound and vigorous health, stimulants are unnecessary for her, and if taken will be injurious instead of beneficial. Stimulants induce feverishness, and over-heat the milk, and many ailments arising from blood impurity are produced by their use during nursing. A wet nurse also should be regular in her mode of life, and she should always have her meals at fixed times, carefully avoiding hot suppers. She should retire to rest in good time, and by no means be in bed late in the morning. If she has had a disturbed night, arrangements must be made for her to be sent to lie down for an hour or two in the middle of the day. On no account must the extraordinary fatigue be met by the frequently adopted remedy of an extra glass of malt liquor. Sleep will restore her strength, and improve the milk. A stimulant will injure both, and it may be taken for granted that the pampering of the nurse will have to be paid for by the suffering of the child. Then she should bathe and wash regularly—in short, follow every rule which conduces to health in the ordinary way. The mother who is compelled by circumstances to entrust the suckling of her child to a stranger should on no account consider herself relieved from the duty of strict supervision. She should lay down strict rules for the baby's treatment, and take special care that it is fed at

regular intervals, that no artificial food is given to it, and that no medicine shall be taken by it but such as she herself shall administer. Ignorant women are often possessed of the idea that the fatter a baby is the better; and in order to bring about the state of things they consider so desirable, they will let the little one take breast-milk all day long, sometimes give it artificial food, and oven let it drink beer or porter. This is most improper, and will certainly tend to place the child on the brink of disease, or diminish its chances of recovery if it should be taken ill. Unprincipled women, too, are very likely, in order to secure quiet rest for themselves, to give soothing mixtures of various preparations of laudanum to the baby—a course of conduct which the experienced mother would regard as nothing short of criminal. The employment of a wet nurse frequently calls for the exercise both of judgment and firmness on the part of the mistress of a house, in order to prevent disagreement amongst the servants, and neglect of domestic arrangements. The wet nurse, on account of her peculiar position, considers herself a privileged person, and may cause a good deal of discomfort by being unwilling to conform to existing rules. This disposition should be dealt with at once by the mistress, quietly and kindly, but firmly. Where there is already an upper nurse engaged, the wet nurse must take the second place in relation to her.

Whale Oil.—Blubber is the cellular membrane in which the oil of the whale is included. It varies in thickness from eight to twenty inches, and the oil is obtained from it by draining, it being cut up before it is subjected to the process. The oil is heated to free it from its rancid smell and to make the coarser parts settle, then cooled in water, and stored in casks. From twenty to thirty tons of blubber will often be taken from the carcase of one whale, and each ton will yield nearly two hundred gallons of oil. Various kinds of whales are pursued for the sake of their oil, that of the sperm whale being considered the most valuable. The Greenland whale yields the largest proportion of oil, which is commonly known under the name of train oil.

Whalebone.—The whalebone of commerce consists of the baleen plates which take the place of teeth in the mouth of the baleen whale (*Balæna mysticetus*). It is made up of numerous parallel laminæ, descending perpendicularly from the palate of the animal. The length of the largest pieces of baleen in a whale sixty feet long is about twelve feet. Whalebone is prepared for use by immersion for twelve hours in boiling water, which softens it and renders it fit for the purposes of manufacture. A very useful imitation whalebone is made of vulcanite or prepared caoutchouc.

Whatnot.—This is an elegant piece of furniture, combining the elements of utility and ornament, varying in form and size to suit the requirements of various apartments; being sometimes devised to occupy the position in the angles of the walls, thereby breaking formal lines, which is so essential for the production of an artistic effect. It consists of several shelves arranged one above the other, on which are displayed ornaments of varied description.

Wheat is the most extensively and widely cultivated of all the cereal grasses. Its origin is uncertain, although it has generally been supposed to be a native of the central part of Asia. It has been known from the earliest ages, and was regarded as of great importance in ancient Egypt and Palestine. It is at the present time in cultivation in all temperate countries; and wide regions in North and South America, in the north of India, the north of Europe, and Australia are devoted to it. There are more than 150 named varieties of wheat, although the distinction between some of these is very slight, The varieties also are continually changing. Some of them are highly esteemed in particular districts only, being distinguished by local names, and little known to the world in general. The best known varieties are classified as *red* and *white wheats* according to the colour of the grains; *bearded* and *beardless* wheats, that is, with or without an *awn; winter* or *summer* wheats, the former being sown in autumn, the latter in spring; and soft or hard wheats, the soft wheats being tender and flowery, the hard wheats tough and firm, and horn-like in appearance. The last distinction is the most important, as it relates to a difference in the feeding value and chemical constituents of the grain. Hard wheat is the richest in gluten. It is drier than the other kinds, keeps better, and gives a larger amount of product in the mill. It is employed for making macaroni, vermicelli, and similar preparations. Soft wheat gives a whiter and finer flour, and is suited to domestic purposes. The intermediate variety, or semi-hard wheat, is the best for the baker. In this country wheat is always grown with a certain amount of difficulty and uncertainty. It is raised most easily on stiff clayey soil. It is sown on fallow ground, and after potatoes and beans and cabbages, but it never follows any other white crops. Its produce per acre varies with the season and the district. The average yield of an acre of land should be thirty bushels of wheat grain. (*See also* Bread; Cereals.)

Wheat Midge, or Wheat Fly.—These names are given to certain flies with two wings each, resembling small gnats, and especially mischievous when they attack the wheat crops. The common wheat midge (*Cecidomyia tritici*) is about the tenth of an inch long, with an orange-coloured body and transparent wings, black eyes, and long legs. It makes its appearance about the end of June, and lays its eggs in the ears of wheat just when they begin to blossom. The so-called Hessian fly is another of the family, with a tawny body and black head and thorax. Its habits are somewhat different from those of the wheat midge, but it sometimes does immense harm to the crops of corn. The corn fly is of a different family, but it too attacks the young corn, laying its eggs in the joints of the stalks, &c., and preventing the ear either from coming or from properly maturing. This is

the *Chlorops tæniopus*. There is still another fly which destroys the corn—the corn sawfly, or *Cephus pygmæus*, which lays its eggs below the first joint of the stalk, or a little below the ear. The larvæ first eat the inside of the stalk, and then cut it off near the ground, remaining in the stump to effect their transformation. All the above-named insects have two wings each, but the last is considerably larger than the others.

Wheatear.—This is called by the naturalist the *Saxicola œnanthe*, and belongs to the family *Sylviadæ*, a very familiar member of which is the common stonechat. This wheatear is not only a very pretty little bird, but is greatly esteemed for table use. So finely flavoured is its flesh that it often is called the British ortolan. Wheatears are caught for the market in great numbers, by simple snares made of horsehair. They are widely distributed over Europe, particularly in the more northerly countries.

Wheaten Flour.—The flour of wheat is more highly esteemed than that of any other grain. This arises, not so much from its composition, as from the fact that from it alone fermented bread can be made. (*See* Bread.) It is produced by grinding the grains of wheat, then separating the meal thus formed into flour, pollard, and bran. This flour is dressed to different degrees of fineness. (*See also* Flour.)

Wheaten Flour, Adulterations of. (*See* Adulterations of Food, &c.)

Wheel.—Nearly all the improvements in wheels which have from time to time been introduced have had for their purpose the increasing of their strength and lightness. The usual woods employed are elm for the nave, oak for the spokes, and ash for the felloes. The spokes are almost entirely made by hand with the end of a tool, hence called a spoke-shave. The average size of a coach-wheel runs from 40 to 44 inches in diameter for the front, and 50 to 56 for the back wheels, and the usual number of spokes are fourteen. The rim is strengthened by the tire or iron hoop, which is fitted on and made to shrink by heat, so as to remain tightly fixed when cool.

Wheel Barometer. (*See* Barometer.)

Wheel of Life. (*See* Zoetrope.)

Wheelbarrow. (*See* Barrow.)

Wheels (Fancy Work).—These are made of threads to interlace one another across a round open space; they are used in embroidery and lace-work, and considerably enrich their appearance. In the former work the ring, circle, or centre of flower is first button-holed round, after which loops are made at various points; these are caught together and fastened in the middle. In lace-work the button-hole, as a rule, will not be required. The loops are made on the edge of the braid, and held together by a knotted stitch in the centre. These loops should be of uniform size, or else the spokes of the wheels will not be equally tight and straight. In embroidery the wheels look more distinct when the spokes are made of cotton, which is smoother and more tightly twisted than embroidery cotton.

Wheezing.—This is the peculiar breathing noise which one hears in persons suffering from catarrh, acute or chronic bronchitis, pneumonia, consumption, and other affections of the lungs and respiratory tract. It is of two kinds—viz., moist and dry. Moist wheezing is due to the passage of air over mucus or some other fluid; dry wheezing, on the contrary, occurs when there is an absence of this, and when the mucous membrane is more or less inflamed.

Whelk.—This mollusc is largely consumed as an article of food, though by a limited class of people. Whelks are prepared simply by boiling, and are generally taken with pepper and vinegar. The small ones are eaten like periwinkles, but the large ones are hard and leathery in substance, and are frequently removed from their shells and fried. Good soup also is made from them.

Whetstones, or Hones, are pieces of smooth-surfaced stone used to sharpen the edges of cutting tools. For general use the best is the Staffordshire bilstone. To prevent it from being broken, the whetstone should be set in a piece of wood, and provided with a wooden cover to keep dust and dirt from it. It should from time to time, as may be required, be kept flat by rubbing down the inequalities arising from use with fine sand and water upon a surface of smooth flat stone or metal. It should, moreover, be occasionally cleansed with a little water and pumice-stone.

Whey is the liquid portion of milk which remains after the separation of the curd. It consists chiefly of water, holding in solution between three and four per cent. of sugar of milk. It is of some value as an article of food, chiefly from its salts and free acids; and it is often used to advantage in the sick-room as a drink in inflammatory and febrile diseases, as it possesses diuretic and sudorific properties. It is recommended also to be taken at bedtime when there is a threatening of cold in the head. Goats'-milk whey is considered particularly wholesome, and large establishments have been set up in Switzerland and elsewhere for carrying out what is called the "whey cure." Whey is prepared by the addition of various agents to milk, and its distinctive name varies with the agent employed; thus there are rennet whey, alum whey, cream of tartar whey, tamarind whey, &c.

Whipping (Sewing).—When frills of muslin or lace are set on as a trimming, it is necessary to prepare them before attaching them to the article they are intended to trim. This preparation is known by the name of whipping. As the edge of cambric or muslin would look thick and clumsy if it were turned down and hemmed, it is therefore finely rolled: the sewer rolls the edge with the finger and thumb of the left hand, and overcasts the small roll with needle and fine but strong thread.

The art consists in making a fine and even roll; also in putting the needle through at regular intervals close to but not through the roll. The overcasting should not be very close, or else the thread cannot be easily pulled when forming the frill; at the same time the overcasting must not be very far apart, or the edge will look clumsy and untidy when the frill is made. When lace is frilled, the edge being fast is not rolled, but is overcast by the needle and thread passing through a regular line of holes. Long threads are desirable for whipping, for frequent commencements disturb the order of the frills.

Whips.—Sporting whips are of two kinds—one of which, having a handle with a hook and a long thong, is called a hunting whip, being useful in assisting to manage the hounds. A light straight single-stem whip is called a jockey whip, being the sort used on the turf. Ordinary driving whips are generally made either of holly, yew, or thorn, but the majority of holly, most of the sticks being grown in Kent and Sussex or Wales. The handles, or rather the part that is grasped by the hand, is covered with Russian leather or pigskin, and sometimes with ivory. The same remarks apply to four-in-hand or tandem whips, a good natural holly being considered the best stick for each kind of driving whip. Riding whips are made of whalebone, a material which is every year becoming scarcer, and will probably be some day unprocurable for this purpose; these are covered with sheep's gut (not cat-gut), or sometimes braided with thin strips of black or white whalebone, the latter process being a favourite one for ladies' whips. Another material for this class of whips is rhinoceros horn, it being very pretty when cut and polished. Hunting whips are usually made of Malacca or rattan canes, obtained from Borneo and the neighbouring islands, but some are made of gut and bone, as riding whips, especially those used by "whippers-in" in the hunting-field, the hooks being made of stag's horn.

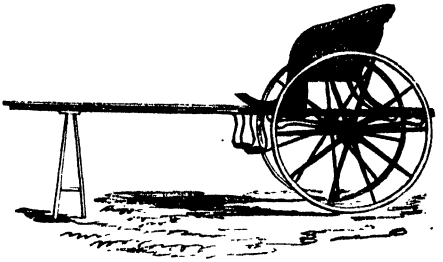
Whirligig.—An instrument for punishing petty offenders, which consisted of a kind of wooden cage turning on a pivot, in which the victim was whirled round with great velocity. The march of civilisation and education has caused this and similar contrivances to become obsolete.

Whisk, Egg. (*See* EGG-WHISK.)

Whiskers. (*See* BEARD.)

Whisky, which may be regarded as the national spirit of the Scotch and Irish, is perhaps less harmful than any other, and the best suited to general use. It is properly distilled from fermented grain, though inferior whiskies are obtained from oats, rye, potatoes, beans, beetroot, molasses, &c. The peculiar smoky flavour which belongs to it is due to the effect of kiln-drying upon the grain, the nature of the fuel employed producing an influence on the character of the product, and peat and turf fires giving it the aroma which is so highly esteemed. Whisky is a spirit that improves greatly with keeping, and it is in this way that it obtains softness and mellowness of flavour. Sometimes it is put into sherry casks, and leaves it quiescent. If it becomes thick, it should be filtered through paper-pulp filters. Too frequently, however, it is fined by chemical preparations; so salts and other impurities are introduced into the spirit. Scotch whisky and Irish whisky differ somewhat in flavour, and each has its admirers. When of good quality, however, the products of the two countries may be regarded as of equal quality and utility.

Whisky (Vehicle).—This was the name given to an extremely light description of one-horse chaise, constructed expressly with



WHISKY.

a view to its rapid motion. The term may be said to be almost obsolete in the present day, it being unknown to the present generation of coach-builders.

Whist.—The name of a game at cards which has long been popular in England, and is supposed to have had an English origin. Some say it was at first called *whisk*, but others believe *whist* is the true name, and given it because silence was required of the players. The game has assumed different forms, and modifications of it are still current. Once the game was nine up; then it was changed to ten, which is called "long whist;" and afterwards "short whist," a game of nine points, was introduced. The rules for long and short whist are practically the same, but we cannot undertake to give full instructions, and the reader must consult a treatise on the subject, seeing that a detailed account would fill up too much space here. The players are four, two of whom are partners against the other two, the choice being decided by cutting the cards, when the two who cut the highest are made partners, and of course the two who cut the lowest are partners. The latter may choose their seats, and the lowest has the deal. Partners sit opposite each other. In cutting, the ace is the lowest. Each player has a right to shuffle the cards once before each deal, the dealer having the final shuffle; but it is not necessary for more than one partner on each side to shuffle the cards. The pack is cut by the person on the right-hand side of the dealer, who puts the pack together again and deals the cards round one at a time, beginning with his left-hand opponent. The last card is turned up and called a trump. The players then sort their hands, and the first card played is by the person at the dealer's left hand, called an elder or leader, and the others proceed and follow suit if they can. This completes the first trick, and the cards are taken by the side that wins and placed face downwards. In playing, the ace is

highest. A player who cannot follow suit may play any card he likes. The player of the highest trump card wins the trick when he cannot follow suit with another. The winner of a trick is the leader for the next, and so on till the thirteen tricks are played. The scoring is peculiar; the side which wins more that six tricks out of thirteen scoring one for each trick above the six. The play goes on in the same way till the game is up. A rubber at whist means the best two games out of three; but the third is not played if the first and second are won by the same party. A number of special terms which cannot here be explained are used in connection with whist. When three persons play the game it undergoes some changes and is called three-handed whist. There are also two-handed whist, sometimes called humbug, dumby, and double dumby, Scotch whist, &c. When played as a parlour game, whist is all very well, provided only those are present who join in it, but it is not favourable to conversation.

Whistles are small wind-instruments, producing a particularly shrill sound, and used for the purpose of summoning persons or animals. The whistle used on board ship is called the boatswain's pipe, by which the men are called to their several duties. Sportsmen generally use whistles for their dogs; these are the ordinary kind, but instead of being made of wood or bone they are commonly constructed of more expensive materials. In addition to these there are other kinds, such as those with which all locomotives are fitted.

Whit-Sunday.—The seventh Sunday after Easter in the ecclesiastical calendar; a festival of the Church in commemoration of the descent of the Holy Spirit on the day of Pentecost. (*See* PENTECOST.) The name of the day is variously derived by different writers, but in common acceptation it is White Sunday. In the ancient Church it was termed *Dominica alba* (White Sunday), and also *Dominica in albis* (the Sunday on which white garments were worn), from an old custom which ordered that all persons baptised on Whit-Sunday should be dressed in white.

White Beam.—This is a tree called by naturalists *Pyrus Aria*, belonging to the family *Rosaceæ* to which the apple, pear, rowan, &c., belong. It is an inhabitant of rocks in the north and west of England, and its scarlet berries render it so ornamental in autumn that it well repays the trouble of cultivation.

White Copperas.—White copperas is the name of a material which contains no copper, but is a sulphate of zinc. It is often called white vitriol.

White Lead. (*See* LEAD, WHITE.)

White Leather. (*See* WHITLEATHER.)

White of Egg is the most familiar form that we are acquainted with of the substance called albumen, for it is nearly pure albumen dissolved in water. (*See* ALBUMEN.) White of egg is employed in many of the arts. In cookery it is frequently whisked to a stiff, firm froth before it is used. It is used in photography as a glaze or varnish, and it is valuable also as a clarifier for wines, syrups, jellies, and various liquids. It is employed as a cement, and for fixing the colours in calico-printing; and in cases of poisoning by the mineral acids—nitrate of silver, sulphate of copper, bichloride of tin, sugar of lead, and corrosive sublimate—it is one of the best antidotes that can be administered. (*See also* EGGS AS FOOD.)

White Pepper. (*See* PEPPER.)

White Pigments.—These are either earthy or metallic, and there are numerous varieties of them:—1. *Alum white*, made of two parts of Roman alum to one of honey, which are mixed, dried, powdered, and calcined, and then washed and dried. 2. *Derbyshire white*, made of heavy spar, powdered and washed. 3. *Flake white*, made of white-lead. 4. *Mineral white*, a precipitated carbonate of lead. 5. *Newcastle white*, white-lead made with molasses and vinegar. 6. *Nottingham white* is very similar to the last. 7. *Pearl white* is an oxide of bismuth. 8. *Permanent white*, a preparation of sulphate of baryta. An authority says that the brilliancy and whiteness of the finest white-lead are but dim when compared with painting in sulphate of baryta, and the latter is strongly recommended for in-door work as not only good, but durable and economical. 9. *Royal white* is a mixture of whiting and size, used quite fresh. 10. *Spanish white* is made of pure chalk. 11. *White-lead* is carbonate of lead variously prepared, sold under various names, and often adulterated, whether wet or dry. 12. *Zinc white*, an oxide of zinc, very useful for painting woodwork, &c., and not injurious to health like fresh white-lead.

White Pot.—A very wholesome but old-fashioned preparation of wheat and flour, varied with the addition of eggs, goes by this name. The ingredients are mixed to a smooth batter, put into an oven, and simply baked. White-pot is a Devonshire dish.

White Swelling.—This is the name popularly given to an affection of the thigh and leg from which women occasionally suffer after confinement. It generally arises either from exposure to cold, or from leaving bed too soon, causing inflammation and obstruction of the veins of the leg and womb, and thereby producing the painful white swelling which is characteristic of the disease. The treatment consists in the application of leeches in certain cases, and in others blisters or turpentine stupes. Subsequently, support with flannel bandages, and friction with stimulating liniments (*see* EMBROCATIONS), will be necessary. If the pain is great, an opiate draught, or a pill containing one grain of extract of opium, may be given at bedtime. The bowels should be kept well relieved by saline aperients, and when convalescence begins, tonics, especially iron, will be serviceable. For white swelling of the knee, *see* KNEES, AILMENTS OF.

Whitebait.—This is the *Clupea alba* of the naturalist, and belongs to the *Clupeidæ*, or herring family. It is supposed by some to be the young of the shad, but this is denied by others.

Whitebait fish are taken in very large quantities in some of our English rivers, especially in the Thames, where the young ones especially are captured from April till September. On the coasts of Essex and Kent the older ones may be captured all the winter. In their habits they much resemble herrings, keeping in shoals, and often swimming near the surface of the water. They are greatly relished as a table delicacy, and when properly cooked are exceedingly nutritious.

Whitethorn.—This is another name for the hawthorn, or may, which so beautifully adorns our lawns and parks in spring-time. It is called by the botanist *Cratægus oxyacantha*, and belongs to the natural order *Rosaceæ*. It is used to form quickset hedges, for which purpose it is probably the best shrub we possess. It is seldom more than a shrub in



WHITETHORN.

this country, but it attains a very great age; some hawthorn trees are said to be over two hundred years old. There are several varieties of may, of which the Glastonbury is a very early flowerer, being in bloom shortly after Christmas. The double-blossoming hawthorn is a great ornament on a lawn; and the yellow-berried looks pretty in winter. In making hedges, a few holly-plants here and there enliven them greatly. If the seed of the may is taken when ripe and placed in sand till spring, it may then be sown, and the young plants will be ready to plant out in two years.

Whitewash, To Mix.—Put lumps of quicklime into a bucket of cold water, and stir it about till it is all dissolved and mixed to the consistency of cream. If a pint of common white varnish (which can be bought at the cabinet-makers') be added, it will have the effect of making it stick like paint; and if, instead of mixing the lime with water, perfectly sweet skim milk be used, it will make the whitewash very white and smooth, and prevent it rubbing off easily. For out-door whitewashing the preparation should contain alum in the proportion of a pound to every twelve gallons of water, the alum being previously dissolved in warm water.

Whitewashing is effected by means of a very long-handled brush made for the purpose, the wash being spread thinly, smoothly, and evenly. When the first coat is dry, it must be gone over with a second one, and if the wall has previously been very dirty, or coloured with yellow ochre, a third coat of whitewash may be necessary. Whitewashing should always be commenced in the upper storey, descending by degrees, the staircase being done last. In a new house no wall should on any account be whitewashed till after the plastering has been dry at least a year; and instead of using the common whitewash for ceilings it is better to give them a coat of what is called Paris white (which can be had at the paint shop) mixed with water. It is better to use all whitewash some little time after it has been prepared, as by so doing a greater amount of smoothness is obtained.

Whiting.—This fish is called by the naturalist *Merlangus vulgaris*, and belongs to the *Gadidæ*, or cod family. It is a well-known fish, and exceedingly delicate, nutritious, and easy of digestion—facts which render it invaluable for food to the invalid. It is common all around our coasts, coming in the early spring-time to the shoal water, in order to deposit the spawn. It is easily distinguished from the cod-fish from the absence of the barble on the chin, and from the haddock from its lighter colour. Whitings seldom exceed fifteen inches in length, nor weigh over a pound. They may be cooked by broiling, baking, boiling, or frying. They may also be dried. For this purpose the largest are chosen, cleaned well, split up, salted, and dried in the usual way.

Whiting (for Walls, &c.) consists of chalk cleared of its grosser impurities by grinding and mixing it with water, after which it is made into small lumps and dried. It is used in making putty and other substances connected with the arts, and for domestic purposes is utilised for whitewashing walls and for cleaning windows, plate, &c. The way to obtain a very fine whiting is to let it remain for a little while after it has had water put to it, and then pour off the water from the sediment at the bottom and replace it with fresh water. Let this settle for a time, and then again pour off the water from the top. By repeating this process several times, a whiting is obtained which, after being spread out to dry in the sun, will be as fine as flour.

Whiting Pollack.—This is the *Merlangus Pollachius*, and belongs to the natural family *Gadidæ*. It is less abundant than the whiting. It is a longish fish, having the upper portion of the body olive-brown, the sides a dull silvery white mottled with yellow, and in the younger a few spots of red. It is caught at Hastings, also on the shores of Devonshire and at Weymouth. It is also found on the coast of Scotland, and is there generally termed the lythe. It may be cooked in a similar way to the whiting.

Whiting Pout.—The young of the common whiting (*which see*).

Whitleather, or White-leather.—1. Leather which is dressed with alum and salt, &c., and is remarkable for its pliability, as well as toughness. 2. A white ligament on the neck of quadrupeds, broad and tough, which supports the weight of the head, which, from its horizontal position, needs far greater muscular power to sustain it than if resting upright on the neck and shoulders.

Whitlow.—This is the popular name for a painful erysipelatous affection which attacks

the extremities of the fingers. It is often seen as a superficial sore at the root of the nail, exhibiting a tendency to spread, and characterised by a great deal of constitutional disturbance. At other times it begins deep in the dense fibre-cellular tissue close to the bone, which it often destroys, and extending to the sheaths of the tendons, not unfrequently inflicts such mischief as to ultimately impair the usefulness of the finger or hand. The best treatment of this affection in the early stage is to thoroughly relieve the bowels, administer cooling medicines and drinks, and keep the affected part in an elevated position, and well poulticed and fomented. Should the inflammation, in spite of these measures, continue to spread, then it will be necessary to make free incisions to relieve tension, the pain of the operation being alleviated, if desired, by the use of the ether spray. This must be followed by poultices and fomentations, and any dead or loose skin should be removed with the scissors or knife. Prominent granulations frequently appear at the edges of the wound, but these need cause no anxiety. Should the disease still continue to spread, involving the bone and surrounding tissues, the removal of the dead bone, and even amputation of one or more fingers, may be necessary.

Whitsuntide. (*See* WHIT-SUNDAY.)

Whole-meal contains the whole of the inner and outer cases or coats of the wheat, as well as the inner white starchy flour. According to the ordinary process of milling, wheat meal is produced in one grinding, and then it is carefully separated into different products, which, in a general way, are named flour, middlings, and bran. The flour is the portion used for making ordinary bread, and the pollard and bran are employed to feed the lower animals. In fine flour everything is excluded but the farinaceous centre of the grain, which contains the least amount of nitrogenous matter. The bran, which is put on one side, not only contains more fibrine and mineral matter, but also more fat, so that in rejecting it we are leaving that which is really most valuable, which contains the largest proportion of muscle, bone, and other tissue-formers. In whole-meal the bran is retained. It is not, however, reduced altogether as is the case with the preparation used to make ordinary brown bread. It has been found that this plan does not answer, for it appears that the starch granules ought not to be broken up, for by too much crushing and friction they become damaged, and a bad flour for bread-making purposes is produced. The virtue of the flour is partially destroyed from its being too closely ground, and therefore in whole-meal the bran is ground separately and mixed with the flour. Bread made from it is much more nourishing, and, when the palate has become accustomed to it, is said to be much more agreeable than that made from ordinary flour.

Whooping-cough. — This affection — sometimes called chin cough—is due to a specific poison, the exact nature of which is unknown, but which appears to act powerfully upon the pneumo-gastric nerve, and through it probably upon the mucous membrane of the lungs and air-passages, giving rise to various characteristic phenomena, which, when once established, are typical of the disease. Whooping-cough is undoubtedly contagious, and is most so probably about the time when an attack of the disease has reached its climax. It is classified by the Registrar-General as one of the zymotic diseases, and is, therefore, from a scientific point of view, preventible. The symptoms of whooping-cough are as follows:—After a period of latency or incubation, which is said to be about five or six days, the ordinary symptoms of catarrh manifest themselves, viz., more or less feverishness, with running at the eyes and nose, and a dry cough. This condition, or first stage, may continue for several days, or even weeks in certain cases, but usually about a week from the commencement of the catarrhal symptoms a certain spasmodic fit of coughing comes on so violent that in the expiratory effort to relieve the source of irritation the face becomes swollen and discoloured, and a discharge of blood from the nose and mouth not unfrequently occurs. The lungs also are almost completely emptied of air, and for the moment the sufferer is in a state bordering upon asphyxia. A violent attempt to inspire, however, now takes place, and it is this sudden inspiration or rush of air into the trachea to relieve the sense of suffocation which gives rise to the whoop or crowing noise which is so characteristic of the disease. Vomiting of glairy mucus from the stomach, sometimes mixed with food, sometimes not, and expectoration of thick viscid matter from the lungs, often tinged with blood, also occur in a greater or less degree during the paroxysm. This lasts a few seconds, but recurs frequently, the affected person in the interval feeling comparatively well. The duration of the paroxysmal or second stage of whooping-cough is generally about five or six weeks. In the third stage, or stage of convalescence, the symptoms begin to subside, the paroxsyms become less frequent, and are less marked by vomiting, expectoration, &c., and after a time, which may vary from two months to even a year, disappear altogether. The tendency of whooping-cough is in most cases to recovery; but there are certain complications, especially of the lungs and brain, as bronchitis, pneumonia, convulsions, &c., which are apt to occur, and which may bring about a fatal result. The treatment of this disease is, in the first instance, that of ordinary catarrh (*which see*). When the typical whoop has once been fully recognised, and the nature of the disease established, then certain remedies, chiefly of an anti-spasmodic character, are said to exercise a marked influence upon the paroxsyms. Foremost amongst these may be mentioned belladonna, opium, henbane, assa-fœtida, ipecacuanha, wild thyme, &c.; but these are drugs which should only be administered under medical advice. The disease will, in all probability, run its course in spite of medicinal treatment; but it is something to be able to allay the violence of the paroxysms, and thus, it may be, prevent complication; and this may be accomplished, to a greater or less extent, by some one or other of

the remedies just named. The warm bath should also be frequently used, and the diet should be of the most nourishing and simple kind. Change of air, when it can be obtained, has a marked beneficial effect, and this is true not only of city residents who go into the country, but also of persons from the country coming into town—both receive benefit. The treatment of such complications as bronchitis, pneumonia, &c., will be the same as that described under these headings.

Whortleberry. — The whortleberry is called by naturalists *Vaccinium*, and belongs to the order *Vaccinaceæ;* it is, in fact, the type of that order. There are several varieties, the black whortleberry, or common bilberry, being perhaps the most common. This is well known and very abundant, and its fruit is made into tarts. The great or bog whortleberry is more



BLACK WHORTLEBERRY.

common among the mountainous regions of the north, especially in the Scottish Highlands, where it is sometimes found at a great height. The red whortleberry grows in heaths, moors, and woods, and is plentiful all over Europe; the berries are red, acid, and astringent, which, though good when cooked, are hardly eatable in a raw state. There are many other species, probably forty in all, which grow in various parts of Europe and America.

Wicker-work is said to take its name from the basket-fish, which somewhat resembles a star-fish, and is furnished with numerous arms to catch its prey. When caught with a hook it clasps the bait, and encircles it with its many arms, coming up in the form of a wicker-basket. Wicker-work is manufactured chiefly from osiers and willows, which when gathered are steeped, stripped, split, and dried, the process of working them up into baskets, chairs, cradles, &c., being a kind of medium between platting and weaving.

Wide-awake.—A felt hat, with a broad brim and a low crown, has been known by this distinguishing name, with, at first sight, no apparent claim to its applicability. When this kind of hat first came out it went by the name of a "Jim Crow," whose character was played by T. D. Rice at the Adelphi in 1836; a renegade, or turn-coat, is likewise called a "Jim Crow," from the burden of the song—

"Wheel about, and turn about;"

and it seems possible that the hat may have been considered as well described likewise, from the circumstance of its limp consistency enabling the wearer to turn down the brim, after the style of the Italian and Spanish hats, so as to shade the face, or to turn it upwards, and thus completely to change its style. As Englishmen seemed to have no fancy for brims turned down to shade the face, and preferred turning them up so as to see better, the name was changed to "wide-awake."

Widgeon.—This is a kind of duck called by naturalists *Mareca Penelope*. It is small and exceedingly pretty. Widgeons come to this country in large flocks, and settle in the fens and morasses of the north, where they are killed in large numbers for the markets. They leave this country again at the approach of winter. The colour of the widgeon is very lovely, combining as it does green, grey, brown, chocolate, black, and white. In winter they are dressed in a more humble garb. Widgeons are cooked like common ducks, but are not stuffed. They are served with a rich-made gravy having port wine in its composition.

Widow, Widowbench.—A widow is a woman whose husband is dead. Widowbench is that share of her husband's estate which she is allowed over and above her jointure. (*See* DOWER; GAVELKIND.)

Widower.—One whose wife is dead. As to his rights in certain circumstances to a life estate in his wife's freeholds, *see* CURTESY OF ENGLAND.

Wife. (*See* HUSBAND AND WIFE.)

Wigs.—The history of this word is curious. In Latin, hair is called *pilus*, whence *pilucca*, a head of hair; hence the Italian *perruca*, the French *perruque*, and the English peruke and periwig, from which latter the first two syllables have been cut off and the last only left to do duty for the whole. The artificial construction of hair to conceal baldness, and for ornament, is very ancient, as is proved by an Egyptian wig in the British Museum, and by numerous references in classical authors. Wigs were in their glory in the seventeenth and eighteenth centuries, and still form part of the official costume of various functionaries, as judges and barristers. The uses to which they are put, and the forms they assume, are numerous. By some they are worn in consequence of baldness, but occasionally instead of the natural hair, which is shaven off. In all ordinary cases wigs are now made in imitation of the natural growth, and seldom violate the principles of good taste.

Wigs (Cakes).—Small cakes made of flour, sugar, butter, and milk, raised with yeast, and flavoured with caraway seeds, are sometimes called wigs.

Wild Duck. (*See* DUCKS.)

Wild Goose. (*See* GEESE.)

Wildfire.—This is a kind of firework so named from the readiness with which it ignites, and the rapidity of its combustion.

Willow Trees.—The willow trees include many different species, some of which are used in the arts, and some in medicine. One of these is the *Salix Russelliana*, or Russell willow. The growth of it is very rapid, and the wood is much used for poles, basket-making, &c.; it is thus a useful tree to grow in plantations. The bark, too, largely abounds in tannin, and is medicinally an astringent and a tonic; as also is the bark of the *Salix alba*, or white willow, though it is not so good. But the latter is more of a timber tree, growing sometimes to a height of thirty feet in a dozen years. The wood of this tree is very valuable for turnery, the shavings of it being also made into hats or bonnets. Then we have the sweet bay-leaved willow, which does not flower till June, but whose flowers are very sweetly scented. The purple willow is a small shrub, a native of our country, and the bark of it contains much tannin, which may be made use of in medicine. There is also the well-known yellow willow which is indigenous to this country, growing in hedges and osier beds, &c.; and lastly, we may mention the weeping willow (*Salix Babylonica*). This is said to be the willow on which the captive daughters of Zion "hung their harps." It is a very pretty drooping species, said to have been first introduced into Europe by Tournefort, the botanist. Some romantic tales are told concerning its adoption into England, which, however, require corroboration. The cultivation of willows is very simple, as they grow easily when planted in shoots about the month of November. They are, too, very easily bent, and thus can be formed into pretty arches, &c., which keep a long time green.

Wills, and their Preparation.—A will is a written instrument by which a person expresses what he wills or wishes to be performed after his death. The law with respect to wills is now regulated by 1 Vict. c. 26, commonly called the Wills Act. A person cannot make a will under the age of twenty-one years, and lunatics, and felons against whom sentence of death is recorded, are incapable of devising by will. Wills made under mistake, or obtained by fraud or by undue influence, are inoperative. A will, at whatever period of life it is made, speaks from the death of the testator. It is constructed upon somewhat different principles to a deed, and not with the same legal strictness, for in a will the *intention* of the testator is first to be considered. It is desirable to have professional assistance in drawing up a will, for home-made wills have been perhaps the most prolific source of litigation in this country. In the very simplest cases, however, legal advice is not absolutely essential, and for the benefit of those who prefer to dispense with it we may give a few plain directions, and indicate the requisites for an efficient will. In the first place, a will of any kind of property must be in writing; though it does not matter whether it is written on paper or parchment, nor is it necessary that it should be written on stamped paper, as no stamp duty attaches till after the testator's death and after the will is proved in the proper court in the district within which the testator died. It is most essential that the will should be legible, and so far intelligible that the intention of the testator can be gathered from its contents. The Wills Act enacts that the will must be signed at the foot or end thereof by the testator, or by some person in his presence and by his direction. And the signature must be made or acknowledged by the testator in the presence of two or more witnesses present at the same time, and these witnesses must attest and subscribe the will in the presence of the testator. They must not, therefore, leave the room till they have both signed. The usual form of attestation runs thus:—"Signed by the said A. B., the testator, as and for his last Will and Testament, in the presence of us, present at the same time, who in his presence, at his request, and in the presence of each other, have hereunto subscribed our names as witnesses." It must be remembered that no person should attest the execution of a will to whom, or to whose wife or husband, any legacy or beneficial interest is given. Formerly the will was *ipso facto* void in such a case, but now the will is good, except as to any gift or benefit given to an attesting witness, which is rendered absolutely void. In the making of a will a person should be careful to give such a description of himself as may avoid any confusion or uncertainty. This description should give his Christian name or names and surname in full, his place of abode, trade, and occupation. Care should also be taken in describing the legatees, lest the objects of the testator's bounty fail in their legal claim. In the absence of legal advice it is better for a testator to avoid, as far as possible, the use of technical law terms, as their true signification may not be always fully understood by him. (*See* EXECUTOR; PROBATE.)

Wilton Carpets.—These are expensive carpets, as the manner in which they are woven is slow, and the consumption of material is considerable. An idea may be formed from the statement that on a web of linen twenty-seven inches wide, nearly three thousand threads are sometimes employed. The plan is very similar to that in which Brussels carpets are manufactured. The surface yarn is worked on a linen web, and the figures are raised entirely from the warp. Wires, more or less fine, are employed, over which the yarn is taken; these being withdrawn leave a series of loops. In Brussels carpets these loops remain intact; in Wilton carpets the loops are cut open by the wires, which in this instance are provided with a sharp edge, and thus an elastic velvet pile is formed. Carpets of this description were first made to imitate Turkey carpets. The seat of the manufactory was at Axminster, in Devonshire; it is now removed to Wilton, near Salisbury. Inferior imitations of this carpet are manufactured in Yorkshire and in Scotland.

Wiltshire Cheese. (*See* CHEESE.)

Wimple.—A covering for a woman's neck, sometimes extending over the chin and the sides

of the face, made of silk, linen, or other materials, and lying in successive horizontal folds. In the present day it is exclusively and universally worn in Europe by professed members of certain ecclesiastical communities.

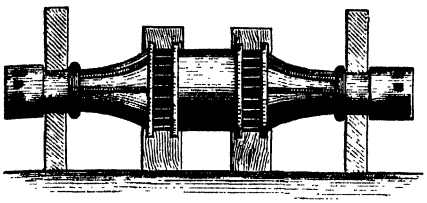
Winch.—A crank, or rectangular lever, by means of which a revolving machine is turned. The windlass is also often termed a winch. For the winch used by anglers, *see* FISHING.

Wind. (*See* WINDS.)

Wind (Medical). (*See* FLATULENCE.)

Winding Sheet. (*See* SHROUD.)

Windlass.—A machine used by seamen and others for raising anchors, &c., differing



WINDLASS.

from a similar machine called the capstan in having a vertical instead of horizontal centre. Both are worked by bars inserted in holes prepared for them, and used as levers.

Window Blinds and Curtains. (*See* BLINDS ; CURTAINS.)

Window Frame.—The frame of a window which receives and holds the sashes in which the panes of glass are set.

Window Gardening. (*See* GARDENS, WINDOW.)

Window Sash. (*See* SASH.)

Window Seat is a seat formed in the recess of a window, very common in old-fashioned houses, but rarely met with in modern tenements. It is frequently cushioned, and being sheltered by the curtains, often forms in country-houses a cosy nook for conversation and observation.

Window Shutters. (*See* SHUTTERS.)

Window Sill is the horizontal piece of timber or stone which is placed at the bottom of the window, and utilised in most households for the display of plants.

Window Tax.—This was a tax formerly levied on all houses which contained more than six windows and were worth more than £5 per annum. It was created by 7 Wm. III. c. 18. A tax on inhabited houses has now been substituted for the window tax by 14 & 15 Vict. c. 36.

Windows are apertures in the walls of buildings for the admission of light and air. According to the Venerable Bede, the Abbot Benedict, about the year 674, first brought from Italy artificers skilled in the making of glass, for the purpose of glazing the church and monastery at Weremouth. St. Jerome, who wrote early in the fifth century, and Gregory of Tours, in the sixth century, also make mention of glass windows ; but they were rarely used in this country or on the Continent until the twelfth century. Previous to this period they were generally made of fretwork, and the interstices filled with some transparent substance, horn and oiled paper being the most usual. The latter, when properly prepared, forms a by no means bad defence against the intrusion of the weather, and is well adapted for the admission of light. It is still used on occasions for the temporary windows of unfinished houses, and sometimes for the regular ones of workshops. Windows are exceedingly important features in the Gothic and other styles of architecture. Gothic without windows would be as deficient in expression as Grecian architecture without columns. Grecian architecture, on the contrary, hardly admits of windows, since instead of adding to, they rather mar its expression and detract from its character. Where there must be both windows and columns, there should be consistency of character. Not only does each order require a different mode of decoration for the windows, but the different examples of the same order do also. The proportions and decorations of windows depend in some degree on their situation or the particular storey of the building to which they belong. The principal storey, or that immediately over the basement or ground floor, requires to be marked by windows more highly decorated and of loftier proportions than the rest. For these the apertures are generally made from two to two and a half squares, or even something more—that is, their height is something more than double their breadth; those on the next floor rather less than two squares, and for the third they are made *mezzanines*, either a perfect square, or very little more. The character and proportions of ground-floor windows depend very much upon the manner in which that part of the elevation is treated. If it be no more than a low rusticated basement, the windows will only be of *mezzanine* form, without dressing, or at the most a few mouldings surrounding the apertures. When the ground floor is not a distinct basement its windows require to be equally dressed, or very nearly so, with those of the principal floor, with little other difference as to proportion and design than is necessary for preserving some distinction and avoiding monotonous repetition; but where the ground floor is the principal one also, as is frequently the case with villa residences, in which all the chief rooms are below, and perhaps only a single chamber floor over them, the lower windows are of course the most important in design; yet, whether the principal or secondary, they ought to be in keeping with the rest of the design.

Windows, To Clean.—Before cleaning windows, all curtains should be taken down and carefully put away. This done, the dust should be removed from the panes, the frames, and the sashes. Two leathers are then required, one to be used wet and the other dry. In ordinary cases it is only necessary to wash windows with water and soda, the wet leather being soaked and squeezed for the purpose,

and the panes then rubbed dry with the dry leather; but where the windows are unusually dirty, a little whiting will be found efficacious.

Winds are air currents moving in various directions over the surface of the earth, and at very various velocities. They are produced by disturbances of the equilibrium in different parts of the atmosphere, of which variations in temperature are the primary cause. They are naturally divided into three classes—the regular, the periodical, and the variable winds. The first of these is described under the heading of TRADE WINDS. The second includes the monsoons (*which see*), and the land and sea breezes, which in hot maritime climates blow regularly from the sea to the land during the day, and in an opposite direction during the night. These are caused by the land becoming heated by the sun's rays more rapidly than the sea, and again cooling down by radiation more rapidly at night; the overlying air expands and rises by day, and is replaced by the cooler air coming from over the sea; and during the night the operation is exactly reversed. The sea breeze commences soon after sunrise, attains its maximum about three in the afternoon, and changes again into a land breeze soon after sunset. Variable winds are those the course and periodicity of which cannot be relied upon. They vary from a movement which is scarcely perceptible up to a speed of 100 miles or more per hour; from a gentle breeze to a gale, and lastly to a hurricane. In this country westerly winds are by far the most common, and to their prevalence the mildness of the climate and the ample rainfall are mainly due. The storms which visit our coasts mostly come across the Atlantic from the West Indies or the United States of America, and their approach can generally be calculated approximately, and announced thence by telegraph. In desert countries there are occasional hot winds accompanied by dense clouds of dust, which are sometimes very destructive both to animal and vegetable life. The sirocco of Southern Europe, with its hazy oppressive atmosphere, is a hot wind which has travelled across the Mediterranean sea from the African deserts. The simoom of Arabia has often overwhelmed whole caravans with its hot blast and suffocating dust.

Windsor Beans. (*See* BEANS.)

Windsor Chairs. (*See* CHAIRS.)

Windsor Soaps. (*See* SOAPS.)

Wine.—The general term wine denotes, strictly speaking, the fermented juice of the grape, but it is applied also to the fermented juice of all fruits, and to liquids that have simply undergone the alcoholic fermentation, and to which no additional ingredient is added. Wine has been known from the earliest times, and drunk by all civilised nations. Its history is, however, involved in obscurity. The first recorded account of it is found in the story of Noah. Of all fruits the grape affords the best material for making wine, though the mode of making it varies in its details in different countries. The temperature at which fermentation takes place very greatly influences the character of the wine, and this is dependent upon latitude. Active fermentation at a high temperature leads to the disappearance of sugar before the bouquet and flavour of the wine have been developed, thus causing the wine to be thin and poor. This is the reason why wines fermented in hot countries have spirits added to them. Nearly all the wines received from Spain and Portugal, for instance, are thus "fortified." True wines of a light character are produced in Spain, and some of them are coming into the market, but it is not likely that they will displace French and German wines. (*See* CATALAN.) The latter wines, being derived from a cooler country, are fermented with less rapidity, and the fermentation is allowed to complete itself spontaneously, and the result is the production of a drier and less fruity wine, pure, light, and pleasant to the taste, and of moderate alcoholic strength. French and German wines are called "natural" wines. In countries where the temperature is too low for fermentation to proceed properly, the wine produced will be devoid of lasting properties. The market value of wine depends to a great extent on its bouquet and flavour. These two are not one and the same thing. The vinous flavour is common to all wines. It arises from the presence of a substance, which is formed in the same way as alcohol during the fermentation of the grape juice. The bouquet, on the contrary, is special and peculiar to certain wines, and it arises from fragrant oily liquids called ethers, which are usually formed by the union of the spirit of wine with some of the acids which are contained in the fermented liquor. These ethers can be manufactured and added to wine, and the unscrupulous wine-dealer knows well how to make use of them, and so make inferior wines resemble superior ones. Thus a few drops of acetic ether put into a bottle of new wine give it something of the flavour of old wine; and butyric ether too imparts a fragrant bouquet to common hock. These artificial bouquets, however, never equal the real ones, and a cultivated taste quickly detects the fraud. The import duties have always extensively influenced the consumption of wine. For a long time no distinction was made between the light wines of France and Germany and the strong wines of Spain and Portugal, and this of course told very decidedly in favour of the strong wines. This is because they go further, and keep the better of the two. A bottle of port can be corked up again after it has been opened, but a bottle of claret needs to be finished. In 1861, however, in order to encourage the consumption of light wine, the Government decided that all wines containing less than 26° of proof spirit (and that would include all natural wines) should pay on importation a duty of 1s. per gallon; those over 26° and under 42° should pay 2s. 6d. The consequence of this alteration has been that large and increasing quantities of natural wine now come into this country. The different sorts possess distinctive characters and properties, and each produces a peculiar effect. In this work the principal kinds are referred to under their respective headings.

Wine, Adulterations of. (*See* ADULTERATIONS OF DRINK.)

Wine-bins. (*See* BINS.)

Wine-biscuits.—Very thin, delicate biscuits, generally made of an oblong shape, and intended to be eaten with wine.

Wine-bottles.—Wine comes to perfection better in large bottles than in small ones. It is most important that the bottles used should be clear and perfectly dry. Those that have held oil should be at once put aside, as they can never be cleaned to be fit for the purpose. Particular care should be taken in cleansing the bottles both inside and out, for if any impurities remain they are sure to appear afterwards. A very easy way of purifying bottles is to wash them well with water and powdered charcoal; sometimes a strong solution of soda is used, or it may even be found necessary to employ hydrochloric acid for the purpose. When perfectly cleansed they should be rinsed out and turned upside down until quite dry, and then they should be examined to ensure there being no "stars" or cracks in them.

Wine, British, is made from rhubarb, gooseberries, currants, cowslips, elderberries, bilberries, raisins, oranges, &c. Excellent wines may be made from these fruits, and they possess the advantage of being much cheaper than foreign wine. The fruit for making wine should be gathered in dry weather, and in summer-time, before eleven o'clock in the morning. It should be fully matured, but not over-ripe. When gathered, the fruit should be at once picked and looked over carefully, in order to remove the stalks and separate the unripe or over-ripe berries from those which are in good condition. Those last should be put, a small quantity at a time, into an earthenware pan, and bruised, to ensure each berry being completely broken. Raisins are generally allowed to soak for awhile before being bruised. When all the fruit is bruised, it should be put into a tub that will hold eighteen or twenty gallons, or more if required. This tub should have a tap near the bottom, and a guard over the tap-hole in order to prevent the escape of the husks and seeds when the juice is drawn off. The water should now be added, the tub covered with a blanket, and the whole allowed to macerate for a time, being stirred together frequently. The liquor should then be drawn off through the tap into another tub; a little water should be added to the pulp, and it should be pressed and stirred to make it yield whatever goodness remains in it, then left to settle for an hour or two, when the liquor may be drawn away and mixed with the other. The sugar, tartar, &c., are now well stirred in, the liquor is returned to the vat, covered with a blanket, put into a room in which the temperature is not under 60° Fahr., and stirred or roused frequently. Here it is to remain until fermentation commences (*see* VINOUS FERMENTATION), when it should be skimmed frequently, and in due time run off into casks, which should be quite filled, and left a little on one side that the scum may work over. If any of the liquor in the bottom of the tub is turbid, as it most probably will be, it should be strained through flannel, and used to fill up the casks; and if there is no liquor remaining, water must be used, as the fermentation proceeds, and in order to encourage it the cask should be filled up daily. In about a week the flavouring ingredients are usually stirred in. When the fermentation becomes moderate, the cask should be filled up and bunged down, and a gimlet-hole may be made at the side, and fitted with a peg, which may be removed every two or three days for eight or ten days, according to the state of the fermentation, to allow the escape of the carbonic acid gas. A little liquor should be poured in at the vent-hole to fill the cask occasionally, say once a week for four weeks, and afterwards at intervals of a month till the end of December or early in the spring, when in cool dry weather it should be again drawn off as fine as possible. That which comes out last, and is thick and turbid, should be passed through flannel. A little isinglass should be added to the wine to fine it. One ounce and a half dissolved in a pint and a half of water, with a pinch or two of citric acid added to assist the solution, will be sufficient for a hogshead of wine. The cask should be thoroughly cleaned, and the wine returned to it and bunged firmly down. It will be ready for bottling in March. The proportion of fruit and sugar used, the time of fermenting, &c., vary with the peculiarities of the fruit and the kind of wine that is to be made. When a sweet wine is desired, fermentation must be early discouraged by removing the liquor speedily from the vat to the cask; for a dry wine, the liquor should be left in the vat for three or four days, and a large cask should be provided to prevent the escape of the yeast at the bung-hole. To make a wine resembling champagne, the liquor should be left in the vat but a few hours. Care should always be taken not to put too much water to the fruit. Over-watering is a very common mistake with wine-makers. A pint of water is sufficient for a quart of pure fruit juice. Also, none but the best loaf sugar should be used. It saves skimming, and makes the wine clearer and of a more delicate flavour. It is a very common practice to add brandy to British wines, and an idea prevails that the spirits help to keep it. This is a mistake; it neither adds to its durability nor prevents it from turning sour. On the contrary, it decomposes the wine, causes it to lose its flavour, and renders it less wholesome.

Wine, Bottling.—Wines are put into bottles for the sake of keeping them. Wine in casks gets altered by the evaporation of the water and the alcohol into the air, and also by the absorption of one or the other by the wood. These changes cannot happen when the wine is put into glass bottles. It is popularly supposed that wine gets stronger by keeping, but this is not the case. Strong wines keep the best. Some wines are not improved by bottling, and these should be drunk directly from the cask. When a cask of wine is to be bottled, it is much the best plan to get an experienced cooper to do the work. The art of bottling,

and especially of corking bottles properly, is only to be acquired by long practice; and many a cask of good wine has been ruined, and then maligned, when the real blame lay with the bottler. Those, however, who particularly wish to try for themselves should procure a bottling boot, a cork-squeezer, an apron, a pan with a small quantity of the wine in it in which the corks are to be dipped, and a driving mallet, which ought to weigh about a pound and a half, together with the requisite number of bottles and corks. The bottling boot is a sort of bucket, with a bottom made of soft cork, which is strapped to the knee of the bottler. Each bottle should be placed in this before it is corked to prevent its being broken. Wine should never be bottled with common corks. The best whites, free from grit and outside char, should be selected for the purpose. It is a good plan to boil white corks in water for an hour, then strain and dry them before using them. This will take off a good deal of the unpleasant flavour of the cork. A better plan still is to put them in a tub, cover them to keep them under, and pour over them boiling water which holds a little pearlash in solution. They may remain in this until next day, when they should be stirred about, drained, and again covered with boiling water for twenty-four hours, when they should be well washed in several waters, drained, dried in an airy place, and hung up in paper bags till wanted. The bottling process should be performed on a fine clear day, and care should be taken not to shake the cask to make the wine thick. Any of it that cannot be drawn off clear should be passed through the wine-bag, and when corked should be set apart from the rest. The space of about an inch should be left between the wine and the corks in the bottles. Care should be taken to drive the corks in as straight as possible. They should be entirely covered with a composition of yellow wax, resin, and Burgundy pitch, with a little red mastic, melted over the fire and stirred together. Wine should never be bottled in a turbid condition, for it will not brighten afterwards. Wine should be binned as soon as possible after it is bottled. If a proper bin is not at hand, the bottles should be laid on their sides in sweet dry sawdust or sand, and in a cool cellar. They should on no account stand upright.

Wine-casks. (*See* Casks or Barrels.)

Wine-cellar. (*See* Cellar.)

Wine-coolers for domestic use are tubs in which wine can be kept with broken ice round it, or they are porous earthenware vessels which absorb a considerable quantity of water when dipped into it. The bottle of wine is placed in the vessel, and the evaporation which takes place draws the heat from the wine. Wine-coolers for the table are generally made of silver or plated metal, and are furnished with a chamber in which evaporation is carried on by means of a chemical mixture.

Wine, Decanting. (*See* Decanting.)

Wine, Factitious, is artificial wine not made of fermented fruit juice at all, but produced by the mixture of various ethers and colouring matters. The trade in liquors of this kind is very large, and the variety of the so-called wines increases every year, while the manufacture is so skilfully conducted that detection of the fraud thus practised is rendered more and more difficult. (*See* Hamburg Wines.)

Wine, Fermentation of. (*See* Vinous Fermentation.)

Wine, Fining of. (*See* Finings for Ales, &c.)

Wine, Flavouring.—Various flavouring ingredients are very frequently added to home-made wines, and to inferior foreign wines, in order to impart to them a superior taste and aroma. The "nutty" or "sherry" flavour is communicated to inferior wine by the addition of bitter almonds or the essential oil of almonds, while the port wine flavour is conveyed by means of the tincture of the seeds of raisins, and the astringent taste by the use of rhatany, kino, oak-bark, and alum. A grain or two of ambergris, rubbed down with sugar, is thought to improve claret. In the same way, orris-root, vanilla, violet-petals, clary, sweet-briar, cherry-laurel water, and other substances are used to communicate a superior bouquet to various wines. By the skilful introduction of these ingredients, gooseberry, currant, raisin, parsnip, and similar wines, and inferior Cape wines are frequently palmed off upon inexperienced consumers as the genuine fermented juice of the grape. Flavouring ingredients are usually added to liquor in the form of coarse powder, and they are stirred in when the wine is undergoing the process of fermentation.

Wine, Foreign.—The principal varieties of foreign wine are treated in this work under their respective headings. (*See also* Wine.)

Wine, Malt. (*See* Malt Wine.)

Wine, Medicated.—This is a convenient and pleasant form of administering medicine; consequently we find many of the most used drugs—as quinine, iron, aloes, ipecacuanha—appearing as wines in the Pharmacopœia, and their number is likely to increase. The wine employed is, as a rule, either sherry or marsala; and it is highly important that, whichever of these wines is used, it should be of good quality.

Wine, Restoring. (*See* Pricked Wine.)

Wine Spirit. (*See* Alcohol.)

Wine-stains, To Remove. (*See* Stains, To Remove.)

Wine Testing.—In testing wine it is usual to fill a large glass one-third full with the liquor, and shake it about for a minute. It is a favourable sign when the delicate odour of the grape at once makes itself felt. The next thing is to taste the wine. Before doing this it is a good plan to eat a small piece of dry bread to clear the palate, and then to take a little of the liquid and pass it over the tongue; then put it out. Repeat this process once or twice, until the organ of taste is thoroughly charged with it, so that any latent taste in the wine may be discovered. Good wine is soft to

the tongue, and has a clean, sound taste; it also has an oily appearance as it trickles down the glass. It requires an experienced, discriminating, and sensitive palate to detect artificial flavourings in wine and to determine its quality. On a large scale, certain chemical tests are applied to wine in order to discover the presence in it of objectionable substances.

Wine, Treatment of.—Wine should neither be kept in hot nor cold cellars, nor in cellars of a changeable temperature; rather it should be kept in a place where an even temperature of from 50° to 60° Fahr. can be maintained all the year round. The bins should be so built that a certain number of bottles will fit properly into each tier without blocks needing to be used. In this way they will be in less danger of being disturbed. It is a mistake to suppose that all wines should be treated alike. Delicate wines require much more careful treatment than strong ones, and they should, if possible, be kept in a different cellar. Artificial warmth should never be had recourse to in a cellar where red wines are kept. Delicate wines should also remain unbottled as long as possible. Strong wines, on the contrary, improve in the bottle. Sparkling wines should be kept in the coolest part of the cellar, the cork kept downward. All other kinds should be laid down horizontally to exclude the air and to keep the cork moist. Wine in cask needs to be carefully looked after. If any mouldiness is seen about the bung, it should be the signal for instant examination of the wine. Vinegar should never be kept in a wine-cellar. (*See also* Bins; Casks; Cellar; Decanting.)

Wine, Unfermented. (*See* Unfermented Wine.)

Wire is formed by drawing red-hot metal between grooved rollers, which give it the shape of rods, which are reduced to the form of wire by being, when cold, drawn by powerful machinery through holes in a plate composed of some harder metal, usually hardened steel, the holes decreasing gradually in size. By this process they are so compressed as to require frequent annealing, after which they are subjected to the action of dilute acid to remove the oxide formed in consequence of this frequent annealing. The holes are round, oval, angular, square, &c., according to the shape it is desirable the wire should assume. The most delicate kind of wire—that employed for the pendulum springs of chronometers, for instance—is drawn through holes in pieces of ruby, no steel being, in this case, of sufficient hardness. The metals most commonly drawn into wire are gold, silver, brass, iron, and copper. Gold wire is manufactured from ingots of silver in a cylindrical shape, afterwards thinly coated with gold. Tinned wire, which is used largely for lacing and bottling, is produced by passing the wire swiftly through boiling tin after being prepared in acids.

Wire Gauze.—This is a close network of fine wires woven together, as vegetable fibres are. It is used for window-blinds, candle-lanterns, safety-lamps, &c.

Wire Netting. (*See* Wire Gauze; Wirework.)

Wire Rope.—Ropes in which wire strands are substituted for those of rope. They are woven together, so that they cannot warp, with a core of hemp. All the wires being of exactly the same length, equalise the strain upon them. They are less elastic, lighter, less bulky, and more durable than hempen ropes of equal strength, and also cheaper. They form admirable lightning-conductors.

Wirework.—Wire woven into open-work in a way similar to basket-work, and to that in which vegetable fibres are woven in coarse cloth, but much more open and coarse, is generally called by this name, and is useful for a variety of familiar purposes far too numerous for mention. In gardens it serves to exclude cats, &c., from flower-beds; in fowl-houses it has a lighter appearance than bars or lattice-work, and does not exclude as much air or light.

Wisdom Teeth.—This name is popularly given to certain teeth which generally appear in persons of from twenty to twenty-five years of age, but sometimes later. They are properly four in number, two in the upper and two in the lower jaw, and come behind the other teeth.

Witness.—One who gives evidence in a cause. He must attend in obedience to his subpœna. If not paid his lawful expenses, he may refuse to be sworn, but, if once sworn, he must give his evidence. A witness is not compelled to answer any question tending to criminate himself. On the application of plaintiff or defendant, all witnesses will be ordered to leave the court, each being called when his evidence is required. A witness remaining after such an order has been made is guilty of a contempt of court, and if wilful it may be treated as such, but his or her evidence is not rejected. Each witness remains in court after giving evidence, and is expected not to communicate with those outside. Every party to a cause is entitled to be present throughout, though he give evidence. A witness should not, without leave, quit the precincts of the court after the evidence of his side is given, nor even when the judge has begun to sum up, for any witness may, at the discretion of the judge, be recalled at any time before the verdict is actually pronounced. (*See* Evidence; Subpœna.)

Witness (to Documents).—One who sees (*i.e.*, attests) the signature or execution of the several parties to deeds, wills, or agreements. It is usual for him to sign what is known as the attestation clause at the foot of the document or endorsed thereon, so that he may at any future time recognise the transaction.

Woad.—1. An herbaceous plant, of the genus *Isatis*, of which one species was formerly cultivated for the blue colouring matter derived from its leaves; but it is now used only with indigo as a ferment in the vat. 2. The colouring matter itself derived from the above-named plant. Woad is used as a basis for

black dye. The plant yields three or four crops in the year; the leaves are dried, ground to a paste, and after having been left in heaps for about a fortnight, the crust formed on the outside of the pressed heaps is rubbed and mixed with the interior portions, and then formed into oval balls, which are pressed into wooden moulds. When required for the purpose of dyeing, the balls are broken into fragments and allowed to ferment, when a dense fetid fume arises. An infusion may be obtained by steeping the leaves in water, which will impart a green dye, and this green will change to blue on exposure to the air. Woad is used for what is termed "saddening."

Wolf Fur is very thick, warm, and durable. It is chiefly used for mats, hearth and carriage rugs. The tail of the animal, which is very bushy and handsome, is left as an ornament when the skin is dressed and prepared for service. The skin of the white wolf is the most valuable, being the most uncommon and the handsomest in appearance.

Wolverine Fur.—This is a thick brown shaggy fur which is used in this country for carriage-rugs and such-like purposes. The Kamtschatkans hold this fur in much higher esteem, and are of opinion that the heavenly beings wear garments made of no other fur than this. The women ornament their hair with the paws of the animal. The wolverine which inhabits North America is there also known by the name of carcajou and glutton; it is rather larger than an English fox, and has a long body, short legs, and broad feet. The skin of the American glutton is not considered equal in value to that obtained from the glutton of Northern Europe and Asia.

Women's Rights.—Under this head are included various claims which have been made in behalf of women, especially since the middle of this century. 1. Political rights, particularly that of voting at elections. This claim has been made in favour of all women occupying the same positions and having the same qualifications as men who vote. Other demands under this head relate to the marriage laws, and laws respecting property, parental authority, &c. 2. Industrial rights; for example, that of studying in universities and colleges, preparing for and practising the higher professions, as law and medicine, the control of their earnings, and other matters. Modern legislation has, to some extent, granted the requests of women, and they can now vote in some public elections, though they do not enjoy the parliamentary suffrage. Some improvement has been made in the laws affecting property and earnings, and women have been permitted to study for and to practice some branches of medicine, &c. They are eligible to some of the colleges, and to London University, and they can take certain honorary degrees. We have among us women who are guardians of the poor, members of school boards, professors in collegiate institutions, medical practitioners with the title of M.D., and so forth. It seems probable that the movement will advance further, and that women will take a more prominent part in public life than formerly, and will secure immunities to which they have hitherto been strangers.

Wood.—This name is given to the hard and compact fibrous portions of certain plants. All timber is wood, but all wood is not timber, the latter term being limited to such larger growths as are suitable for use in the arts. The purposes to which wood is applied are innumerable, but chiefly as timber, fuel, and for ornamental work. Charcoal and many chemical products, both liquid and solid, are derived from wood, and it may be noted that even paper is made from it. Wood is capable of being cut, polished, stained, and otherwise manipulated. Artificial wood has been invented, and is moulded for ornamental decoration. Fossil wood in many forms exists, some of it being hard and beautiful enough for personal ornaments, and a vast quantity of it being in the shape of coal, which is used not only for fuel, but is distilled and chemically acted upon, producing oil, tar, pitch, exquisite aniline colours, and many other things. It may be added that the woody fibre of some plants is wrought into cordage, and many delicate textile fabrics, including even lace and muslin.

Wood as Fuel.—The value of wood as fuel varies greatly with the kind and condition of it. Soft woods, like willow, poplar, and lime do not form good fuel, but elm and oak and other hard woods burn well, though not equally so; ash, for example, is prone to crackle and throw out too many sparks and burning flakes. Pine and other resinous woods burn rapidly. Dry wood burns better than green or damp, and sound wood is better than decayed. In ancient times nothing but wood scarcely was used for fuel, and the introduction of coal was greatly opposed as not so cleanly, and as polluting the atmosphere with smoke. Even now, in some continental countries, there is a marked preference for wood in cooking operations. It has been remarked that wood makes a very cheerful fire, from its abundant and bright flame; but it consumes quickly, and requires often renewing. On this account it is expensive, and involves considerable labour in preparing it. It is bulky to store, and must be kept dry. It kindles readily, but affords an unequal heat, and while for some purposes the flame is convenient, for others it is the contrary. Only when burned in a closed fireplace is wood considered economical where coal is easily procurable. In the form of charcoal it is a very valuable fuel, and in some cases preferable to any other, but when burned in close rooms for warming them has often led to fatal results. The danger arises from the fact that the gases evolved by the charcoal are heavier than common air, are not carried up the chimney, and are inimical to human life. The weaker the charcoal fire, the greater the danger.

Wood Ashes.—The ash that remains after the burning of wood is, for many purposes, an important article of commerce. It is much used in bleaching, dyeing, glass-making, and soap-boiling, and also in other branches of the arts.

For washing and similar domestic purposes, wood-ash is often used to make hard water soft. In well-wooded countries wood-ash is made to a very great extent.

Wood-carving. (*See* CARVING IN WOOD.)

Wood, Cement for.—The cement in most ordinary use for wood is glue (*which see*). Another cement for wood is composed of borax one ounce, water three-quarters of a pint, and four ounces of fine pale orange shell-lac broken into small pieces and digested with three ounces of methylated spirit boiled in a closely covered vessel, and then placed aside for the water to evaporate until it is the consistency of treacle. This is usually called Chinese cement, and is said to be that with which the Chinese archers mend their bows. Tar cement is also used for wood. This is made by mixing thoroughly and stirring one part of coal-tar and three of "slate flour." It will not adhere to the wood unless the surface is free from grease.

Wood-engraving. (*See* ENGRAVING.)

Wood Models.—Models for casting are sometimes made in wood, and toy models are also sometimes made in wood. Models are constructed to scale for architects in wood, and small working models of ships and machinery are executed in wood as preliminary or experimental. But in each case the method of making such models must vary with the end in view, and involve such a mass of detail in the way of instructive particulars, that we cannot devote to them the space their practical treatment would demand.

Wood Naphtha.—In the distillation of wood to make pyroligneous acid, a small quantity of an inflammable volatile liquid is yielded, to which the term wood naphtha is applied; this is rectified by distillation over quicklime, when pyroxylic spirit, or methylic alcohol, is obtained, a powerful anti-septic which is much used for mixing with ordinary alcohol in order to make methylated spirits. (*See* METHYLATED SPIRITS; PYROLIGNEOUS ACID.)

Wood, Preservation of.—For general purposes pitch is the best preservative of wood. The greatest enemy to wood is the dry-rot (*which see*), which may best be remedied by filling up the pores of the wood with some chemical, such as creasote or chloride of zinc.

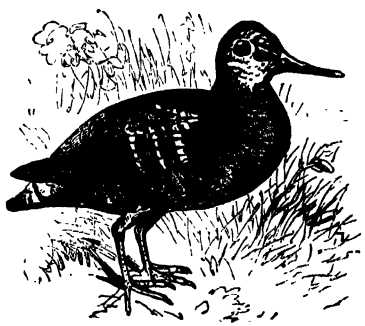
Wood, Stains in, To Remove.—Ink-stains, or similar marks made on wood by wine, spirits, or strong liquids, may be removed by rubbing the spot with a little oil of vitriol, or with a mixture of oxalic acid and water. After rubbing the liquid on quickly with a brush or with a piece of flannel, it must be washed off with milk. The marks on polished mahogany made by cups or jugs of hot water may sometimes be taken out by first rubbing the mark with oil, and afterwards with spirits of wine.

Wood, To Dye and Stain.—Wood may be stained black with logwood and pearlash, applied hot, followed by a second application of logwood, verdigris, and copperas, with rusty steel filings. Dragon's blood, mixed with rectified spirits of wine, makes a good dye for imitating mahogany. Logwood and salt of tartar are used for imitating rosewood, adding the markings with the black stain above mentioned. A common red stain, such as is used for cheap wooden bedsteads, is made with archil, used cold.

Wood Vinegar. (*See* VINEGAR.)

Woodbine.—This, which is called by botanists *Lonicera Periclymenum*, belonging to the natural order *Caprifoliaceæ*, is the common honeysuckle so well known. It forms one of the best and sweetest flowered climbing shrubs we possess for the adorning of walls, arches, or summer-houses. It got the name of woodbine from its habit of trailing round and binding trees, and was probably first called honeysuckle by children, who pull out the petals of the flowers to suck the honey therefrom. It grows wild in many of our hedges. It grows readily from either shoots or layers taken and planted in autumn. It should be trained in the way it is wanted to go, and regularly pruned.

Woodcock.—A bird called by naturalists *Scolopax rusticola*, belonging to the natural family *Scolopacidæ*. It breeds in England, but more particularly in Scotland and the north of Europe, where it prefers solitary marshes, in



WOODCOCK.

which it can not only find plenty of insect food, but shelter as well. Woodcock shooting is greatly relished by many sportsmen, as not only is the sport good, but the flesh of the bird is a favourite on the dinner-table. Woodcocks build their nests among withered grass or rushes, principally of fern-leaves, without any lining, and lay four yellowish-brown spotted eggs.

Wooden Ware, and Care of.—No better method can be adopted for keeping trenchers, bread-boards, and all kitchen utensils made of wood, white and stainless, than by brushing them daily with soap and lukewarm water, to which may be added a little common soda. After being washed they should be well rinsed with cold water, and allowed to dry quickly. Utensils made of wood should always be washed directly after they have been used, because if grease and dirt are once allowed to soak into the substance of the wood it may be impossible to restore them. For kitchen tables and large cooking boards, fine sand is frequently used in addition to or as a substitute for soap,

and it has the effect of imparting to the wood a very white, clean-looking appearance.

Woof. (*See* WARP AND WOOF.)

Wool is a peculiar modification of hair, but softer and more flexible than the latter. Although there are several wool-bearing animals, the term wool is exclusively applied to the fleece of the sheep. The finest wools are those from Saxony, Australia, and the Cape. English wools are of a coarser kind. The quality of wool depends upon the condition of the sheep, as well as the breed of the animal. When well pastured, and in good condition, the fibres of wool are brilliant; if poorly fed or diseased, the wool becomes dull and dingy, and when the wool is cut off a dead sheep it is both weak and harsh, and cannot be dyed satisfactorily. There are two classes of wool, known as short wool and long wool. The former is used for cloths and woollen fabrics of all descriptions; the latter is prepared for use in a different manner, and is combed and made into worsted. Alpaca wool is a peculiar kind brought from Peru which is remarkably bright and lustrous. Mohair wool is goats' wool, and is especially strong and of silky appearance.

Wool, Cotton.—Cotton varying in character is obtained from a particular plant, tree, and shrub. The kind that is known as cotton-wool is supplied by the shrub. Of this there are two varieties, the better quality being bleached white, and as such is known as medicated wool. This is used for many purposes, more particularly in medical practice, where it is invaluable in dressing burns and wounds. Jewellers also use it extensively. Wadding is made of the inferior quality.

Wool Mops.—Short pieces of wool are formed into a bunch and fastened together in the middle with fine wire, which is twisted round a piece of cane. These small mops are very useful for cleaning the inside of lamp-chimneys and glass shades and globes. Being very soft, they can be squeezed through narrow apertures with impunity, and passed round the surfaces of the glass where the hand cannot reach. Their service is still more effective when used for smoked chimneys, if they are covered over with a soft duster or a piece of washed muslin.

Woollen Goods.—Short wool is used for all the fabrics comprehended in this class, because its fibres possess the peculiar property of interlacing and felting. This wool is brought principally from Germany and Australia. The finest kinds are sorted out and reserved for the finer fabrics, more especially for Saxony cloth and flannels. The strength and colour of the wool are taken into consideration, as well as the fineness of the fleece. Broadcloth, for which English cloth-makers are famed, is a plainly-woven material, but one which passes through many processes before it is ready for service. Serges and merinos are twilled fabrics; the former has a worsted warp, and the latter is entirely of wool, but both are particularly serviceable fabrics. Cashmere was originally made of goats' wool, but now that of sheep is employed. Challis, and a fabric known as Norwich crape, have woollen wefts and silk warps. There are a great number of other woollen fabrics which have from time to time been introduced, but the above-named are those the demand for which continues to be steady. Woollen fabrics are adulterated by the introduction of cotton, of shoddy, or inferior wool. A woollen fabric made of pure wool will be flexible, soft to the touch, comparatively light in weight, and afford much warmth; when adulterated the weight is increased, the warmth is decreased, and the material feels harsh and stiff.

Woollen Goods, Dyes for.—To dye *blue*, the wool should be boiled in a decoction of logwood and sulphate, or acetate of copper. For *brown*, it should be steeped in an infusion of walnut-peelings. For *drab*, it must be impregnated with brown oxide of iron, and then dipped in a bath of quercitron bark; to produce a darker shade, sumach must be added. For *green*, first imbue with the blue and then with yellow dye. For *yellow*, use the expressed juice of potato-tops when in flower, steeping the wool in the juice for forty-eight hours. *Orange* is produced by first dyeing with the red dye, and then with the yellow. *Red*, by taking four and a half pounds of cream of tartar and four and a quarter pounds of alum, and boiling the wool gently in this for two hours; and when cool, washing the following day in pure water. Then infuse twelve pounds of madder, with one pound of chloride of tin, for half an hour in lukewarm water, and filter through canvas; remove the dye from the canvas, and place in the bath, heated to 100° Fahr., adding two ounces of aluminous mordant; then the wool should be immersed, and the temperature of the bath raised to boiling heat. After this process, remove and wash the wool, and steep it in a solution of white soap and water for a quarter of an hour.

Woollen Goods, To Wash.—A warm lather of soap and water should be prepared, into which the woollens should be put. Soft soap may be used for coarse woollens. After being washed thoroughly they should be well rinsed, for unless they are quite free from soap they will be harsh and stiff when dry. They should next be wrung thoroughly, for unless the water is taken away from them quickly the colours will run into one another. The fabrics should be hung on a line in a windy situation; if the weather is wet or damp they should be hung before a warm fire, and be dried as rapidly as possible. Attention should be given to them now and then; they should be turned, so that each part may have a chance of drying quickly, and the extremities, where the water left in is sure to collect, should be wrung out occasionally.

Woollen, Stains in, To Remove.—Careful housewives keep portable balls in readiness for this purpose. These are made in the following manner:—Fuller's earth is dried until it will crumble to powder; it is then well moistened with lemon-juice; to this is added a small quantity of pure pulverised pearlash. These ingredients are then worked into a thick paste; small balls are made of this, which are baked in the sun. When quite dry they are fit for use, and the manner of usage is to moisten with

water the stains on the fabric, to rub the ball over the place, and then to put it in the sun to dry. Afterwards brush or wash the places with clear water, and the spots will disappear. Spots of ink or wine can be removed by rubbing juice of lemon on them, and when dry washing the place with warm water: this must be twice repeated to prove effectual. When the fabric is scarlet in colour, the stains are removed by using the juice of the herb laneria, which can be obtained from the chemist; this is laid on the spot, and allowed to remain for two or three hours; it is then washed with warm water. If the stain is very deep, it is advisable to add a little soap to the juice.

Wools, Fancy.—By this term are known the numerous varieties of wools which are used for fancy articles, either of dress or for house decorations. In the list are Berlin wools, double and single, selected when smooth, fine wools are required; fleecy wools, chosen when a thick but less expensive wool is required; Scotch fingering and eider yarn, useful for knitting socks and stockings; Andalusian wool, a tightly-twisted wool about the thickness of single Berlin; Shetland wool, finer than the latter; Pyrenean wool, a finer kind; and Zephyr wool, which is also very fine and thin.

Woolsack.—A term applied to the seat occupied by the Lord Chancellor in the House of Lords. It consists of a large square bag filled, or supposed to be filled, with wool, and having neither back nor arms, and covered with red cloth. The woolsack was introduced in the reign of Elizabeth, when an Act was passed to prohibit the exportation of wool, which was then regarded as a principal source of our national wealth. Other woolsacks in the House of Lords were placed for the judges and serjeants, as reminders of the importance of wool to this country.

Woolwork.—By this term is understood stitches executed with wool on canvas. The wool and the canvas should agree in size; the stitches should be very evenly worked, and the wool should not be tightly drawn. It seldom happens that two people work precisely alike, and it is therefore desirable that a piece should be worked altogether by the same hand. If any division of labour is made, it should be marked by the pattern and the groundwork.

Worcester China. (*See* PORCELAIN, OLD ENGLISH.)

Work-bags.—Receptacles for sewing implements, materials, and articles in process of fabrication. At one period bags for this purpose were universally used, and many beautiful specimens of industry and art then produced are still extant. These bags were usually made of black or white satin or silk, on which was embroidered silken flowers, or flowers were formed of china ribbon, which is very narrow and soft. Knitting was also employed, and in later times designs were worked on canvas. Receptacles of this kind are most useful for holding knitting and crochet work while in progress, for wool and cotton are apt to get soiled or tangled if not kept apart. For this purpose spotted muslin lined with colour, or thin white crash ornamented with outlined figures in silk, looks well. For ordinary sewing uses bags are not so convenient as boxes or baskets, because in the former the several implements cannot always be kept in their places.

Work-baskets. — A great variety of these are made, in which little or much work can be stored. The most convenient and accommodating kind are square in shape, and have handles at the sides. These should be lined, and have pockets of different sizes round the sides, in which buttons, tapes, and odds and ends of a useful nature can be kept. Silk linings look the brightest and best, but a more serviceable lining is made of merino with quillings of the same, for merino when soiled can be washed and replaced. When the handles of the baskets become dilapidated, they can be strengthened by binding narrow ribbon round them. A bright-coloured satin, with the addition of a bow or two, freshens the appearance when it begins to look shabby.

Work-boxes.—These receptacles for sewing implements and materials are by many people preferred to baskets or bags. Boxes are more calculated to promote neatness and tidiness than the others, because in the former there is a place for everything, and therefore everything may be possessed and be in its place. Wood and leather are the two materials chiefly used for these boxes; the price of them depends upon the beauty of the wood, or the excellence of the leather employed, more than upon the size of the box. Wooden boxes inlaid with other woods, or mother-of-pearl, and leather studded with steel, silver, or gold ornaments, are still more expensive. Ivory, mother-of-pearl, vegetable ivory, as well as wood and leather, and other substances, are sometimes employed for workboxes. Long narrow boxes without trays are more in favour now than the deep box and its internal accompaniments, for the reason that the former are less cumbersome to carry about.

Work, Fancy. (*See* FANCY WORK.)

Work-tables. — These are small stands of wood or of wicker-work made in an ornamental style. The top is flat and forms a lid, which, when raised, discloses a deep well fitted up with all the requirements of sewing, and also affording room in which to put work aside. The chief advantages possessed by these tables are that they serve as a stand when not in use for working purposes; they can also be easily carried from one room to another without any disturbance of their contents, and be brought close to the chair of the sewer. Their capacities enable every requirement to be ready at hand, for they contain pockets and other conveniences for stores of sewing materials.

Workhouses. — Parochial or municipal institutions in which paupers are supported and maintained at the expense of the parish or district. In consequence of the operation of an Act of Parliament authorising the merging of several workhouses in one, with the object of reducing the expenditure, workhouses are

generally termed Unions. (*See* PARISH SETTLEMENT; POOR LAWS.)

Working Parties. — An assembly of ladies met together to engage in needlework intended for special objects, either of a charitable or private character, is called a working party. Meetings of this kind are frequently held in connection with particular churches or chapels, and they are valuable, not only for the actual amount of work done, but also because they promote kindly feeling among the members, and lead to agreeable social intercourse. (*See* DORCAS MEETINGS.)

Workshops and Workrooms.—The Workshop Regulation Acts are the 30 & 31 Vict. c. 146, amended by 34 Vict. c. 19, and 34 & 35 Vict. c. 104. They contain a variety of restrictions on the employment of women and children in workshops, &c. The last-named of the above Acts exempts persons professing the Jewish religion from penalties in respect of young persons and females professing that religion working on Sundays.

Worm Bark.—This is the bark of the cabbage-tree, which is sometimes used medicinally as a remedy for worms. Worm bark is not officinal, and its value is doubtful. It is said to produce unpleasant symptoms if taken in large doses, or if cold water is drunk at the same time or shortly after, the remedy for which is copious draughts of warm water.

Worms, Intestinal.—The human body is infested by a great variety of animal parasites, or worms, which biologists have divided and subdivided into classes and orders, but these are too numerous to be described in detail. We shall, therefore, only briefly describe those which are most commonly met with in the intestinal canal, and give a few directions as to their treatment. I. *Ascarides*. These comprise:—1. The round-worm (*Ascaris lumbricoides*). This varies in length from four to twelve inches (the female is considerably larger than the male), and has much the appearance of an ordinary earth-worm. It inhabits the small intestines, and frequently passes into the stomach. It is seldom solitary, therefore when one has been passed, one or more are likely to follow. 2. The common thread-worm (*Ascaris vermicularis*). This is found in the lower bowel close to the anus, where it causes much irritation, and is usually present in considerable numbers. These worms have the appearance of maggots, and can easily be detected in the stools if these are carefully examined. 3. The long thread-worm (*Trichocephalus dispar*). This is a larger kind of worm than the preceding, but not so common. The length is from one to two inches. II. *Tænia*. These comprise the different kinds of tape-worms, those most frequently met with being:—1. The common tape-worm (*Tænia solium*). This varies in length from six to twenty feet, and is composed of white tape-like segments (hence its name) about one-third of an inch wide and one inch long. The head—a little rounded prominence about the size of a pin's head, and surmounting a long tapering neck—may be recognised by four black specks upon it, which are the suckers by which the animal adheres to the intestine; and it is all-important to remove this, in order to prevent fresh growth from the neck of the animal. 2. The broad tape-worm (*Bothriocephalus latus*). This is the largest of the family, being often thirty feet in length and about an inch in breadth. The symptoms which point to the presence of worms in the body are not always very clear, as they are apt to be obscured by those of other affections which these parasites have excited; but if a child shows unusual irritability, itches about the nose and anus, starts in sleep, varies in appetite, being at one time voracious, at another time unable to eat, has a peculiar look about the eyes, with dilatation of the pupil, and complains at times of sharp pains in the bowels, then worms may be suspected; and if the stools are carefully watched, and the little thread-worm or any segments of tape-worm are seen, there can then no longer be any doubt. Of course, the destruction and removal of the worms may not cause the symptoms from which the child suffers to disappear, owing to some other disorder which may co-exist at the same time; but it will, at least, facilitate the cure by removing a formidable obstacle to its accomplishment. The treatment of worms may, to some extent, be preventive as well as curative. In the case of the tape-worm especially, much may be done in the way of prevention by avoiding imperfectly-cooked meat, either of beef or pork, as it is by those articles of food that this parasite usually enters the body. Vegetables also, especially those which are eaten raw in the form of salads or otherwise, should be carefully washed, as these are apt to convey parasites of different kinds. With respect to the treatment, it is found that for the round-worm (*Ascaris lumbricoides*) the best remedy is santonine. The stomach should be prepared for the reception of this medicine by a farinaceous regimen of at least twenty-four hours' duration. The santonine may then be given in two, three, or four grain doses, according to the age of the child, and should be repeated every three or four hours for three times in the course of the afternoon and evening. A few hours after, or early on the following morning, an aperient of rhubarb, jalap, and scammony, or a full dose of castor oil, must be given, and this will generally suffice to remove the worms. The long thread-worm may also be extirpated by similar treatment. The common thread-worm (*Ascaris vermicularis*) may be expelled in great numbers by such purgative medicine as jalap, scammony, &c.; but the best and quickest way of dealing with these creatures is to inject either salt and water, or equal parts of lime-water and infusion of quassia (from two to three ounces of each), into the bowels for two or three days in succession, and to repeat the process as often as may be necessary until all trace of worms disappears. A purgative may be given at the same time. The different kinds of tape-worm are best removed by the oil of male-fern. The stomach should be prepared for this remedy, as in the case of santonine, by dieting and, to some extent, fasting. The oil may be given in the evening, to the extent of from half a

drachm to a drachm, thoroughly incorporated with an ounce of mucilage or syrup. In the morning a full dose of castor oil should be given, and this treatment may be repeated if necessary. There are other remedies, as turpentine, koosso, and kameela, which are highly esteemed as anthelmintics, but the oil of male-fern is probably the most effective.

Wormwood.—This is the flowering herb of the *Artimisia absinthium*, an indigenous plant of a disagreeable odour and intensely bitter taste. Wormwood, or, as the French call it, absinthe, contains a volatile oil of a green colour, and a bitter tonic principle called absinthium. It is owing to the very powerful character of the latter that the drug has been so largely used in France as a liqueur, but, like other bitter tonics, if taken habitually it very soon loses its effect. It is even said to exercise a pernicious effect



WORMWOOD.

upon the nerves. It has for this reason been forbidden to be used by the French soldiers. The dose of the powder is from twenty to forty grains, but an infusion may be made in the proportion of one part of absinthe to twenty of water, of which from one to two table-spoonfuls may be taken twice a day as a tonic and stomachic. This drug is not used officinally.

Worsteds.—There are two classes of wool, that having long fibres and that of short length. Worsteds represent the first mentioned, and are so called because this wool was treated and prepared for use in this manner originally at Worsted, a place in Norfolk. After being cleansed, and the fibres separated, this wool is combed, then twisted, spun, wound on reels, and made into hanks. Worsted is extensively used in the manufacture of socks and stockings; these are rougher, but are stronger and cheaper, than those made of wool. All fabrics called "stuffs" are made of worsted. These may be distinguished by the touch; they are harsher, stiffer, and rougher then woollen fabrics. Bombazeen and poplin are of worsted and silk, the latter having most of the silk on its surface. The trade in worsteds increased greatly when cotton warps were introduced with worsted wefts. This cheapened the price; but materials so manufactured do not wear equally well as those made entirely of worsted.

Wort is the liquid that is undergoing the process of being made into ale or beer before the yeast has been added to it, or before fermentation of any kind has commenced. After the malt has been allowed to stand for a certain time in water, the liquid is drawn off into a vessel called an underback, and is then called wort, or sweet wort, because of its sweet taste. Fresh boiling water is then added to the malt, which after standing a specified time is taken away, and added to the first production. Hops are then introduced to impart the bitter aromatic flavour, after which the liquid is subjected to fermentation, which converts it into alcoholic liquor. A variety of the cabbage is also called wort; and the name is applied to some British herbs, such as spleen-wort, mugwort, woundwort, and others.

Wounds.—These are injuries which vary in extent, character, and even name, according to the locality in which they occur and the sort of weapon with which they are inflicted. Thus a clean cut with a sharp instrument, as a razor, for example, is called an incised wound; whilst that made by a blunt instrument is usually a contused and lacerated wound, and is thus named. Again, a wound made with a pointed instrument, and which penetrates rather than spreads, is called a punctured wound; whilst that made by, say, a rabid animal receives the name of a poisoned wound. Wounds inflicted by a weapon of artillery are called gun-shot wounds; whilst those received in the mortuary or dissecting-room are named dissection wounds. For treatment of wounds, *see* BLEEDING, TO STOP; BRUISES; CUTS, TREATMENT OF.

Wranglers.—A name given at the University of Cambridge to students who have passed in the first class in the honours division in the final mathematical examination. The mathematical tripos or honours list is divided into three classes, the men in each class being known respectively as wranglers, senior optimes, and junior optimes. The senior wrangler is the head of the tripos. The term wrangler originated in the earlier days of the university, when public disputations formed part of the examination of candidates for degrees.

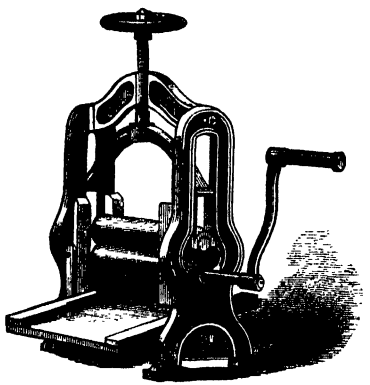
Wrappers (Dress).—A loose outer garment worn in lieu of a lady's dress or costume, or a man's coat; a kind of dressing-gown which opens all down the front to the edge of the skirt. Amongst the lower orders the term signifies a loose calico or muslin jacket, which is worn in undress at home, and is with them a substitute for a long night-dress, being worn with an ordinary chemise at night—otherwise called a "bed-gown." The term "wrapper" is much employed by Americans.

Wreaths.—The wreath worn by a bride is always composed of white flowers. Orange blossom is usually introduced, and stephanotis, jasmine, and such-like flowers are chosen to complete the wreath. When wreaths are worn for evening dress, the colour of the flowers should match that of the dress or its trimmings. For young girls wreaths of white flowers of

a simple character are usually chosen—lily of the valley, marguerites, small daisies, jasmine, wild roses, and the like. Wreaths of artificial flowers are made on wire, which should be previously covered with green paper or narrow green ribbon. The flowers and leaves are fastened on with very fine wire, and afterwards green ribbon is wound round. Wreaths of natural flowers are made as follows:—Two or three narrow strips of bast or gardener's matting are bound together with fine wire in order to keep the circle in form; the flowers are placed on this and held there by fine wire, which is twined round each as it is put in position. When violets, primroses, or small flowers of that description are used, they should be previously arranged in tiny bunches and held together by fine wire. When geraniums are used, a drop of gum should be dropped into the centre of each flower; this holds the petals together.

Wrenches. (*See* Screw Drivers, Wrenches, and Keys).

Wringing Machines.—Of these appliances there are various kinds in use, the object gained being saving of time, of the hands of the laundress, and of the materials washed,



Wringing Machine.

which, if delicate, are injured by hand-wringing. A common form of wringing machine is that which is figured in the accompanying illustration. (*See* Laundry, Machines for.)

Wristbands. — For white shirts these should always be made of linen. A double fold of this should be arranged, and between this a single piece of thin calico should be placed; this latter addition tends to make the wristband stiffer when starched, for the reason that calico holds more starch than linen. Plain square wristbands are the least troublesome to make. These are cut by a thread the selvage way of the material; the ends are run together on the wrong side and then turned; the edges are next folded down; a thread is drawn for the line of stitching, and then the bands are back-stitched together across the top, and singly across the bottom of the right side, where the gathers have to be inserted. Wristbands with rounded corners are shaped first, and then run together on the wrong side. The difficulty is to make a good curve, both in the running and also afterwards in the back-stitching, there being no regular thread to act as guide. Another kind of wristband, which is said to fit better than those named, consists of two pieces, the one a narrow straight band, and the other a shaped cuff placed within the band; this involves a double amount of back-stitching.

Writ.—The first step in an action at law. It is a judicial process by which any one is summoned as an offender—a legal instrument to enforce obedience to the orders and sentences of the courts.

Writers to the Signet. (*See* Signets.)

Writing.—The chief uses of this word are these—(1) Hand-writing, or penmanship; (2) sign-writing, or the painting of inscriptions upon sign-boards, show-cards, &c.; (3) literary composition. The first only calls for any remark here. The ordinary materials used are paper, pen and ink, or pencil. To learn to write properly it is best to begin young, when the hands are flexible. It is usual to teach it by setting the pupil to imitate the elementary lines of the letters, which are exhibited in copy-books or otherwise. From these he gradually proceeds to letters, words, and sentences in different hands. In a great number of cases there will result a style of writing which is characteristic of the person, and even of the sex of the writer. Very often this final style will be found to be that of the family of the writer, however, or by whomsoever he has been taught. The writing of commercial men will usually differ in its features from that of professional and literary men, who for various reasons fall into a loose and even illegible style from which they cannot deviate. It is unquestionably important to write legibly, so that the words and letters are distinct and well defined. To secure this it is necessary that the teacher should use every endeavour to influence the learner aright, and that the learner himself should aim at excellence. Writing should not be either too large or too small, and pressure must be put upon the pupil who is prone to either extreme. Fancy flourishes, angular and eccentric forms, are to be avoided, and so must every caprice which interferes with the legibility of a document. There is no doubt that a clear and somewhat rounded form of letter is on the whole the best. Every letter should be complete in itself, the i's should be dotted, and the t's should be crossed. Capitals should be inserted in their proper places, points should be introduced, words should be kept apart, and the beginning and end of sentences plainly shown. Paragraphs and larger divisions should be equally made evident. Writing is one of the most valuable of personal acquirements, and when it is good, the spelling good, and the arrangement of words appropriate, it indicates a considerable degree of mental culture combined with manual skill. (*See also* Composition, Literary.)

Writing Desks. (*See* Desks.)

Writing Fluids and Inks.—These are of various kinds, according to the purposes

for which they are intended. Full particulars of most of these will be found under the headings of BLACK INKS; GOLDEN INK; INDIAN INK; INK, COLOURED; INK, INVISIBLE; INK POWDERS; MARKING INK.

Writing-paper. (*See* PAPER.)

Writing-tables are usually firmly and strongly made, provided with drawers, and have their tops covered with cloth or leather. In some of them a portion of the top can be raised and fastened at an angle to form a desk.

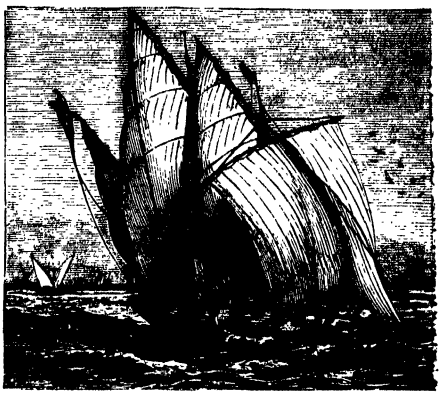
Writing, To Revive.—The colour of writing done with black ink is very apt to change, fade, and sometimes almost disappear. In such cases the writing may be restored, either by dipping it into water containing sulphuret of ammonia, or by exposing it to the vapour of that substance. Another way to restore the writing is to put it into a weak solution of prussiate of potash, and then, while wet, a very dilute solution of sulphuric acid is applied, when the writing immediately reappears.

Wry Neck.—This is a condition in which the neck is twisted, or turned awry from its natural position, causing much unsightly deformity. Wry-neck may be due to a variety of causes. First of all it may be congenital, that is to say, a person may be born with it, and in such a case the extent to which it can be remedied by a surgical operation will depend upon the exact nature of the deformity. Again, it may be the result of an accident, as a burn or wound. This also will probably admit of considerable amelioration by a surgical operation. Wry-neck may also arise from paralysis of one of the sterno-mastoid muscles, which allows the corresponding muscle of the other side to draw, unoppposed, the head in that direction. Lastly, this deformity may be of a rheumatic character, in which case it will readily yield to the medicine useful in rheumatism (*which see*), and to the application of some stimulating liniment, as the compound camphor soap and opium liniment. Cotton-wool and oil-silk should be wrapped round the neck after each rubbing of the liniment, and kept there until it requires removing.

X

Xanthine is the yellow-coloured principle contained in madder roots. It is soluble in cold water, and imparts a dull brownish hue to goods dyed with madder, if used in its unconverted state; but in the process usually adopted it becomes converted into alizarine, and so contributes to the commercial value of the dye.

Xebec.—A three-masted vessel formerly used by the Algerine corsairs. It was so constructed as to sail with great speed, and was armed with fourteen or sixteen guns. At present it is only occasionally seen, unarmed,



XEBEC.

in the Mediterranean, where it is employed for the rapid conveyance of perishable goods.

Xylanthrax.—A technical term meaning wood coal, or charcoal, to distinguish it from mineral coal. The name is also given to what is called Bovey coal, which consists of fossil wood penetrated with bitumen or petroleum, and containing sometimes alum and other ingredients. It is a sort of lignite, is found at Bovey Tracey, in Devonshire, and is used for fuel by the poor, and also at the lime-kilns and pottery.

Xylobalsamum.—This is a balsam extracted from the *Amyris Gileadensis*, so called from the fact of its being common formerly around Gilead, though it is no longer so. The tree itself is a middling-sized one with single flowers, and leaflets growing in threes. The balsam or resin is extracted in three ways: first by incision and consequent exudation—this forms the balm of Gilead; secondly, by pressure of the fruit, obtaining what is called the carpobalsamum; and lastly, by boiling the branches and skimming off the resin that floats on the top. (*See* BALM OF GILEAD.)

Xylography.—The term is now employed to denote a peculiar process, by means of which designs are produced upon wood, and intended for decorative purposes.

Xylonite.—An imitation of ivory is sold under this name, but its composition is a trade secret.

Y

Yacht.—A small ship with a single deck, but large enough for a sea voyage. It is generally very light, is constructed with a view to rapid sailing, and is often fitted up in a most luxurious style. Private gentlemen keep yachts for pleasure trips, and for competition at yacht races, for which various clubs have been formed. A yacht is sometimes employed

for the conveyance of princes and other magnates on occasions of state and ceremony. Steam has been applied to yachts, but they are most popular as sailing-vessels, although her Majesty's yachts are propelled by steam. In no department of ship-building has greater zeal for improvement been displayed than in the construction of yachts.

Yak Lace. (*See* LACE.)

Yam.—This is called by the botanist *Dioscorea*, and belongs to the natural family *Dioscoreaceæ*. The roots are tuberous, something like our own potato, and are cooked in the



YAM.

same way. The yam is a native of tropical countries; the tuberous roots grow as large as a man's head, and when boiled or baked are exceedingly nice in flavour, very floury, and highly nutritious.

Yard.—The British standard measure of length. It is subdivided into 3 feet of 12 inches each. (*See* WEIGHTS AND MEASURES.)

Yarn.—All threads, when prepared for the weavers' use in making textile fabrics, are called by the general name of yarn, whether of wool, worsted, cotton, flax, hemp, or silk. Each particular sort is distinguished by a particular name, such as abb, twist, line, organzine, &c.

Yawning.—This might be described as a noisy inspiration. It is due to a variety of causes, as tight lacing, flatulence in the stomach, or any other impediment to the full inflation of the lungs and expansion of the chest. Yawning is, in fact, a sign that the lungs want air; hence it is very commonly observed, and to a marked degree, after recovery from drowning, fainting, &c. It is also a symptom in certain diseases, as uræmia, for example. Nervous people are very much given to yawning, and it is well known to be an ordinary result of fatigue.

Yaws.—This is a skin disease which commences as spots on the face, armpits, groins, and other places; these result in unhealthy ulcers, troublesome to heal, and very weakening. The disease appears to be contagious and inoculable. It is seldom seen in this country, but is common in the West Indies and Africa.

Year.—The principal division of time, depending for its duration on the revolution of the earth round the sun. It comprises four seasons—Spring, Summer, Autumn, and Winter. The time of commencement of the year has varied greatly among different nations, and the Romans were the first to adopt the 1st of January as the first day of the year. For the various durations and divisions of the year, *see* CALENDAR; DAY; JEWISH CALENDAR; MOHAMMEDAN CALENDAR; MONTH. A *solar*, *tropical*, or *civil* year is the time which elapses from the sun's appearance on one of the tropics to its return to the same; its length is 365 days, 5 hours, 48 minutes, 49·7 seconds. The *sidereal* year is the period occupied by the sun in moving from a given star to the same star again and its mean length is 365 solar days, 6 hours, 9 minutes, 9·6 seconds.

Yearly Tenants.—A tenancy from year to year arises either expressly, as when land is to let from year to year, or by a general parol demise, without any period of determination being prescribed, but reserving the payment of an annual rent; or impliedly, as when property is occupied generally under a rent payable yearly, half-yearly, or quarterly; or when an occupier, under an agreement for lease at a certain rent, pays rent; or when a tenant holds over, after the expiration of his term, without having entered into any new contract, and pays rent (before which he is tenant on sufferance). This tenancy is determinable by a six months' notice, expiring at the date of its commencement, and consists in the first instance of a certain term of one year, which, upon the expiration of the first half-year, unless notice be given by one of the parties to the other of his contrary intention, becomes an equally assured term of two years, reckoning from the commencement of the tenancy, and thus a new year is continually added to the term, as often as the half-year's previous notice which would secure its expiration is omitted to be given. In short, a tenant from year to year is considered as re-commencing every year. A demise by a tenant from year to year to another, also to hold from year to year, is in legal estimation a demise from year to year during the continuance of the original demise to the intermediate landlord.

Yeast, Brewers'.—Yeast is gluten that has begun to decompose, derived from beer that is in process of fermentation. It presents the appearance of a grey frothy mass, which, when examined under the microscope, is found to consist of a number of minute cells of a vegetable nature. When added to saccharine or mucilaginous liquors, it possesses the property of exciting and accelerating fermentation. It is largely used in the manufacture of bread, and its effect is to partially convert the starch contained in the flour into sugar, and disperse carbonic acid gas through the mass; and as a result the dough is lightened, assumes a spongy character, and can be easily broken up when baked. Brewers' yeast possesses this

power in a higher degree than any other variety does. In large towns, however, it is not always attainable, though it may be generally had in country places. It needs to be procured fresh, as it will not keep good for more than a day or two. When obtained from highly-hopped beer it is exceedingly bitter, and it imparts its bitterness to the bread made from it. This condition may, however, be effectually removed by stirring into it a lump of charcoal made red hot, then straining the liquor through a fine hair sieve. If the bitterness is not very decided, it is said that a piece of bread, brightly toasted and left in it for three or four hours, will render it palatable. The tops of the common stinging nettle are frequently used for the same purpose. The yeast is first mixed with a little lukewarm water, then poured upon the nettles, which are removed after a few minutes' infusion. Half-a-dozen nettle-tops, eight inches long, would be sufficient to sweeten as much yeast as would raise a quartern of flour. It has been discovered that brewers' yeast, made into a thick syrup with sugar, will keep for weeks.

Yeast, German.—The surface yeast or superficial ferment which rises to the top of fermenting worts is the common yeast of the English brewer. The ferment of deposit or bottom yeast is used for the fermentation of worts from below. This yeast is collected, dried, and subjected to strong pressure, when it forms a thin cheesy mass, which, when broken up into small pieces, is the German yeast of commerce. German yeast is excellent when it can be procured fresh and sweet, but this is frequently rather a difficult matter, as it quickly becomes putrid, especially in hot weather. Before using it should be gradually but thoroughly moistened with lukewarm milk or water till it forms a perfectly smooth creamy liquid, after which it may either be used as beer yeast is (that is, the sponge may be set before kneading), or the dough may be firmly mixed and thoroughly kneaded at once, then left to rise until it is sufficiently light.

Yeast Powder is a kind of baking powder intended to serve as a substitute for brewers' and German yeast in the manufacture of bread, cakes, buns, and similar preparations. It is usually sold in packets or tins, and should be kept in a dry place.

Yellow (Colour and Dye).—This is one of the primary colours, to produce which in dyeing, weld, fustic, quercitron bark, and annatto are employed, in combination with the use of a mordant, which latter usually consists of alum or acetate of alumina. The yellow dyed by fustic is more permanent, but not so beautiful as that obtained by the use of either weld or quercitron. These latter give nearly the same colour; quercitron is the cheaper. For very bright golden yellows, the oxide of tin should be used as the mordant; if a greenish shade be preferred, some tartar may be added to the dye. An orange hue will be obtained by adding a little cochineal. To dye calico, wool, linen, and muslin, they should be steeped in the juice of potato-tops (when in flower) for forty-eight hours, boiled in aluminous mordant, and then dipped in a strong solution of weld, turmeric, fustic, or annatto. For dyeing cloth, employ quercitron or weld for a solid yellow, fustic for a brilliant tint. For dyeing feathers, use for the mordant the acetate of alumina, and dip in a bath of turmeric or weld. For gloves, a nankeen shade is produced by saffron. For dyeing silk, it will take fifteen pounds of clear wheat-bran liquor to three-quarters of a pound of alum for the solution, in which boil for two hours; then take half a pound of weld, and boil till the colour be good. Nitre, used with alum and water in the first boiling, fixes the colour. (*See also* ANILINE COLOURS AND DYES.)

Yellow Fever. (*See* MALARIOUS FEVER.)

Yellow-hammer.—This bird is called by naturalists *Emberiza citrinella*. It is known by different names in different countries; even in Great Britain, for example, it is the yellow-yowley or yellow-yeldrock of England, the skite or yellow-yerlin of Scotland. In Italy the bird is caught and fatted for the table, being served up with the ortolan.

Yellow Pigments.—There are various substances which produce respectively different shades of yellow. Naples yellow and raw terra di Sienna are native earths; king's yellow is produced from a combination of arsenic and sulphur; Dutch pink is composed of chalk coloured with French berries; and yellow ochre, sometimes called "stone ochre," is a native earth of various qualities.

Yellow Wash.—This is the name popularly given to the *Lotio hydrargyri flava*, or yellow mercurial lotion, of the Pharmacopœia. It is prepared by mixing eighteen grains of perchloride of mercury (corrosive sublimate) with ten ounces of lime-water. Yellow wash is a useful application in chronic unhealthy ulcers, and is extensively employed for this purpose.

Yeoman.—As a term of social distinction, a yeoman is a degree below a gentleman, and is especially one who cultivates his own land for his own support. Freeholders collectively are sometimes styled yeomanry, but the word in any form is less common than formerly, except in the cases which form the subject of the next two articles.

Yeomanry.—A name given to a body of volunteer cavalry, consisting for the most part of farmers, small landholders, and others. Originally there were infantry as well as cavalry, but they were disbanded in 1814. They took their rise late in the last century, as a precaution in case of invasion, riots, &c. For the quelling of riots they have been frequently called out, and generally the sight of their large drawn swords has had the desired effect when they have ridden down upon a mob. So far as they exist, they now meet once a year for exercise, and are under the command of the lord-lieutenant of their county; they find their own horses and uniforms, but receive a grant from Government and pay when on duty.

Yeomen of the Guard.—These were originated in 1485 by Henry VII., and are employed on State occasions, along with the gentlemen-at-arms, as the body-guard of the

Sovereign. Their captain is a nobleman, and they are all old soldiers carefully selected for the service. The charge for their maintenance is made upon the Civil list. At the Tower of London, where their quaint and antiquated uniforms are very conspicuous, and where they have their head-quarters, they are familiarly known as beef-eaters (*which see*).

Yew.—The yew-tree (*Taxas baccata*) has its name from the Greek, in allusion to the swiftness it gave to the arrow when used for making bows, as it commonly was. The common yew is a native of Europe, North America, and Japan. The trunk and branches are straight in their growth; the bark is cast annually, and the wood is compact, hard, and peculiarly elastic. It attains to an immense height. The



YEW.

wood is used for a great variety of purposes, and parts are used for medicinal purposes, while the beauty of its pink veins, knots, and varied markings recommends it strongly to the cabinet-maker for decorative furniture, for high-class turnery-work and inlaying. It has the peculiar property of being rarely or never attacked by insects. It is a tree of slow growth. The berried or common yew flowers in March and April, and its fruit ripens in September.

Yew Berries.—The berry of the yew-tree is oblong in shape, scarlet in colour, sweet to the taste, and of a glairy or glutinous consistence, open at the top, and enclosing a small oval brown hard-shelled nut. They are eaten by birds and hogs. A copious and strong spirit may, it is said, be distilled from these berries; this spirit is sometimes used to dye wool which has been previously immersed in a weak solution of bismuth.

Yoke.—The ordinary yoke worn upon the shoulders, and used so commonly in almost all countries, for carrying a couple of buckets at once, is by no means a modern invention. Among the Egyptian tombs figures are to be seen of men bearing yokes; and a wooden yoke with a leather strap was found at Thebes. The wooden yokes are made to fit to the shoulders, and on each side a pail is suspended, containing either solid matter or liquid; but the weight of anything thus carried is much less laborious than if held in the hand.

Yoke of Egg. (*See* Eggs as Food.)

York, Archbishop of.—The Primate of England in the English Church—the Archbishop of Canterbury being Primate of all England. He has rank next after the Lord Chancellor. It is his privilege to crown the Queen Consort, he being her perpetual chaplain. (*See* Canterbury, Archbishop of.)

Young Ladies' Maid.—In some establishments where many servants are constantly in attendance, a maid is kept, in addition to the regular lady's maid, to wait especially upon the young ladies of the family. The duties of a person of this description, though naturally differing in some respects from those of the ordinary lady's maid, are, in most of the essential points, very similar; consequently any one who is competent to fill the one position will very easily soon become accustomed to the duties of the other. (*See* Lady's Maid.)

Ypres Lace.—This is similar to Valenciennes lace (*which see*).

Yule-tide.—The old name for Christmas-tide.

Z

Zaffre. (*See* Cobalt.)

Zebra-wood.—This is the production of a large tree, the logs of which are frequently two feet in width. It derives its name from its curious and zebra-like but brightly coloured markings. It is largely employed by cabinet-makers, and was once very fashionable for furniture, although of late years it has not been very largely in use.

Zenana.—A name commonly given to that portion of a house where Hindoo women have their apartments and live by themselves. The word is often used to denote the female members of a family. To such an extent is the principle of seclusion and separation carried that the women have a dialect differing somewhat from the ordinary Hindustani, and called the zenana zuban, or zenana language, which is considered improper for men to use. Sometimes the word is written zanana, which is said to be most correct, and janana, which is vernacular.

Zenith. — The point in space which is exactly vertical, and therefore the highest point in the sky above the horizon. It is central to the horizon, and 90° distant from it. The position of heavenly bodies is often calculated by their distance from the zenith. The nadir (*which see*) is diametrically opposite to it.

Zephyr.—The cloth known by this name is a fine thin material, soft to the touch, made of particularly finely-spun wool; it is thinner than tweed cloth, and is used for ladies' dresses. Zephyr shawls possess the same character; they are fabricated of fine wool loosely woven, and consequently are very light in weight. It is capable of being dyed in very brilliant colours, and for that reason, as well as for its smoothness, is calculated to hold a high place amongst fancy wools.

Zero.—The point from which a thermometer is graduated. In Fahrenheit's thermometer zero is the point at which the mercury in the column stands when immersed in a mixture of snow and salt; this is 32° below the freezing point of water. In the thermometers of Reaumur and Celsius, zero is the actual point at which water congeals. (*See* THERMOMETER.)

Zest.—Often used to signify some sauce which gives a relish for food or promotes the appetite for eating. Hence it frequently means the keen enjoyment with which anything is pursued or partaken of. Originally it seems to have meant a piece or slice of lemon or orange-peel when used to flavour a drink.

Zetema.—A card game, somewhat resembling bezique, played with a complete pack of playing cards, with the addition of a duplicate set of one of the suits, so that the entire pack contains five suits, of which two are alike. It is quite unimportant which suit is duplicated, consequently a pack may consist of two suits of hearts, with one suit each of spades, clubs, and diamonds, or two suits of spades, with one each of the others, or the two suits may be clubs or diamonds; it is only necessary to declare, when commencing play, which is the duplicated suit in the cards used. The methods of counting or scoring are of two kinds—first, by obtaining in hand, or exposed, or both, certain combinations of cards, the amount scored for each such combination varying with the difficulty of obtaining it; and second, by tricks, which consist of the whole of the cards of the same value, and are scored by the player of the last card of the trick. The score is kept by means of special markers, which accompany every set of zetema cards.

Zinc.—A metal of a brilliant bluish-white colour, rather hard, of a specific gravity of 6·8 to 7. It becomes ductile and malleable at a temperature of from 220° to 300° Fahr. The zinc ores from which the zinc of commerce is obtained are the native sulphide, termed *blende*, and the carbonate of zinc, or *calamine*.

Zinc Lotion.—This is usually prepared from the sulphate of zinc, and may vary in strength from one to ten grains of zinc in the ounce of water. It is an excellent astringent lotion, and is largely used as an application to ulcers, conjunctivitis, and other affections.

Zinc Ointment.—This is prepared from the oxide of zinc and benzoated lard. Zinc ointment is of a white appearance, and is an excellent application in abrasions of the skin, burns or scalds, ulcers, and in many cutaneous affections, as eczema, &c. It is often adulterated with either chalk, magnesia, or starch, which are calculated to impair its efficacy.

Zinc Pigment.—This is also called zinc white, and is described under the heading of WHITE PIGMENTS.

Zincography.—An art which somewhat resembles lithography, zinc plates being employed instead of stone. There are various modes of printing from zinc, but only two need be specified. One is called anastatic printing, and the process is explained in an article on that subject in this work. The other simply substitutes zinc plates for lithographic stones, and produces similar results by an almost identical process. (*See* LITHOGRAPHY.)

Zingel.—A fish of the perch family, remarkable for its elongated body. Two species of zingel are known—one (*Aspro zingel*) in-



ZINGEL.

habiting the Danube, and the other (*Aspro vulgaris*) found in the Rhone and its tributaries. Both of these are highly esteemed for the table.

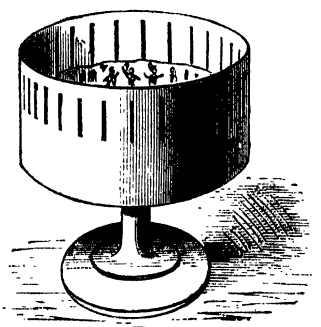
Zircon. (*See* JACINTH.)

Zither, or Zithern.—A kind of musical instrument more common in some continental countries than in England. It is furnished with strings, twenty-eight in number, and is placed upon a table before the performer, who plays upon it with both hands.

Zodiacal Light.—A faint nebulous light which may occasionally be seen just before sunrise, or just after sunset, at that part of the horizon immediately below which the sun is at the time. The portion of the light that is visible has a conical form, inclined on one side so as to coincide with the sun's equator. Much difference of opinion exists as to the cause of this phenomenon.

Zodiacal Signs. (*See* SIGNS OF THE ZODIAC.)

Zoetrope.—An ingenious optical instrument, sometimes called the *wheel of life*, which exhibits pictures of objects as if they were endowed with life and motion. In its common form it consists of a cylinder of cardboard



ZOETROPE.

12 inches in diameter and 7¾ inches deep, having a metal ring round the top and a circular board at bottom. This is placed upon a pivot, round which it may be made to revolve at any speed. In the cardboard near the top are a number of slits at equal distances, 3 inches long and $\frac{3}{16}$ inch wide. A series of pictures is

placed round the inside below the apertures, the pictures being printed on stout paper 3½ inches wide and 37 inches long. When used a strong light from above is necessary, and the observer looks through the openings as the cylinder is rotated. The effect is extraordinary, and, if well managed, every figure of the picture seems to be animated, and to move in a most curious and grotesque fashion. A more elaborate and perfect form of the instrument is called a thaumatrope (*which see*), in which the cylinder turns on a horizontal axis. The zoetrope is constructed on scientific principles, and forms one of the most amusing toys in existence.

Zones.—The surface of the earth is divided into five zones. The central one, including the whole space between the tropics of Cancer and Capricorn, is the Torrid Zone. The spaces between these and the Arctic and Antarctic circles respectively are the North and South Temperate Zones. That north of the Arctic circle is the North Frigid Zone, and that south of the Antarctic circle is the South Frigid Zone. These divisions are all parallel to one another and the equator, the limit of the tropics being at 23° 28′ north and south latitude, and the Arctic and Antarctic circles at 66° 32′ north and south respectively. In meteorology, the surface of the earth is also divided into zones of equal temperature, by which is understood the space between two isothermal lines; but these form very irregular belts, as the mean temperature of the different parts is greatly influenced by the relative positions of sea and land, as well as the elevation of the latter above the sea-level.

Zoology.—A science which is often less correctly styled natural history, and which is occupied with the forms and structure, the classification, general description, and habits of the animal kingdom. It is therefore only one branch of natural history. The four great divisions of animals proposed by Cuvier were based upon their structure, and called Vertebrata, Mollusca, Articulata, and Radiata. The system of Agassiz retains the same divisions, but in a different order, and with more numerous subdivisions. His arrangement begins with Radiata, and then proceeds with Mollusca, Articulata, and Vertebrata; the intention being to commence with the lower forms of animal life, and to advance to the higher, highest among which he places the carnivorous mammalia. It is admitted that no system known is perfect in all its parts, owing to the difficulty of devising such a graduated scale as shall give its proper position to every animal.

Zoophytes.—Animal-plants; a term once used by zoologists to designate a number of creatures which were supposed to partake of the twofold character of plants and animals. After various changes of meaning the word has become practically obsolete with scientific naturalists.

Zopissa.—This word, which literally means "living pitch," denotes a mixture of pitch and tar impregnated with salt water, which was scraped off the sides of ships, and once supposed to be useful as a remedy when applied externally. The same name has been given to a certain preparation used as a pigment for preserving wood and stone.

Zostern Marina.—The common sea wrack, a weed very often found in salt water, and consisting of very long grassy filaments. These filaments contain a downy substance very much resembling cotton, and at one time popular attention was called to the fact under the notion that they would form a valuable addition to the cotton supply. Experiments were made, and the result was the abandonment of the idea.

Zymotic.—This is a term which constantly appears in the reports of the Registrar-General in reference to certain diseases. It means that these diseases are the result of certain specific poisons which, as germs, enter the body through the air, food, or water, and germinate or ferment there until they have developed a specific disease having a remarkable power of reproducing itself. Zymotic diseases are, from their nature, more or less preventible by proper sanitary precautions, as the germs from which they spring require certain conditions of foul air, decomposing matter, &c., for their hurtful development. Small-pox, measles, fever (typhus, typhoid, and simple continued), scarlet fever, diphtheria, erysipelas, cholera, are examples of zymotic diseases.

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